

**FROM REVELATION
TO RESOURCE**

THE NATURAL WORLD IN THE THOUGHT AND
EXPERIENCE OF QUAKERS IN BRITAIN AND IRELAND
1647-1830

by

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BIBLIOGRAPHY

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Abstract

This thesis explores the place of the natural world in the spiritual and intellectual lives of British and Irish Quakers (Friends) from the earliest evidence in 1647 up to the rise of evangelical Quakerism around 1830. Whilst Quakers agreed that God had made and continued to uphold the creation, responses to the natural world were, after the Restoration, essentially individualistic, giving rise to diverse views of its place in theology. Overall, it is shown that there was a shift away from the unity of the first Quakers' experience that both God and the creation could be truly known only through divine revelation, towards support for the scientific study of the material world, and forms of natural theology. It is argued that this was the result of personal experience, not of synergies between empiricism and orthodox Quaker theology.

Although reservations about its status continued, for an increasing number of Quakers, nature was a resource in a divinely-inspired search for order and truth. Although the subject is almost absent from contemporary official records of the Society of Friends, the natural world became a significant part of the wider Quaker culture of the 19th century.

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1: INTRODUCTION

The purpose of this study, its scope and aims, and its significance are set out in 1.1. Major contributions to previous scholarship on the subject are briefly reviewed in 1.2. Methods and sources are described in 1.3, and the structure used for the presentation of evidence is explained in 1.4. The chapter concludes with an outline of the thesis, and a summary of its main findings (1.5).

1.1 PURPOSE OF RESEARCH

1.1.1 The Paradox of Quakerism and the Natural World

George Fox, the principal founder of Quakerism, organised early Friends around the belief that human salvation was possible for everyone, through the mystical experience of union with God in Christ.¹ This was an inward spiritual transformation that was ‘immediate’, that is, did not depend on priests, sacraments or any other form of outward mediation. Whilst some of the ramifications of this position were modified or abandoned over time, belief in spiritual transformation (‘convincement’)² through personal experience of God, and the reality of a divine indwelling light (the ‘inward’ or ‘inner’ light)³ in human beings remained. This light showed Friends how to live in accordance with God’s will, and over time, Quakers developed corporate ‘testimonies’ to peace, integrity, simplicity and equality: these were not statements of belief, but Friends’ practical witness in their lives to their beliefs.⁴ Nevertheless, the focus of early Quakerism was the reality of inward spiritual experience and

¹ Margery Post Abbott, Mary Ellen Chijioke, Pink Dandelion, and John William Oliver, Jr., eds., *Historical Dictionary of the Friends (Quakers)* (Lanham, MA: Scarecrow Press, 2003), 105.

² *Ibid.*, 63.

³ *Ibid.*, 156-7.

transformation. Fox repeatedly stressed the superiority of spiritual to material things, urging his followers to be ‘as strangers to all things visible and created, but be acquainted with the Creator...the Lord God Almighty’.⁵

Despite the primacy of inward spiritual knowledge in Quakerism, individual Quakers delighted in the experience and exploration of the natural world. There is a considerable body of contemporary evidence throughout the period of individual Quakers’ awareness of the natural world, and in the 18th century, of their involvement in science, yet Quakers as a body made no reference to these experiences in their corporate proceedings at any time within the period of study. Moreover, later commentators on this period of Quakerism have reached contradictory conclusions about the nature of Quaker views on the natural world, and the extent and importance of Quakers’ involvement in science (1.2).

1.1.2 Scope and Aims

The original aim of this study was to investigate the role of the natural world in the faith and practice of British Quakerism, and in the thought and spiritual experiences of British Quakers from their origins in the late 1640s to the present time. At an early stage it became evident that the quantity and complexity of the evidence available would preclude a comprehensive exploration of the subject over the whole period of Quaker history in Britain; either the subjects of research would have to be narrowed, or the time-scale curtailed. In view of the fact that the research interest appeared to centre on the relational issues outlined above, it was decided to avoid restricting the scope of the subject matter. The present study therefore considers

⁴ Ibid., 280.

⁵ *The Works of George Fox*, (1831, repr. Pennsylvania: New Foundation Publications, George Fox Fund, 1975), 8: 18.

evidence only from the period before 1830, which is about the time of the rise of evangelicalism among British Quakers (1.4.1). It also became clear that the most of the evidence for this period came from individual Quakers rather than the Religious Society of Friends as a body (1.1.1). Some of the individuals from whom evidence is included here were resident in Ireland, whilst others, although of British or Irish birth, were resident for various periods in America. All of the latter retained strong links with Britain. Although some evidence on corporate views does exist and is included here, this study is therefore mostly about British and Irish Quakers defined in this sense, rather than Quakerism in Britain and Ireland.

The present study is concerned mainly with the spiritual and intellectual landscapes of Quakers. In view of the disparate conclusions reached by previous authors, it sets out to examine in a systematic way the contemporary evidence for ideas amongst Quakers about the natural world and humanity's relationship with it, how these changed over time and how they varied between individuals within the Quaker community. It aims to give as much attention to the recognition of difference and diversity as it does to historical narrative. It is not intended to be a fully contextualized history of Quaker engagement with the natural world (see 1.4.3), and makes only occasional assessments of the extent to which Quakers may have been peculiar in their attitudes and experiences (see also 5.3.4). Neither does it document in detail the nature and extent of Quaker involvement in natural science, nor does it attempt to evaluate the scientific importance of Quaker contributions to science. Material relating to the nature of humanity and its moral or spiritual status, and relationships between human beings, is included only if it is also relevant to the natural world.

The primary aims of this research are therefore as follows:

- To explore and clarify the place of the natural world in the spiritual experience and intellectual life of British and Irish Quakers from 1647 to 1830.
- To examine Quaker views on different ways of knowing about the physical world, and on the relationship between science and religion.
- To explore and characterise the principal variations in these positions within the Quaker community in relation to theology.
- To explore the ways in which these experiences and views changed over the period of study.

1.1.3 Significance of Research

This thesis pursues these aims in the context of the opening issues outlined in 1.1.1 to reveal original conclusions about Quaker experiences and beliefs concerning the natural world. The study is significant for a number of reasons:

- It is the first to explore in a systematic way the place of the natural world in the spiritual experiences and ideas of British and Irish Quakers during this period.
- It is based on a careful assessment of a wide spectrum of contemporary evidence.
- It reveals wide variations in terms of individual responses, and the complexity of the overall Quaker position, in relation to role of the natural world in Quaker spiritual life, as well as how these changed over time.
- It is the first to recognise and offer a resolution of the paradoxical nature of the relationship between Quakers and the natural world.

- It has implications for the study of theological diversity in a more general sense among Quakers, and of the relationship between unity and diversity in British Quakerism.
- It is relevant to understanding current thinking by Quakers and others on the spiritual dimensions of the relationship between humanity and the natural world.

1.2 PREVIOUS LITERATURE

Until the work of Geoffrey Cantor (see below), most of the research on this subject was directed specifically to Quaker involvement in science and its practical applications, or to the spiritual and practical responses of 17th century Friends to the natural world. Louise Tritton has presented an overview and typology of the nature of engagement of Quakers with the natural world, but this is brief and concerned with Friends in North America.⁶ The literature generally presents an impression of synergy between Quaker values and the acquisition of scientific knowledge, and between early Quakers and nature, but the relationship between these synergies and the core Quaker insight of immediate revelation is unclear. Previous work rarely examines both scientific and spiritual responses to the natural world and the relationship between them, and a coherent overview has yet to emerge. Relatively little work has been done by previous authors to examine variations existing within the Quaker community or changes over time so far as Quakers in Britain were concerned over the period of the present study.

⁶ Louise Meschter Tritton, 'Quakers and Nature: then and now. Perspectives on nature from John Bartram to Friends Committee on Unity with Nature' (Quaker Haverford College Faculty, 1999).

1.2.1 Spiritual and Practical Responses to the Natural World

Several authors have looked for evidence in the writing of early Friends of spiritual engagement and sensitivity towards the physical world. Following Howard Brinton's earlier review of Quaker attitudes to animals,⁷ Rex Ambler re-iterates Friends long-standing sympathy towards animals and identified the seeds of practical concern for the wider environment in the writing and actions of 17th and 18th century Friends.⁸

Virginia Schurman describes early Friends as having a 'theology of the stewardship of creation',⁹ whilst Catherine Wilcox documents the position of the first Quakers on the creation¹⁰, noting the loss of early Quaker belief that Adam's original knowledge of creation would be regained by those restored in Christ.¹¹

Anne Adams and Melvin Keiser have sought to explain these attitudes in terms of Fox's and other early Friends' intense spiritual experience of the created world. Keiser writes of 'a doctrine of creation...based on a lived sensitivity and unity with the world in depth pervaded by divine agency',¹² whilst Adams argued that the first Friends experienced a spiritual unity with God and the whole of creation, which she describes as 'a testimony to creation'.¹³ Elsewhere, Adams also argues that this spiritual experience of the creation was lost by later 17th century Friends, and not re-

⁷ Howard H. Brinton, 'Quakers and Animals' in *Then and Now - Quaker Essays: Historical and Contemporary by friends of Henry Joel Cadbury*, ed. Anna Brinton (Philadelphia: University of Pennsylvania Press, 1960), 188-199.

⁸ Rex Ambler, 'Befriending the Earth: a Theological Challenge', *Friends Quarterly* 26, no.1 (1990): 13-17.

⁹ Virginia Schurman, 'A Quaker Theology of the Stewardship of Creation', *Quaker Religious Thought* 24, no.4 (December 1990): 27-41.

¹⁰ Catherine M. Wilcox, *Theology and Women's Ministry in Seventeenth-Century English Quakerism* (Lampeter, UK: Edwin Mellen, 1995), 20-28.

¹¹ *Ibid.*, 26-27.

¹² Melvin R. Keiser, *Inward light and the New Creation; a theological meditation on the center and circumference of Quakerism*, Pendle Hill Pamphlet 295 (Wallingford, PA: Pendle Hill Publications, 1991), 14.

¹³ Anne Adams, 'Early Friends and Their Witness to Creation', *Friends Quarterly* 31 no.4 (1998): 145-152.

discovered until the late 20th century.¹⁴ Hugh Ormsby-Lennon has explored the theological and political significance for Fox's contemporaries of his experience of the creation being revealed to him by God.¹⁵

Glen Reynolds reaches a very different conclusion about Fox's view of the created world. He sets out to show the affinities between Fox and the early Christian Gnostics, and, based principally on the comparison Fox makes of things spiritual and material, sees Fox's view of creation as supporting this position. Reynolds concludes that whilst Fox 'does not unambiguously express an ontological aversion to matter and the visible world *per se*, his theology 'can be seen to incorporate detachment and alienation from the world, and the negation of all things created'.¹⁶

1.2.2 Quakers and Science

The most substantial contribution to knowledge of the facts of Quaker involvement in scientific pursuits as a whole remains the work of Arthur Raistrick in the late 1940s and the publication of *Quakers in Science and Industry* in 1950.¹⁷ Raistrick demonstrated that numerous Quakers had made significant contributions to science, natural history, medicine and industrial technology before 1800. Various authors have made claims that Quakers were disproportionately numerous in the certain fields, none of them supported by quantitative evidence.¹⁸ For example, on the basis

¹⁴ Anne Adams, ed., *The Creation Was Open to Me* (Wilmslow: Quaker Green Concern, 1996), ix.

¹⁵ Hugh Ormsby-Lennon, 'Fields of Dreams: Diggers, Cargo Cults and the Ursprache' (undated (c. 1988?) manuscript: loaned by Douglas Gwyn), 21.

¹⁶ Glen D. Reynolds, *Was George Fox a Gnostic? An Examination of Foxian Theology from a Valentinian Gnostic Perspective* (Lampeter: Edwin Mellen Press, 2005), 76.

¹⁷ Arthur Raistrick, *Quakers in Science and Industry* (London: Bannisdale Press, 1950).

¹⁸ Geoffrey Cantor, *Quakers, Jews, and Science* (Oxford: Oxford University Press, 2005), 4. Cantor cites several references: see also David Sox, *Quaker Plant Hunters* (York: Sessions Book Trust, 2004), 1; John Gascoigne, *Joseph Banks and the English Enlightenment: Useful Knowledge and Polite Culture* (Cambridge: Cambridge University Press, 1994), 77; Ann Nichols, *The Golden Age of Quaker Botanists* (Kendal: The Quaker Tapestry at Kendal, 2006), 7.

of research by Raistrick, and also by Blanche Henrey,¹⁹ Keith Thomas stated that ‘the Quakers in the later seventeenth and eighteenth centuries...were celebrated for producing a quite disproportionate number of botanists, plant-collectors and nurserymen.’²⁰ Conversely, a recent anthology of Quaker writing on the spirituality of creation²¹ includes no reference to Quaker involvement in science during this period. The introduction to this collection states that ‘throughout most of the eighteenth and nineteenth centuries there is a heavy silence about the earth and its non-human creatures in Quaker writing’.²²

Modern Quakers perceive a positive relationship between Quakerism and science. The current Quaker ‘book of discipline’²³ contains several extracts that point to the similarities between Quaker insights and science. In his popular introduction to Quakers, Harvey Gillman states of 18th century Friends that:

[the] interest some Friends showed in the social conditions of their day was matched by the fascination of other Friends for the natural world. If helping other people was a sign of the Christian life, the exploration of nature was a sign of appreciation of a divinely inspired universe and the Quaker contribution was considerable.²⁴

Science attracted Quakers, according to Raistrick, because of ‘the active, enquiring spirit characteristic of Friends, keenly alive to the unity of life and dedicated in a way that was exceptional for the times, to the searching out and love of truth’.²⁵ Other modern authors have also explained the link between Quakers and science in terms of a parallel between the ongoing personal search for spiritual truth by Friends (and the

¹⁹ Blanche Henrey, *British Botanical and Horticultural Literature before 1800* (Oxford: Oxford University Press, 1975), 2: 310-11.

²⁰ Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800* (London: Allen Lane, Penguin Books, 1983), 237.

²¹ Adams, *The Creation was Open*.

²² *Ibid.*, x.

²³ *Quaker Faith & Practice*, Yearly Meeting of the Religious Society of Friends in Britain, 1995 Chapter 25

²⁴ Harvey Gillman, *A Light that is Shining: An introduction to the Quakers* (London: Quaker Books, 2003), 47.

²⁵ Raistrick, *Quakers in Science and Industry*, 221-2.

Quaker testimony to integrity) and the search for scientific truth.²⁶ Writing in 1938, Rufus Jones attributed Friends' scientific achievements to the nature of Quaker education.²⁷ In particular, he believed that the non-dogmatic teaching of religion encouraged the development of enquiring minds:

No attempt is made to force upon...[the student] a religious position which conflicts with his [sic] scientific knowledge. The difficulties are squarely faced...and where possible a deeper interpretation found that makes reconciliation possible.²⁸

Ormerod Greenwood identified a more direct link between Quaker education and science in the 'stress which Quaker educationists consistently laid on natural history and an experimental approach to science'.²⁹ Greenwood is one of several authors to identify an explicit link between Quaker theology and science. He suggests that the Quaker belief in the presence of the divine inward light in all human beings enabled the observation and exploration of the physical world to be perceived as 'a God-like activity'. Quoting from an un-named source, he wrote that 'it is part of the large faith in the inner light, the belief that as man looks humbly and faithfully with his own eyes instead of learning dogmas out of books, he is learning to look with the eyes of God'.³⁰

The most extensive and authoritative recent research on Quaker involvement in science in the 18th and 19th centuries is by Geoffrey Cantor. He has documented the bias in Quaker scientific involvement towards the 'observational' rather than the theoretical sciences, and their scepticism of scientific hypotheses, and has re-assessed previous claims about Quaker involvement in the Royal Society.³¹ He has also

²⁶ Ibid.

²⁷ Rufus M. Jones, *The Faith and Practice of the Quakers* 5th ed. (London: Methuen, 1938), 148.

²⁸ Ibid., 157.

²⁹ Ormerod Greenwood, *The Quaker Tapestry* (London: Impact Books, 1990), 143.

³⁰ Ibid.

³¹ Geoffrey Cantor, 'How Successful were Quakers at Science?', *Quaker Studies* 7, no.2 (March 2003): 214-26.

researched the study of natural history at Quaker schools³², and Quaker reactions to the publication of Charles Darwin's theory of evolution by natural selection in 1859³³ (both outside the time frame of the present study). Cantor is the only author to have examined in detail aspects of the relationship between Quakerism and science prior to 1900, culminating in his comparative study *Quakers, Jews, and Science*. He acknowledges the existence of tensions between science and 18th century Quakerism, and recognises that although Quaker religious beliefs and science were both based upon personal experience, it is 'anachronistic' to link Quaker religious tenets directly with the scientific method³⁴. However, like Greenwood and others (see chapter 4), Cantor regards the Quaker doctrine of the indwelling divine light as fundamental to Quakers' experience of the material world.³⁵ He also sees the inward light as central to Quaker expressions of support for natural theology, in the sense that God could be experienced through the created world through the influence of the inward light.³⁶ According to Cantor, for Quakers, 'all experience is illuminated, as it were, by this Inner Light'.³⁷

1.2.3 Summary

The existing literature on this subject does not constitute either a comprehensive or a fully coherent account of the role of the natural world in Quaker belief and experience. Previous 20th and 21st century authors have presented brief overviews of the relationship between Quakers and the natural world, or have researched specific

³² Geoffrey Cantor, 'Real Disabilities? Quaker Schools as "Nurseries" of Science' in Paul Wood, ed., *Science and Dissent in England 1688-1945* (Aldershot: Ashgate, 2004), 147-161.

³³ Geoffrey Cantor, 'Quaker Responses to Darwin', *Osiris*, 2nd series 16 (2001): 321-42.

³⁴ Cantor, *Quakers, Jews, and Science*, 237.

³⁵ *Ibid.*, 233-5, 237-42.

³⁶ *Ibid.*, 235-6.

³⁷ *Ibid.*, 235.

aspects of that relationship at particular periods in Quaker history. Some of them have reached conflicting conclusions, and several key questions remain largely unanswered (1.1.1).

1.3 METHODS AND SOURCES

1.3.1 Treatment of Evidence

The apparent contradictions in the relationship between Quakers and the natural world, and the conflicting conclusions reached by previous authors on the nature of this relationship, may be explained if the subject is approached in accordance with three guiding principles. These are: the primacy of contemporary evidence; awareness of the ambiguity in the meanings of key words used by both contemporary and modern authors; and thirdly, the recognition of intrinsic tensions between unity and diversity within Quakerism.

Use of Contemporary Evidence

The present confusion is attributable in part to the ways in which contemporary evidence has been used – or ignored - by some authors. Notwithstanding the previous work on Fox and creation outlined above, most leading modern studies of early Quaker history, and of George Fox’s witness in particular, pay relatively little attention to Fox’s references to the natural world and their implications (5.2.1). Other authors have been selective in their use of evidence from Fox, sometimes taken out of context, in order to support their own arguments. Evidence from early Quakers has also been conflated with evidence from later periods in Quaker history to justify conclusions for which there appears to be no direct evidence. Other claims have been

made, particularly about Quaker involvement in science, for which there is also little or no convincing evidence.

The basis of this thesis is an exploration of the contemporary evidence itself. Some of this evidence does appear to be contradictory, but the thesis is constructed (1.4.2) so as to accommodate apparently conflicting data rather than to ignore or devalue them. Priority is given to contemporary Quaker views on the relationship between religion and science, rather than later interpretations of that relationship. Taking due account of a broad spectrum of contemporary evidence, and the diversity of views this reflects, this study leads to conclusions that are notably different to some of those of previous authors (5.2).

Meanings of Key Terms

Confusion has also arisen from the fact that several key words or phrases commonly used in discourse on this subject have multiple meanings or shades of meaning. This applies to contemporary writing, where examples include ‘creation’, ‘science’, ‘nature’, and ‘the world’.³⁸ The problem is also found in later and modern commentaries where terms ‘science’ and ‘natural theology’ (4.3.1), both of which can have significantly different meanings, are used but not defined. Use of the term ‘science’, both by contemporary and later authors, poses particular difficulties. At the present day, it has two principal, related but distinct, meanings. Science is now often understood to refer specifically to the intellectual and practical application of objective scientific methods to the phenomena of the physical universe, and the

³⁸ Joseph Pickvance, *A Reader's Companion to George Fox's Journal* (Kelso: Curlew Productions, 2001), .26-9, 64, 71, 100-102, 137-8.

knowledge gained in this way.³⁹ It is also used in to refer to a branch of study (as in ‘botanical science’) dealing with either a connected body of demonstrated truths or with observed facts systematically classified and more or less comprehended by general laws.⁴⁰ Both these meanings date back to the period of the present study, and the situation is further complicated by the fact that in the 17th and 18th centuries ‘science’ was used in a more general sense to refer to study in general or to any branch of knowledge gained through study.⁴¹ The term ‘natural philosophy’ was generally used at this time to refer to mathematics and astronomy, but sometimes also to the empiricist principles underlying scientific inquiry.⁴²

The Recognition of Diversity

Previous authors have recognised the existence of instances of heterogeneity in 17th and 18th century Quaker theology and epistemology,⁴³ whilst diversity of religious belief amongst modern British Quakers has been identified as an inevitable consequence within a group that places a high value on individual experience⁴⁴. The third guiding principle for this thesis is the acceptance of diversity, as well as commonality, of experience and belief as an intrinsic element in the characterisation of the Quaker position in the past. This diversity at the individual level can be seen as

³⁹ *Shorter Oxford English Dictionary on Historical Principles*, 6th ed. (Oxford: Oxford University Press, 2007), 2, 2697.

⁴⁰ *Ibid.*

⁴¹ *Ibid.*

⁴² See, for example, M.D. Eddy, ‘The Rhetoric and Science of William Paley’s *Natural Theology*’, *Literature & Theology* 18, no. 1 (March 2004): 12.

⁴³ See Cantor, *Quakers, Jews, and Science*, 225/240, and John Punshon, *Portrait in Grey: A short history of the Quakers* (London: Quaker Home Service, 1984), 158-62, for differences between 18th century Friends regarding the place of human reason. For differences in theology between 17th century Friends, see, for example, Richard G. Bailey, ‘Was Seventeenth-century Quaker Christology Homogeneous?’, in Pink Dandelion, ed., *The Creation of Quaker Theory: Insider Perspectives* (Aldershot: Ashgate, 2004), 61-82.

⁴⁴ Pink Dandelion, *A Sociological Analysis of the Theology of Quakers* (Lampeter: Edwin Mellen, 1996), 303-11.

being in opposition to, or in tension with, the unity of the group in one or more of three ways, as described below. The recognition and exploration of this diversity and these tensions is important to understanding the true nature of the relationship between Quakers and the natural world.

Unifying Academic Theories and Diverse Practice

Modern theories used to explain Quakerism in the past may not adequately reflect the reality of the diversity of past Quaker experience and belief. The study of Quaker history in the 17th and 18th centuries has typically been based around the recognition of a succession of historical periods each of which has a combination of characteristics that distinguishes it from other periods.⁴⁵ So far as the presentation of British Quaker history is concerned, this has tended to result in an emphasis on unifying characteristics within each period and on differences between periods, rather than on variations within a single period. Thus the extent and possibly the wider significance of diverse experience and belief within a particular period may have been under-estimated.

Corporate Quaker Aspirations and Individual Quaker Experience

The second manifestation of a disparity between unity and diversity concerns a polarity between contemporary corporate aspirations, and individual experience. This relates particularly to spiritual renewal of the individual and the spiritual vitality of Quakers as a group in Britain. As a body, Quakers insisted that true spiritual knowledge and personal transformation came exclusively from the immediate inward

experience of God in the human soul. In the experience of many individual Friends, however, the outward natural world was an important and accessible source of spiritual inspiration throughout the period. This generated enthusiasms and theological views that co-existed uneasily with Quaker orthodoxy, and was never corporately acknowledged.

The 'Quaker Double-Culture'

There is also evidence to suggest that elements of the 'Quaker double-culture' identified in modern Quakerism by Pink Dandelion,⁴⁶ are to be found in the 17th and 18th centuries. Despite repeated concerns about the need for conformity in terms of outward appearance and behaviour, religious belief became for some Friends a private matter, and here a greater degree of diversity and tolerance seems to have prevailed. Friends who, for example, were united by the practical study of nature could hold significantly different views about the place of the natural world in spiritual experience and theology. Tolerance of theological diversity had its limits, however, if heterodox views were made public.

1.3.2 Sources of Evidence

Corporate evidence on this subject, that is statements made by or on behalf of Quaker Meetings in Britain, for the period 1647-1830 is rare. Most of the evidence presented here comes from the writing of some 50 individual Friends over the period as a whole, some of it for circulation amongst the Quaker community, and some of a private

⁴⁵ See, for example, Pink Dandelion, *Introduction to Quakerism* (Cambridge: Cambridge University Press, 2004), 6-9.

⁴⁶ Dandelion, *Sociological Analysis of Quakers*, 110-123.

nature. There is also material from sympathetic and unsympathetic non-Quaker contemporaries.

The area of bibliographical search was wide, including published or unpublished material concerning any aspect of the natural or living non-human world, or containing the words or phrases ‘creation’, ‘created world’, ‘physical world’, ‘world’, or ‘nature’⁴⁷ by Quaker authors writing, or relating to personal experiences, before 1830. Purely factual descriptions of the natural world, and the technical detail of scientific methods or findings have not been included, unless these appear to have some wider significance. In addition to the literature cited in the previous section, the search was directed in the first instance by two unpublished bibliographies: Anne Adams’ list at Woodbrooke Library⁴⁸, and references collected by Harold and Ann Nichols⁴⁹ during their research for the Quaker Tapestry.

There is a wealth of contemporary printed material from the 17th century. Much of this is of two types: firstly, Quaker religious tracts and other printed papers and books published at that time (and also anti-Quaker rebuttals), and secondly, letters and epistles that have been collected together and published by later scholars. Spiritual ‘journals’ or diaries kept by many Friends, sometimes published after their deaths, whilst often making only brief references to the subject, are an important source throughout the whole period of this study. Much recent Quaker research has been directed to the re-assessment of Quaker writing before 1660, and several of the resulting published works make at least a brief mention of the subject of the physical world.

⁴⁷ The terms ‘world’ and ‘nature’ had a variety of different meanings in the 17th and 18th centuries, as they do today. See Pickvance, *Reader’s Companion*, 100-102, 137.

⁴⁸ Anne Adams, *Early Friends’ relationship with Creation: a tentative bibliography* (unpublished typescript copy, 1999, in Woodbrooke Quaker Study Centre Library).

⁴⁹ Ann Nichols, pers. comm.

Evidence for 18th century Friends is generally more scattered, reflecting changes in attitudes within the Quaker community at that time to engagement with the ‘world’ outside, as well as the relative lack of attention given to this period by later researchers. Valuable pointers to Quaker engagement with the natural world are to be found in the *Bibliographical Catalogue* of 1888⁵⁰, whilst several 18th and 19th century Friends active in the field have been the subject of biographical researches published from the 1920s to the present time. In the late 18th and early 19th centuries, Quaker ‘nature poetry’ and popular published works on natural history, geology and geographical exploration yield much evidence on views of Friends at this time on the relationship between science and religion. Extensive use has been made of several important collections of private correspondence published in recent decades,⁵¹ and a limited amount of unpublished manuscript material has been consulted. Overall, the study is based primarily on printed contemporary material, published either during the period in question or more recently.

Different types of sources have complementary roles. Until the 19th century, published ‘journals’ were intended to promote religious orthodoxy to a Quaker readership, demonstrating the exercise of spiritual gifts in the life of the individual, and avoiding material deemed to be marginally relevant or theologically controversial. Private letters are sometimes more revealing of the individual’s own ideas and beliefs, whilst 18th and 19th century Quaker poetry intended for a wider public audience is a rich source of theological material often not found elsewhere. This also applies to expressions of support for natural theology that appear in books

⁵⁰ London Friends’ Institute, *Biographical Catalogue: Being an Account of the Lives of Friends and Others whose Portraits are in the London Friends Institute* (London: Friends Institute, 1888).

⁵¹ The largest collections are Betsy C. Corner and Christopher C. Booth, eds., *Chain of Friendship: Selected Letters of Dr John Fothergill of London, 1735-1780* (Cambridge, MA: Harvard University Press, 1971), and Alan W. Armstrong, ed., “*Forget not Mee & My Garden...*” *Selected Letters, 1725-1768, of Peter Collinson, F.R.S.* (Philadelphia: American Philosophical Society, 2002).

from the same period by Quaker authors designed to popularise the study of natural history and related sciences.

Nevertheless, it remains the case that one of the difficulties of researching this subject is that the true position is partly hidden from view. Despite the Quaker habit of ‘meticulously recording events as they happened’⁵² the quality and quantity of evidence from individual authors relevant to this study vary greatly. For example, the 17th century Quaker converts Francis Mercury van Helmont and Anne Conway wrote more on this subject than all other 17th century Friends combined: however, this is mostly on the metaphysics of God, humanity and the creation, and untypical of Quakers at the time. At the other extreme, well-known figures such as Abraham Darby of Coalbrookdale, have left little relevant material, and the same seems to be true of certain occupation-groups, such as nurserymen. References by individuals to their ideas and experiences of the natural world are often brief and sometimes the researcher is dependent on comments made about Friends by other contemporary observers. Statements by influential Quakers may give one of the few types of clue as to what the silent majority of Quakers thought.

Most of the Quaker sources are located in the libraries at Friends House, London, and at Woodbrooke Quaker Study Centre, Birmingham. Additional material was consulted at the libraries of the Universities of Birmingham, Leeds, London, Manchester and Oxford (Bodleian Library).

⁵² E. Jean Whittaker, *Thomas Lawson 1630-1691: North Country Botanist, Quaker and Schoolmaster* (York: Sessions Book Trust, 1986), 18.

1.4 STRUCTURE

1.4.1 Periodisation

Other authors have shown that Quaker beliefs generally have changed significantly since the foundation of the movement in the 1650s,⁵³ and generalisations that pool or extrapolate from evidence of different periods may be misleading. One of the purposes of the present study is to investigate changes over time, and the primary division of the material is therefore by historical period. Dandelion has recognised the following distinct theological phases in the history of Quakers up to the 1820s: the first Friends 1647-1666; Restoration Quakers 1667-1689; and Quietism 1690-1820s.⁵⁴ The boundaries of these phases have been modified here in order to reflect discontinuities in the particular data under study, as follows:

- The First Friends 1647-1665
- Restoration Quakers 1666-1715
- Quietism 1716-1830

These boundaries closely follow those adopted by Dandelion, except for that between the second and third periods. Evidence from 1690 to 1715 has affinities with that from the second period: however, since relatively little evidence was found relating to the second and third decades of the 18th century, the boundary of 1715 should be regarded as provisional. The end of the period of study is also marked by the increasing influence of Christian Evangelicalism, which was to dominate British Quakerism until the end of the 19th century.

⁵³ See, for example, Dandelion, *Sociological Analysis of Quakers*, 6-14; Martin Davie, *British Quaker Theology Since 1895* (Lampeter, UK: Edwin Mellen, 1997), 9-51.

⁵⁴ Dandelion, *Introduction to Quakerism*, vii/13.

1.4.2 Thematic Divisions

The second level of data organisation is thematic. In view of the changes that have taken place since the early 19th century in the general understanding of the scope of religion and science and the relationship between them, it was decided not to impose a structure on the evidence that reflected modern thinking on this issue. Instead, a structure based on four general themes that have grown from a consideration of the contemporary data themselves has been developed. In themselves, the themes are descriptive, not interpretive, so that the evidence is presented in a way that does not involve prior judgements about its meaning or significance. The themes are as follows:

- ***Nature and Status of Creation***

This category comprises *statements of belief or intellectual ideas about the intrinsic nature and status* of the outward creation. They include biblical quotations and paraphrase; discussion of the theological reality and status of the outward creation in its protological, present or eschatological states; and other philosophical, metaphysical, and scientific ideas about the general nature of the created world and the relationship between God and his creation.

- ***The Creation Dialectic***

The ‘creation dialectic’ is the term used in this study to refer to the *personal experience* of a dynamic relationship between knowledge of God and knowledge of creation.⁵⁵ Relevant material describes one or both of the following types of

⁵⁵ I am grateful to Douglas Gwyn for suggesting this term.

experience: either God reveals the nature of creation personally to human beings, or alternatively, the nature of creation leads the observer to God, or a greater knowledge of God. Material on the relationship between these two kinds of experience and on the relative merits of revealed theology and natural theology is also included here, as are statements about God's providence being revealed through the creation.

- ***Epistemology of the Creation***

This theme presents evidence of Quaker *attitudes to different sources of knowledge* about the created world, and their relative epistemological value. Sources include scripture; the 'inward light'; human reason; the physical creation itself; education; printed books and illustrations. References to the nature of Quaker involvement in the pursuit and transmission of knowledge of the natural world are included.

- ***Living in God's Creation***

This includes material on mindful living in the created world, and the *proper place and use of God's material providence* to humanity. It includes beliefs about responsibilities to wider human society and towards animals. Often didactic in tone, much of this evidence concerns *actions and behaviour*, and their practical consequences.

1.4.3 Contextualization

George Fox and other early Quakers claimed originality for their insights into God's purposes and the true nature of things, and emphasis on the primary authority of personal experience was an enduring characteristic of Quakers (see 2.1.2). Whilst

they agreed that true spiritual enlightenment reflected biblical truths, early Friends were often disparaging about human sources of knowledge. Throughout the period, Quakers sought to distance themselves and their families from what were perceived to be worldly influences. Whilst early Friends were clearly affected by the outside world, most obviously perhaps in terms of persecution and discrimination, any public discussion of intellectual ideas is rare (but may not have been privately: see 2.1.2) until the second period of Quakerism (chapter 3). Nevertheless, aspects of the wider religious, social, economic, political and intellectual environments in which Quakerism originated in Britain in the 1650s and developed throughout the period of study, have been widely discussed by recent authors. Douglas Gwyn's trilogy is particularly helpful on the religious, social and political contexts in which Quakerism originated and developed in the 17th century,⁵⁶ whilst Rosemary Moore has systematically charted in detail the development of the early Quaker movement.⁵⁷ Older works, by non-Quaker authors, include those by Nuttall,⁵⁸ Hill⁵⁹ and Webster.⁶⁰ Modern scholars have devoted less attention to the development of Quakerism in the late 17th century or the 18th century, although studies by Walvin,⁶¹ Vann,⁶² and Barbour and Frost⁶³ are useful. General histories of Quakerism by Pink Dandelion⁶⁴

⁵⁶ Douglas Gwyn, *Seekers Found: Atonement in Early Quaker Experience*, (Wallingford, PA: Pendle Hill Publications, 2000); Gwyn, *Apocalypse of the Word*; Gwyn, *Covenant Crucified*.

⁵⁷ Rosemary Moore, *The Light in Their Consciences: Early Quakers in Britain 1646-1666* (University Park, PA: Pennsylvania State University Press, 2000).

⁵⁸ Nuttall, *Holy Spirit*.

⁵⁹ For example, Christopher Hill, *The World Turned Upside Down: Radical Ideas During the English Revolution* (Harmondsworth, UK: Penguin Books, 1975). See also Barry Reay, *The Quakers and the English Revolution* (New York: St. Martin's Press, 1985).

⁶⁰ Charles Webster, *The Great Instauration: Science, Medicine and Reform 1626-1660* (London: Duckworth, 1975).

⁶¹ James Walvin, *The Quakers: Money and Morals* (London: John Murray, 1997).

⁶² Richard T. Vann, *The Social Development of English Quakerism, 1655-1755* (Cambridge, MA: Harvard University Press, 1969).

⁶³ Hugh Barbour and William J. Frost, *The Quakers* (Richmond, IN: Friends United Press, 1988).

⁶⁴ Dandelion, *Introduction to Quakerism*.

and Punshon⁶⁵ give some contextual background for each of the periods covered in the present study.

Some of the external factors that are likely to have influenced Quaker experiences and views on the natural world, and the ways in which they wrote about them, are briefly reviewed in the introductory sections to chapters 2, 3 and 4. The possible influences on the first Quakers of earlier religious and philosophical ideas inside and beyond the Christian tradition are considered in 2.1.2 and appendix 1.

1.5 THESIS OUTLINE

1.5.1 Unity with Creation: the First Quakers 1647-1665

Chapter 2 documents the role of the created world in the spiritual experience of George Fox and other early Friends, and confirms their essentially positive evaluation of the moral status of the creation within a creation-fall-restoration model of history. Early Quakers believed in the reality of God's new covenant, and of the 'new creation', in which lasting unity would be re-established between God, humanity and the creation through the personal spiritual transformation of men and women in Christ. True knowledge of the creation was believed to be the product of the divine inward light: not only did God reveal the nature of creation and how it should be used to his glory, but also how the divine hand might be perceived in the outward creation. The significance of these experiences and beliefs are discussed, as is the evidence for variations between Friends within a remarkably unified view of the created world overall.

⁶⁵ John Punshon, *Portrait in Grey: a Short History of the Quakers* (London: Quaker Home Service 1984).

1.5.2 Diverse Ideas: Restoration Quakers 1666-1715

Chapter 3 explores the varied, and sometimes conflicting, ideas and views on the creation that emerged amongst prominent Quakers after the Restoration. Personal accounts of the creation in relation to spiritual experience are largely replaced by a range of intellectual ideas about the created world from well-educated Friends. Whilst Quakers at this time did not generally regard scientific enquiry and religious experience as separate, a few individuals expressed uncharacteristically positive attitudes to the value of empirical observation and human reason, epitomized by William Penn. The chapter also explores serious reservations about science as a path to true knowledge, and the generally conservative thinking of Robert Barclay in relation to the physical world. Overall, there is also a new focus on the practical issues of living in and improving the world as it was at present, rather than on the expectation of a divinely transformed creation.

1.5.3 Quietism and Rationalism: 18th Century Quakers 1716-1830

Evidence for the 18th century is mainly from private letters and accounts of personal experiences in the earlier part, through to popular publications and poetry on scientific subjects by the close of the period. Some of the earlier diversity of views and experiences, reflecting the contrasting intellectual and theological legacies of Penn and Barclay, developed further under the competing claims of Quietist orthodoxy, rationalist ideas, as well as individual experience. Whilst this led to tensions for individuals, differences in this context seem to have effectively co-existed with the Society of Friends. Although there is evidence that God-centred elements of the creation dialectic were still alive among Friends by the end of the 18th century, the

chapter illustrates the changing roles and scope allowed by Friends for the inward light on the one hand, and for empiricism and human reason on the other. Overall, it charts a significant growth and diversification of Quaker support for natural theology, and the nature of growing Quaker involvement in the world of science.

1.5.4 Change and Continuity 1647-1830

The concluding chapter presents the principal findings of the study, their implications for previous work on the subject, and suggestions for further research. Findings are presented for the period as a whole, firstly for each of the thematic areas in turn, highlighting elements of change and continuity, and then across the subject matter of the thesis in general to illustrate the growth and tolerance of diversity amongst Quakers in the views of the natural world.

Summary of Principal Findings

For George Fox and other early Quakers, the natural world had a significant place in their experience of spiritual conviction. They believed that true knowledge of the creation and how it should be used, came, like their knowledge of God, by revelation through the divine inward light. Moreover, the creation as a whole would be transformed as individual men and women were spiritually restored in Christ.

Throughout the period of this study, Quakers supported the biblical teaching that the creation was God's work; and despite the Fall, insisted that God continued to uphold, and could intervene at will in, the operation of the physical world. People had practical responsibilities for their behaviour to one another and for their treatment of

animals, and in some respects, for the utilization of the natural world for the benefit of humanity and to the glory of God.

After the early years of Quakerism, belief about the natural world and its place in Quaker life was largely privatized, and different views developed, based variously on personal experience, the contrasting legacies of Penn and Barclay, as well as outside influences on Quaker theology and ideas about the natural world. Whilst some Quakers continued to record experiences of the creation being divinely revealed to them, knowledge of the creation was no longer regarded as a sign of spiritual achievement. For some Quakers, however, the natural world acquired a fresh theological significance, in that personal experience of nature became an important resource in their search for God.

In the 18th century, Quakers increasing interest in science seems to have gone largely unrecognized at the time and for many years later. This may have been due to the particular nature of Friends' involvement in the scientific world, but also to differences amongst Friends over the intrinsic value of science. It is argued that science presented difficulties for orthodox Quaker theology, and that there is no convincing evidence that Friends at the time perceived a connection between empiricism and the work of the inward light. The growing appeal of science and the natural world can be best attributed to the influence of personal experience on the part of individual Friends, and was becoming a significant part of a wider Quaker culture by the end of the period.

1.6 CHAPTER SUMMARY

The purpose of the study was set out in the context of a relationship between Quakerism and the natural world that has not previously been satisfactorily explained.

A review of the findings of previous authors was presented. The ways in which the evidence has been treated in this study and an overview of the main sources of evidence were described, and the structure adopted for the presentation of evidence explained. The chapter concluded with an outline of the chapters that follow, and a summary of the principal findings. The next chapter considers the period 1647-1665.

2. UNITY WITH CREATION: THE FIRST QUAKERS 1647-1665

2.1 INTRODUCTION

A synopsis of the main findings is presented (2.1.1). A review of the early Quaker background and previous relevant scholarship follows (2.1.2), and a description of the nature of the available evidence (2.1.3). Evidence is presented under each of the four thematic headings described in the first chapter (2.2-2.5). Findings are discussed in 2.6.

2.1.1 Synopsis

It is shown that George Fox, and other early Quakers, believed their spiritual experiences reflected the biblical account of the nature of creation¹, namely that it was the work of God, although subsequently defaced as a result of human sin. As human beings were spiritually restored in Christ, however, so too would the physical creation be restored to its original state of harmony, in which dominion by humanity was an integral part: the ‘new creation’ was both spiritual and material. It is argued that there is no convincing evidence that Fox believed the material world to be intrinsically evil.

The idea of a physical ‘wilderness’ proved conducive to spiritual growth for several leading Friends, albeit in a passive sense. Early Quakers claimed that it was God who revealed the true nature of creation, and of humanity’s relationship with the

¹ The term ‘creation’ was used in the 17th century to mean that which God had created, that is, any or all aspects of the physical world. Fox used the term to refer to mankind, animals, plants, the sea, materials or the weather (see Joseph Pickvance, *A Reader’s Companion to George Fox’s Journal* (Kelso, UK: Curlew Productions, 2001), 64). These definitions cover my own use of the term in this and other chapters of this thesis. Use of the term ‘creature’ by early Quakers can refer to anything created, including humans, animals, plants, or inanimate materials (ibid).

rest of creation, to those who were restored in Christ. Evidence of the creation-centred dimension of the creation dialectic comes from Quaker authors' use of metaphors from husbandry. God's wisdom and power and other spiritual truths could be read in the works of creation, but only under the guidance of the inward light. Thus, the inward light had a fundamental and unifying role in the first Friends' perceptions of the created world, encompassing both dimensions of the dialectic. It is suggested that, at this time, Quakers supported natural theology only in a rudimentary form, if at all.

Fox and other early Friends believed that Adam's perfect knowledge of creation was restored not only to themselves, but potentially to all those who were fully restored in Christ. True knowledge of the creation, and how it should be used, came not from book-learning and tradition, but from God. It is argued that, although Fox had some awareness of the value of empirical (as opposed to spiritual) experience and experimentation, there is no evidence from this period of Quaker interest in modern science.

The concept of God's 'new covenant' was central to Fox's perception of the relationships between God, humanity and the rest of creation, and drove his convictions on practical actions and behaviour, including the treatment of human beings and animals. At the same time, Fox emphasised that salvation and true wisdom came from God, not from the works of men and women or the created world.

In conclusion, three key elements can be identified in a distinctive early Quaker witness to creation:

- Biblical truths about the creation were revealed through *personal spiritual experience*;

- the spiritual and material reality of the ‘*new creation*’, whereby unity would be re-established between God, humanity and the creation; and
- true knowledge came from God and was mediated by the *divine inward light*.

2.1.2 Background and Previous Scholarship

The Quaker Message and the Creation

The early years of the Quaker movement have recently been researched in considerable detail, particularly by Douglas Gwyn,² Rosemary Moore³ and Larry Ingle.⁴ Briefly, Quakerism has been seen as a response to the economic, social, political and religious upheavals of the 1640s. The Reformation was held by many to have failed: the church was seen as worldly, corrupt and oppressive. Quakers were one of many groups that arose in answer to the call for a return to an authentic spiritual Christianity, as they proclaimed that the Day of the Lord had come, but as a spiritual rather than a temporal reality.⁵ After years of spiritual searching, George Fox (1624-1691), generally regarded as the founder of Quakerism, proclaimed in 1652 the reality of God’s revelation in human souls; ‘the Lord was come to teach his people himself’, without the need for priests or outward sacraments.⁶ The first Quakers believed that the ‘inward light of Christ’, was in every man and woman (1.1.1); although there appears to have been some confusion as to the exact meaning

² Douglas Gwyn, *Apocalypse of the Word: The Life and Message of George Fox (1624-1691)*, (Richmond, IN: Friends United Press, 1986); Gwyn, *The Covenant Crucified: Quakers and the Rise of Capitalism* (Wallingford, PA: Pendle Hill Publications, 1995).

³ Rosemary Moore, *The Light in Their Consciences: Early Quakers in Britain 1646-1666* (University Park, PA: Pennsylvania State University Press, 2000).

⁴ H. Larry Ingle, *First Among Friends: George Fox and the Creation of Quakerism* (New York: Oxford University Press, 1994).

⁵ John Punshon, *Portrait in Grey: A short history of the Quakers* (London: Quaker Home Service, 1984), 9-25.

⁶ John L. Nickalls ed., *The Journal of George Fox* (Philadelphia: Religious Society of Friends; London: Quaker Home Service, 1997), 80.

of this term, early Quakers were agreed that it was not part of the ‘natural’ human constitution, and quite distinct and separate from the human conscience and from purely human reason.⁷ It was this direct experience of the divine that was the ultimate authority of God’s revelation to men and women, rather than scripture.

Nevertheless, true Quaker insights and experience faithfully reflected scriptural truths, and the biblical accounts of the Creation and the Fall have an important place in early Quaker thought. In her landmark exploration of the Quaker pioneers and their religious ideas, Rosemary Moore states that ‘the process of salvation was often described as a return to the state of innocence of the Garden of Eden’⁸. Generally, however, despite a long-standing and continuing interest in the first Quakers, most historians of Quakerism have had relatively little to say on the first Quakers’ views of the physical world. Whilst Braithwaite referred in his standard history to a few specific instances of the creation in early Quaker experience, it did not form part of his overall narrative.⁹ Much the same is true of more recent (and shorter) general histories by Punshon,¹⁰ Barbour and Frost,¹¹ and Pink Dandelion.¹²

However, a few recent authors have explored aspects of the significance of the natural world to the first Quakers. Catherine Wilcox includes material on the creation in her discussion of early Quaker theology,¹³ and Anne Adams has compiled a preliminary bibliography of references to the creation by 17th century Quakers.¹⁴ Rex

⁷ Moore, *Light in Their Consciences*, 102-3.

⁸ *Ibid.*, 83.

⁹ William C. Braithwaite, *The Beginnings of Quakerism*, 2nd ed. (1955; repr., York: William Sessions, 1981).

¹⁰ Punshon, *Portrait in Grey*.

¹¹ Hugh Barbour and William J. Frost, *The Quakers* (Richmond, IN: Friends United Press, 1988).

¹² Pink Dandelion, *An Introduction to Quakerism* (Cambridge: Cambridge University Press, 2007).

¹³ Catherine M. Wilcox, *Theology and Women’s Ministry in Seventeenth Century English Quakerism: Handmaids of the Lord* (Lampeter, UK: Edwin Mellen, 1995).

¹⁴ Anne Adams, ‘Early Friends Relationship with Creation: A Tentative Bibliography’ (unpublished, 1999), Woodbrooke Quaker Study Centre Library.

Ambler,¹⁵ Virginia Schurman,¹⁶ Nikki Coffey Tousley,¹⁷ and Adams¹⁸ have argued that Fox's spirituality embraced the whole of the physical creation, whilst Douglas Gwyn,¹⁹ and also Melvin Keiser,²⁰ have explored the early Quaker concept of the 'new creation', in which all of creation would be restored to its rightful order as human beings were spiritually renewed in Christ. Conversely, Glen Reynolds²¹ and David Brooks-Saxl²² have identified gnostic affinities in Fox's theology, including the negation of the material world.

Influence of Outside Ideas

Early Friends themselves made little or no reference to outside influences, but portrayed their ideas as the direct result of their own personal experiences. Fox's own writing in particular, and later biographical material, emphasised his originality; in Michael Mullett's words, he was depicted as 'a man without an intellectual or spiritual pre-history outside his own family'.²³ William Penn famously claimed that Fox 'was an original', and that 'his ministry and writings show they are from one that

¹⁵ Rex Ambler, 'Befriending the Earth: A Theological Challenge', *Friends Quarterly* 26:1 (January 1990): 7-17.

¹⁶ Virginia Schurman, 'A Quaker Theology of the Stewardship of Creation', *Quaker Religious Thought* 24: 4 (1990), 27-41.

¹⁷ Nikki Coffey Tousley, 'The Experience of Regeneration and Erosion of Certainty in the Theology of Second-Generation Quakers: No Place for Doubt?', *Quaker Studies* 13: 1 (September 2008), 21.

¹⁸ Anne Adams, 'Early Friends and their Witness to Creation', *Friends Quarterly* 31: 4 (October 1998), 145-52.

¹⁹ Gwyn, *Apocalypse of the Word*, 69, 200-2.

²⁰ R. Melvin Keiser, *Inward Light and the New Creation: a theological meditation on the center and circumference of Quakerism* (Wallingford, PA: Pendle Hill Publications, 1991), 5.

²¹ Glen D. Reynolds, *Was George Fox a Gnostic? An Examination of Foxian Theology from a Valentinian Gnostic Perspective* (Lampeter, UK: Edwin Mellen, 2005), 72-76/242.

²² David Brooks-Saxl, 'Gnostic Dualism as a Means of Explaining the Quaker Experience', in Tony Adams, ed., *Dualism: Immanence and Transcendence in Quaker Theology* (Birmingham: Quaker Theology Seminar and Woodbrooke College, 1999), 55-65.

²³ Michael Mullett, 'Introduction: George Fox and the Society of Friends' in Michael Mullett, ed., *New Light on George Fox (1624-1691)* (York; William Sessions, 1993), 3.

was not taught of man, nor had learned what he said by study'.²⁴ Early historians of Quakerism, such as William Sewel,²⁵ also ignored or minimised any contribution that other thinkers, earlier or contemporary, may have made to the Quakerism of Fox and other early Friends.

However, from the late 19th century to the present day, a succession of scholars have examined the relationships between Quaker views and those of other religious groups and individuals, and a consensus has developed that the views of Fox and other early Quakers on the creation (and other subjects), are likely to have been influenced by factors in addition to their own revelatory experiences, knowledge of the Bible, and family backgrounds (see below).²⁶ Much of this remains conjecture based on the similarities between early Quakers and other religious groups and individuals in terms of spiritual experiences, ideas and, especially, the use of language (see appendix 1). Geoffrey Nuttall, for example, endorsed von Hugel's view that Fox and early Quakers were 'steeped in images and convictions that have grown up amongst, that have been handed down by, concrete, historical men, and concrete, historical institutions and cultural acts'.²⁷ One of the few pieces of contemporary evidence that Fox may have been influenced by older traditions came from his friend, Edward Bourne, physician and chemist, who claimed that Fox had an impressive knowledge of various ancient wisdom traditions, including Hermeticism (see appendix 1):

²⁴ William Penn, *Extracts from William Penn's Preface to the Original Edition of George Fox's Journal, 1694* in Nickalls, *Journal*, xliii

²⁵ William Sewel, *The History of the Rise, Increase, and Progress of the Christian People Called Quakers*, 5th edn. (London: William Phillips, 1811), 1-10.

²⁶ Mullett, 'George Fox and the Society of Friends', 1-8.

²⁷ Frederick von Hugel, *Essays and Addresses*, 1, 231, quoted by Geoffrey F. Nuttall, *The Holy Spirit in Puritan Faith and Experience* (Oxford: Blackwell, 1946), 15.

Hee speak of the Glory of the first body, and of the Egyptian Learning, & of the Language of the birds, & of what was wonderfull to mee to heare, soe that I belived he was of a Deep & wonderfull understanding in naturall but especially in spirituall things, whose works, wch Hee have left behind Him, are demonstrate the same.²⁸

The historian, Christopher Hill,²⁹ and the theologian, Geoffrey Nuttall,³⁰ are among many to have described Quakerism in relation to the vigorous and developing puritan tradition of the time. Douglas Gwyn has explored in detail how Quakers emerged in Britain from the spiritual 'Seekers' movement of the 1640s,³¹ including the impact of individuals such as the 'Digger', Gerrard Winstanley, as well as the radical theology and decline of another short-lived religious group of the early 1650s, the Ranters.³² As long ago as 1876, Robert Barclay (of Reigate) presented evidence of influences on the first Quakers from the 'spiritual Puritan' tradition which, he suggested, might have been inherited from other sources, including Continental mystics of the 15th and 16th centuries.³³ In particular, several early Friends (but not Fox) made reference to the works of Jacob Boehme, the German mystic whose writings most closely resemble those of Fox.³⁴ Quaker historian, John Punshon, sums up the position as follows:

Sometimes...[the first Quakers] appear in the Puritan mould. At other times they bear the imprint of spiritual movements in Continental Europe. Sometimes they appear to reflect the genius of their founder George Fox.... Often they just look like a group of people who have joyfully come to the same discovery of religious faith.³⁵

²⁸ Norman Penney (ed.), *The First Publishers of Truth' Being Early Records (Now First Printed) of the Introduction of Quakerism into the Counties of England and Wales* (London: Headley Bros, 1907), 278-9. See also Norman Penney, ed., *The Journal of George Fox* (Cambridge: Cambridge University Press, 1911), 2, 384.

²⁹ Christopher Hill, *The World Turned Upside Down: Radical Ideas During the English Revolution* (Harmondsworth, UK: Penguin Books, 1975), esp. 14, 71-80, 94-5, 187-91, 372-78.

³⁰ Nuttall, *Holy Spirit*, esp. 2-47, 102-117, 150-177.

³¹ Douglas Gwyn, *Seekers Found: Atonement in Early Quaker Experience* (Wallingford, PA: Pendle Hill Publications, 2000), 125-56.

³² *Ibid.*, 157-88.

³³ Robert Barclay, *The Inner Life of the Religious Societies of the Commonwealth; Considered Principally With Reference to the Influence of Church Organisation on the Spread of Christianity* (London: Hodder & Stoughton, 1876), 76-7. Barclay referred specifically to the influence of the Mennonite churches in Holland following the teaching of Menno Simons (1492-1559).

³⁴ Nuttall, *Holy Spirit*, 17. See also Ariel Hessayon, 'Jacob Boehme and the Early Quakers', *Journal of the Friends Historical Society* 60 no.3 (2005): 191-223.

³⁵ Punshon, *Portrait in Grey*, 9.

The wider context in which the first Friends' described their experiences and thoughts of the natural world included not only major religious, political, and social upheaval, but also far-reaching intellectual change, described by Charles Webster as 'a philosophical revolution'.³⁶ In particular, the medieval view of nature as a collection of symbols and pointers to higher moral and spiritual truths was giving way to a radically different way of understanding the created world, through the active investigation of natural things which revealed their material utility, and consequently God's true purposes in the creation.³⁷ The idea that the physical world had been in a progressive state of degeneration was popular from the 1570s to the 1630s.³⁸ Philip Almond describes it as 'a melancholy time', but argues that under the influence of the development of a scientific attitude to nature, this view 'had all but disappeared' by the middle of the 17th century.³⁹ Nuttall stressed that some concept of divine harmony was 'intensely fashionable' at this time,⁴⁰ comprising:

a fundamental element in a strange complex... of astrology, alchemy and herbalism in which so many of Fox's contemporaries were interested... At its lower end it shaded off into Rosicrucianism, magic and quackery; at its higher into astronomy, chemistry, metallurgy, botany and medicine'.⁴¹

The latter would later mature into 'independent manifestations of the new experimental spirit in science'.⁴² In the mid-17th century, however, they remained largely the province of religious men who believed in 'the unity of the world in God

³⁶ Charles Webster, *The Great Instauration: Science, Medicine and Reform 1626-1660* (London: Duckworth, 1975), xiii.

³⁷ Peter Harrison, *The Bible, Protestantism and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998), 167-8.

³⁸ Philip Almond, *Adam and Eve in Seventeenth Century Thought* (Cambridge: Cambridge University Press, 1999), 205-8.

³⁹ *Ibid.*

⁴⁰ Geoffrey F. Nuttall, 'Unity with the Creation: George Fox and the Hermetic Philosophy', *Friends Quarterly* 1 (January 1947), 135.

⁴¹ *Ibid.*

⁴² *Ibid.*

and the interpenetration by the Divine spirit of all created things', and who held that the secrets of nature... could be resolved only to the God-fearing'.⁴³

Charles Webster has shown that, by the middle of the 17th century, it was widely believed in protestant circles that humanity's 'spiritual salvation would be accompanied by the renewal of his dominion over nature'.⁴⁴ It was also believed that the ultimate source of Adam's dominion over nature was his perfect knowledge of nature (2.4.2), an attribute referred to repeatedly by pre-Quaker writers in the late 16th and 17th centuries, but of which there is no suggestion in the Genesis text itself.⁴⁵

Whilst Adam's knowledge was believed to be immediate and innate, owing nothing to experience, the regaining of this knowledge and dominion was at the core of Francis Bacon's seminal programme of experimental philosophy. Bacon, however, went some way to differentiate between the methods for regaining spiritual purity on the one hand, and the dominion over creation on the other:

For man by the fall fell at the same time from his state of innocency and from his dominion over creation. Both of these losses however can even in this life be in part repaired; the former by religion and faith, the latter by arts and sciences.⁴⁶

The first Friends appear to have made no direct reference to this fundamental change in thinking, but its effects may be discerned to some extent in the ways early Quaker authors mixed 'old' and 'new' ideas about the created world. In a review of the possible influences on early Quaker attitudes to medicine and science, Peter Elmer

⁴³ F.E. Hutchinson, *Henry Vaughan* (Oxford: Clarendon Press, 1947), 153, 185 quoted in Nuttall, 'Unity with Creation', 135.

⁴⁴ Webster, *Great Instauration*, 329.

⁴⁵ Almond, *Adam and Eve*, 44-5. Almond writes that this 'is an imaginative construction based solely on the parading of the animals before Adam to be named and to help him find a mate. It is in effect an elaboration of the belief that his naming of them was no mere arbitrary act, but an expression of his innate knowledge of their essential natures... In the first speech act of man, perfect knowledge was revealed.' (Almond, op. cit. p.45) George Walker, for example, declared that 'in the state of innocency in the first creation, *man had perfect natural knowledge of all natural things, arising and springing immediately from his natural soul*' (George Walker, *The History of the Creation* (London: 1641), 193, quoted by Harrison, *Rise of Natural Science*, 211.

⁴⁶ Francis Bacon, *Novum Organum* bk 2 aphorism 52, quoted by Webster, *Great Instauration*, 324.

concluded that ‘the intellectual and scientific heritage of the Quakers was highly eclectic’,⁴⁷ and included continental mystical schools of natural philosophy.⁴⁸

Social Background of the Quakers

The social profile of the earliest Friends appears to have been similar to that of other dissenting groups. Michael Watts concluded that, despite difficulties in interpreting and comparing data, Dissent appealed primarily to the economically independent, those who depended neither on the king or his ministers (the landed gentry) nor on the parson or the squire (the labouring poor).⁴⁹ Having analysed the occupations and positions of a prominent group of 60-70 early Friends in north west England known as the First Publishers of Truth (FPT), Ernest Taylor claimed that over half of this group could be described as being ‘in a good material position in life, as having a superior education, and as possessing widespread influence in the districts in which they lived’.⁵⁰ According to Arthur Raistrick, nearly 70% of the FPT were ‘closely connected with the land either as proprietors, tenants or labourers, or as the wives of these’.⁵¹ Raistrick also argued that these Friends were drawn disproportionately from the yeoman farmer, artisan/craftsman and professional classes, with very few from either the labouring class or the landed gentry.⁵² Alan Cole’s researches of records from both rural and urban areas in England revealed that whilst at least half the early Quaker leaders were ‘directly connected with the land’, those involved in trades and

⁴⁷ Peter Elmer, ‘Medicine, Science and the Quakers: The ‘Puritan-Science’ Debate Reconsidered’ *Journal of the Friends’ Historical Society* 54 no.6 (1981): 266.

⁴⁸ *Ibid.*, 265-86.

⁴⁹ Michael R. Watts, *The Dissenters: from the Reformation to the French Revolution* (Oxford: Clarendon Press, 1978), 346-54.

⁵⁰ Ernest E. Taylor, ‘The First Publishers of Truth: a study’, *Journal of the Friends Historical Society* XIX (1922): 81.

⁵¹ Arthur Raistrick, *Quakers in Science and Industry: being an Account of the Quaker Contributions to Science and Industry During the 17th and 18th Centuries* (London: Bannisdale Press, 1950), 33.

⁵² *Ibid.*, 80.

handicrafts, especially textiles, were relatively much more numerous among the body of early Quakers. Even in London, the professions (education, medicine, the law, and the church) were poorly represented.⁵³

2.1.3 Sources and Nature of Evidence

Primary source material used in this chapter is drawn from the wealth of early Quaker publications. With a few exceptions dating from the period 1666-69, only material published before 1666 is cited here: passages quoted from Fox's *Journal* are restricted to the same period. Fox's *Journal*, his tracts and pamphlets ('doctrinals'), epistles, and occasionally his sermons, form the largest source of evidence, whilst important contributions come from tracts by other leading Quakers, especially James Nayler, Edward Burrough, James Howgill, Isaac Penington and William Smith.⁵⁴ Although some of these authors occasionally developed themes on the creation at length, substantive references to the subject are not common in the context of the total output of Quaker published material from this period. Of a total of 1,287 works by Quaker authors published between 1652 and 1665 identified by Rosemary Moore,⁵⁵ only 10 appear in Adams' bibliography, to which the present study adds another 14.

Although there are a few references to the creation from the period 1653-55, mostly by Fox,⁵⁶ most of the published output on the subject dates from the period 1656 to 1661, with little appearing in 1660, the year of Nayler's death. The upsurge in interest in the subject after 1655 may be related to a retreat on the part of early

⁵³ Alan Cole, 'The Social Origins of the Early Quakers', *Journal of the Friends Historical Society* 48, no. 3 (1957): 116-7.

⁵⁴ Identification of these references is based on Adams, 'Early Friends Relationship With Creation', and my own research.

⁵⁵ Moore, *Light in Their Consciences*, 241-2.

Quakers from the expectation of the imminent physical reality of the arrival of God's kingdom on earth – a 'political-apocalyptic upheaval',⁵⁷ to a belief in salvation in purely spiritual terms.⁵⁸ With this transition came a new emphasis on the work of God in historic time and the first real interest by Friends in the contemplation of theology. Burrough died in 1663, and the general paucity of material after 1661 on the theology of the creation may also reflect a post-Reformation purge of Ranterish elements which were perceived by Fox and others in the Quaker movement (2.2.4, 2.5.2 & 2.6.3).⁵⁹ Although Burrough's works were reprinted in 1672, Christopher Hill noted that 'the writings of Nayler disappear from sight': after 1661 Fox effectively censored publications of Quakers, including reprints of earlier works.⁶⁰

The first Quakers described their view of the natural world in terms of the biblical account of creation and events in the Garden of Eden. Most early Quaker writing on the subject reflected a view of history based on three ages: the Creation, the Fall and the Restoration.⁶¹ Michael Graves has argued that this was a key metaphor, used by several early Quaker leaders, and notably by Fox, to explain some of his most profound experiences and beliefs.⁶² However, George Fox and other leading first Quakers were not generally highly educated: they saw themselves as

⁵⁶ George Fox, 'To Friends, for all to wait and walk in the truth' (1653), in *Works* 7: 40; George Fox, 'To the High and Lofty Ones' (c.1655), in *The Works of George Fox* (1831: repr. Pennsylvania: New Foundation Publications, 1975), 4, 50.

⁵⁷ Moore, *Light in Their Consciences*, 66.

⁵⁸ *Ibid.*, 60-69.

⁵⁹ This time frame correlates with the chronology of the relationship between early Quakers and Ranterism set out by J.F. McGregor, and in particular with that period of 'accommodation' of Ranters between 1656 and 1661 (J.F. McGregor, 'Ranterism and the Development of Early Quakerism', *Journal of Religious History* 9 (1977): 350. McGregor argued that this came to an end after the Restoration when Fox was eventually obliged to purge the Ranterish elements that were discrediting the movement. By this time, Ranterism was identified by Fox and his supporters with 'any irresponsible claim to spiritual liberty' and in particular to opposition from within Quakers to the necessary process of consolidation. This now included the characterization of Nayler's excesses as 'Ranterish', something Fox had been reluctant to do at the time of the critical Nayler incident in 1656 (*Ibid.*, 359/361/363).

⁶⁰ Christopher Hill, 'Quakers and the English Revolution', in Mullett, *New Light*, 34.

⁶¹ Wilcox, *Theology and Women's Ministry*, 17-18.

prophets, not theologians. The experience of God's revelation was of far more consequence to them than reasoned exposition. Consequently, early Quaker writing on the Restoration often involved the close juxtaposition of different ideas and images, most of them biblical, alongside ideas based on their own experiences, and interpreted with the help of language borrowed from other mystical writers, including some from continental Europe.⁶³ Such explicitly reasoned argument as they contain tends to be succinctly compressed rather than expansive, different authors and different passages often repeating a number of familiar key themes and motifs.⁶⁴ This reflects their authors' wish to be true to their own religious experiences, as well as their own literary abilities, and the modes of thought and expression prevailing at the time: only James Nayler and Edward Burrough attempted reasoned theological arguments.⁶⁵ Because of the experiential nature of much of this material, passages often encompass more than one of the following four themes, and consequently, in this chapter there is some common ground between themes. Whilst some early Friends clearly enjoyed a highly sympathetic spiritual awareness of the natural world around them - the creation was not just a metaphor to them - references to the physical creation may sometimes be ambiguous in that they are capable of either literal or metaphorical interpretation. However, students of Fox's writing have been cautioned against efforts to 'squeeze the last drop of meaning (and life) from [his] theology'⁶⁶. Whilst some analysis of complex writing is essential to identify the ideas and images

⁶² Michael P. Graves, 'Mapping the Metaphors in George Fox's Sermons' in Mullett, *New Light*, 52-55.

⁶³ See for example, Rufus M. Jones, *Spiritual Reformers in the 16th & 17th Centuries* (London: Macmillan, 1928), 220-233.

⁶⁴ Moore, *Light in Their Consciences*, 81.

⁶⁵ *Ibid.*, 19, 104-6.

⁶⁶ H. Larry Ingle, *First Among Friends: George Fox and the Creation of Quakerism* (New York: Oxford University Press, 1994), vii.

they contain, it is also important to look at texts in their entirety and in the context of their particular purpose.

2.2 THE NATURE AND VALUE OF CREATION

This section is in four parts, the first three of which reflect the early Quaker ‘Creation-Fall-Restoration’ model of history. The first part is concerned with statements on the status and nature of God’s original creation. The second part explores the more controversial topic of the creation in the Fall - the present creation - including an assessment of Fox’s position. The third part explores views of how the physical world would be restored within the context of the ‘new creation’, and the continuation of divine creativity. The final part considers views on the nature of the relationship between physical matter and the divine spirit, including pragmatic observations of Fox and more metaphysical discourse from Burrough.

2.2.1 God’s Good Creation

George Fox declared that ‘all Gods [sic] Works are Perfect’,⁶⁷ and other early Quakers supported the principal elements of the biblical doctrine of creation.⁶⁸ They wrote about the original creation mainly in biblical terms. Edward Burrough, for example, asserted that ‘All creatures that God made, in their creation and beginning was very good in his sight that made them, and unto man that was to use them, and no creature was evil or defiled in its creation’.⁶⁹ According to William Smith, ‘The Lord

⁶⁷ George Fox, *Some Principles of the Elect People of God Who in Scorn are called Quakers* (London: Robert Wilson, 1661), 22.

⁶⁸ See, for example, Alister E. McGrath, *Christian Theology: An Introduction* (Oxford: Blackwell, 1997), 268-9 for a basic exposition of the biblical doctrine of creation.

⁶⁹ Edward Burrough, *A Standard Lifted Up, and an Ensign held forth, to all Nations* (London: Giles Calvert, 1658), 18.

God...according to the good pleasure of his own Will, and after the Counsel of his own Heart, he brought forth a Pure Creation in his Wisdom...⁷⁰ The good creation specifically included man and woman. Catherine Wilcox identifies a ‘marked tendency’ on the part of the early Quaker authors to avoid discussion of Adam’s prior creation, and to select verses from Genesis that supported the joint creation in God’s image of man and woman, and their joint dominion over creation before the Fall.⁷¹

She cites Burrough combining Genesis 2:7 with 1:27:

...of the dust of the ground were you made, and into man was breathed the breath of life: from the living power that formed all things; and man was made a living soul...for male and female in the image of the creator created he them, without sin and evil.⁷²

There is much emphasis in writings from this early period on the divinely harmonious character of the original creation, united in God’s will. Francis Howgill developed the theme at some length:

...then the Earth and all Things that moved and had Life were in pure Solace and Mirth, and pleasant Joy unspeakable, all knit together in Unity and Harmony in one Consent, as one Family, and were one Body, and there was Health in the Body, and it was pure, and comely, and perfect, and pleasant to behold...⁷³

Howgill believed that the original creation was exclusively a living creation in which death and decay had no part:

...all that he hath made...partook of the Life that endures forever and Happiness immortal...; there was no Wrath, no Sorrow, no Condemnation, no

⁷⁰ William Smith, ‘The New-Creation Brought Forth, in the Holy Order of Life: Wherein the Immortal Birth is Revealed, and the Precious Pearl, out of the Mixture, Extracted’ (1661), in *Balm from Gilead. A Collection of the Living Testimonies* (n.p., 1675), 128.

⁷¹ Wilcox, *Theology and Women’s Ministry*, 155/161. Wilcox writes of Friends’ ‘apparent preference’ for the Yahwist account (Genesis 2: 4b to 2:25) of the creation of man from the dust of the ground, but on the creation of woman, refer to the Priestly account (Genesis 1:1 to 2:4a), emphasizing the creation of man and woman jointly in God’s image (ibid.).

⁷² Edward Burrough, *A Description of the State and Condition of all Mankind Upon the face of the whole Earth* (London: Giles Calvert, 1656), 2. On the title page of this paper, Burrough described himself as ‘one who hath measured and viewed in true judgement the condition of all mankind; who is a lover of souls, and a friend to the creation of God’ (ibid.).

⁷³ Francis Howgill, *The Invisible Things of God Brought to Light* (1659), in *The Dawnings of the Gospel-Day, and its Light and Glory Discovered* (Works) (London, 1676), 184.

Death...there was nothing that did destroy, but all in Quietness, in Peace, in Life, in Power, in Wisdom.⁷⁴

2.2.2 The Creation in the Fall

Catherine Wilcox records that early Quakers frequently described the Fall as ‘going forth’ from one state and ‘entering into’ another state, separate and contrary to God, an act of the first man’s and woman’s free will.⁷⁵ Humankind thus lost unity with God, throwing the created order as a whole into disorder. There is some ambiguity over early Quaker statements on the status of the creation in the Fall, in which two rather different emphases can be identified. The first of these sees both humanity and the rest of creation being corrupted, having become ‘enslaved’ to one another. The second contrasts the state of humanity with that of the rest of creation, which remained, at least to some extent, uncorrupted by the fall of humankind.

In the fall, the true authority or ‘dominion’ that God had originally given to humanity over the natural and physical world was lost, and man and woman became slaves to evil and base desires. Fallen humanity’s relations with the products of creation were now typically self-indulgent and contrary to God’s order:

...and the power of the earthly darkness gained dominion over him to sway his affections, desires and lusts into vanities of the earth, and he lost his dominion over the creatures; and they gained dominion over him to serve and worship them, and to please himself with them who became captive with his mind to be ruled by them in vanity and in evil...being turned from the Covenant wherein he was set, into his own, willing and desiring in the outward Creation...⁷⁶

Burrough attributed the corrupted nature of the creation as a whole to human disobedience:

⁷⁴ Howgill, *Invisible Things of God*, 184.

⁷⁵ Wilcox, *Theology and Women’s Ministry*, 22.

⁷⁶ Burrough, *State and Condition of Mankind*, 4.

the first Creation hath been defaced, and lost its Glory; and it hath been corrupted and degenerated quite from the perfect state as it was created in... and hereby all things have been diverted from their proper and perfect place and service, to which they were ordained in the beginning...⁷⁷

In an earlier work, however, Burrough expressed a rather different view.

Here, he distinguished between, on the one hand, humanity and humanity's relationship with the rest of creation as being both 'out of the covenant of God whilst, on the other, the rest of creation still 'stands in God's covenant.'⁷⁸ Despite human disobedience to God, the creation other than humanity was thus in some intrinsic sense still 'pure':

and [man] being possessed with evil and corrupted, he makes all creatures evil in his exercise of them, and he corrupts them and perverts them to another end than wherefore they were created...and they are become a curse unto man and not a blessing, though in themselves are neither cursed, nor evil, nor defiled...and ruling over them in oppression and cruelty and hard-heartedness, and not in the wisdom of God...and this ought not to be for it is out of the Covenant of God, in which all creatures were made, and in which they stand, except the creature man, who degenerated out of God's Covenant...⁷⁹

William Smith also referred to the 'pure creation being in sore travail and pain',⁸⁰ suggesting that the creation as a generality was still fundamentally 'pure', but subverted from its true destiny by humanity's disobedience to God. At the same time, Smith saw the outward creation comprising both divine and corruptible elements. He referred to humanity's evil deeds arising from 'the corruptible part of the visible creation',⁸¹ and having been led astray into the 'fallen properties of the corruptible part of the creation, in which he is become as a Beast without understanding'.⁸²

⁷⁷ Edward Burrough, *A Discovery of Divine Mysteries; Wherein is unfolded Secret Things of the Kingdom of God* (London: Robert Wilson, 1661), 12.

⁷⁸ Burrough, *Standard Lifted Up*, 19.

⁷⁹ *Ibid.*, 19.

⁸⁰ Smith, 'New Creation', 141. See Romans 8: 22.

⁸¹ *Ibid.*, 134.

⁸² *Ibid.*, 138. Smith re-iterated this idea several times in this work. By way of explanation, he referred to a part of the creation 'which did not keep its station, but moved out of the Wisdom...for which cause it was cast down by the Power, & driven into the lowest parts of the Creation...and this is the place of that part which kept not in the holy Order of the pure Creation...and his name is Serpent, the Devil...(ibid., 130).

James Nayler, developing a theme from John 1:1-15, also expressed the paradox of God's unrecognised presence in the creation as a whole:

God is the life of every Creature, though few there be that know it; for the darkness sees him not, nor his life... So this that was in the beginning, is given to keep in order all the Creation... but the darkness comprehends it not, though it shine in it: so all that abide in the darkness are destroyed, not discerning the life, to order and govern the Creation in the light.⁸³

Fox's Evaluation of the Creation

Although George Fox described himself as 'a lover of all souls and of the whole creation of God',⁸⁴ modern scholars have been divided over how to interpret his position on the creation. Evidence presented in this chapter demonstrates that Fox supported the biblical interpretation of God's creation, in terms of his belief in the original perfection of creation, the fall of creation through human disobedience, and also his own experience of God's providence in the creation, as well as God's revelation to him of the true nature and significance of the creation. Nevertheless, Fox clearly perceived evil elements at work in the fallen creation, warning that 'in the earth dwell all the noisome creatures, and the evil beasts which are hurtful to the creation: for in the earth the devil dwells and walks'.⁸⁵ Fox went so far as to describe the present earth as 'cursed',⁸⁶ but linked this to the fall of humanity. Fox's use of biblical metaphors from the natural and physical world to illustrate human failings

⁸³ Nayler, *Love to the Lost*, 3.

⁸⁴ George Fox, 'A Declaration to the Jews', in *Works* 4: 297. Nayler, Burrough and William Smith described themselves in similar terms. Burrough as 'one who hath measured and viewed in true judgement the condition of all mankind; who is a lover of souls, and a friend to the creation of God' (Burrough, *State and Condition of Mankind*, 2). Nayler as 'one that seeks the redemption of Sion's Seed, and a Lover of the Creation of God' (Nayler, title page to *Love to the Lost*). Smith described himself as 'one who dearly loveth the Creation of God' (Smith, 'New Creation', 138).

⁸⁵ George Fox, Epistle XXIV 'To all Friends every where...' (1653), in *Works* 7: 32.

⁸⁶ George Fox and Ellis Hookes, *Instructions For Right Spelling, And Plain Directions For reading and Writing True English* (n.p., 1673), 21.

indicates that he saw in the condition of other creatures that they too had fallen into a state of corruption:

The word of the Lord to all ye fruitless trees, ye dry trees, ye oaks, ye tall cedars, ye fat bulls of Basham... which snuff up your noses in the top of the mountains and the Forrests, ye high-way-ground, ye stony-ground, ye goats, ye wolves, ye dogs, ye swine, ye serpents... walking after your lusts: this is not railing, this is the Scripture-language.⁸⁷

Fox also used botanical metaphors to illustrate the superficial and transient qualities of both the physical world, and of human folly and deceit:

O how full is the land of Sorcerers and witchcrafts! The mystery of her hath deceived many through her whoredoms. Green was the grass, and fresh was the flowers, the bay-tree spread itself, and the haw-thorn, but the time is coming of fading; the flower will fade, and the grass will wither, and the whordom and the inchanter must come to judgement...⁸⁸

Thus Fox repeatedly enjoined his followers to abandon earthly desires and the ways of the world in favour of true spiritual knowledge and the spiritual life, urging Friends to be ‘as strangers to the world, and all worldly, created and visible things’⁸⁹ (2.5.3).

Glen Reynolds sees Fox acknowledging ‘a very “real” and active presence of evil associated with the visible and created world’.⁹⁰ Whilst Reynolds admits that Fox ‘does not unambiguously express an ontological aversion to matter and the visible world *per se*’,⁹¹ he goes on to claim that such passages ‘arguably illustrate a radically negative evaluation of post-Fall Creation and matter’⁹² and a ‘distinctive negative attitude towards “matter” generally’.⁹³ Reynolds cites the following passage in which Fox described the antagonism between the divine spirit and ‘the world’⁹⁴ to

⁸⁷ George Fox, *The Vials of the Wrath of God Upon the seat of the Man of Sin* (London: Giles Calvert, 1655), 9.

⁸⁸ *Ibid.*, 4.

⁸⁹ George Fox, Epistle CCLXXIII ‘Not to trust in uncertain riches’ (1669), *Works* 8: 18.

⁹⁰ Reynolds, *Fox a Gnostic*, 242.

⁹¹ *Ibid.*, 76.

⁹² *Ibid.*

⁹³ *Ibid.*, 75.

⁹⁴ Pickvance, *Companion*, 100-2.

argue that Fox ‘viewed *the world and matter* [my italics] as being contaminated as if in a fallen state since its foundation’:⁹⁵

be married and joined to the seed Christ the Lamb, slain from the foundation of the world; from its foundation, I say. For as you are joined to the seed, and married to that which hath been slain from the foundation of the world, which hath the victory and doth overcome; by this you come to the end of the world; mark, to its end. And now all Friends, look upon the sufferings that have been since the fall, and since the world began...⁹⁶

However, in the same epistle (see below), Fox went on to state that ‘all things were good and blessed in the beginning before the fall’,⁹⁷ and Reynolds’ argument is based on the highly selective use of Fox’s statements about the creation. Other authors have interpreted the same kind of evidence differently, arguing that Fox did not believe the creation to be intrinsically evil or negative. Whilst Melvin Endy recognised a dualistic separation of ‘inward’ and ‘outward’ in Fox’s thinking,⁹⁸ Endy argued that Fox was less concerned with the distinction between the ‘visible’ and the ‘invisible’ than he was to contrast ‘spiritual’ with ‘sinful’ beings,⁹⁹ and drew attention to the key importance of the Fall for Fox. Thus, visible ‘being did not become radically distinct and even harmful to spiritual being until Adam (who possessed harmoniously both “outward” and “inward” being) sinned and thereby introduced “corruption” into the world’.¹⁰⁰ Only in the post-Fall world, Endy argued, were ‘visible’ and ‘sinful’ equated for Fox. Douglas Gwyn considers that Fox’s view was not a ‘gnostic negation of the outward, material world’,¹⁰¹ but of creation being ‘cast adrift from its created purpose,¹⁰² being ‘no longer under human dominion in God’s

⁹⁵ Reynolds, *Was Fox a Gnostic*, 74.

⁹⁶ George Fox, ‘A General Epistle to all Friends’ (1664), *Works* 7: 259.

⁹⁷ *Ibid.*, 262.

⁹⁸ Endy, *Penn and Early Quakerism*, 76.

⁹⁹ *Ibid.*, 78.

¹⁰⁰ *Ibid.*

¹⁰¹ Gwyn, *Apocalypse of the Word*, 115.

¹⁰² See Romans 8:18.

image'.¹⁰³ Gwyn describes 'the spiritual orders of the universe...[following] humanity into confusion',¹⁰⁴ and argues that most of Fox's negative references to the outward world relate to the disorder in creation caused by human disobedience to God. He writes that 'when Fox speaks of the world, or the 'flesh', or even 'the earth', he is not referring to matter *per se* but to the fallen way humans live in the material world, idolatrously and egocentrically fixated on things, on the creature in place of the creator'.¹⁰⁵ Thus the creation as a whole was oppressed, but not intrinsically evil for Fox.

An examination of Fox's views on the creation, both negative and positive, supports the views of Endy and Gwyn. Thus, in a key passage in which Fox repeatedly referred to *all things being blessed before the Fall* [my italics], he clearly stated that all 'outward things, figures, types, shadows, and inventions, have been set up *since Adam fell* [my italics]; which inventions Christ destroys'.¹⁰⁶ 'Outward things', Fox explained, included 'goods, houses, lands, or inventions of vanities, in the foolish vain fashions':¹⁰⁷ in this context he was more concerned with human inventions, possessions and preoccupations than with God's creation. Similarly, the context in which Fox referred to 'the foundation of the world', indicates that he intended this to be understood as the world since the Fall, the consequences of human willfulness and sin, and seduction away from the knowledge of inward truth, and not to the work of the creator God. Thus, Fox shared with other early Quakers the view that the present state of the material creation was fundamentally affected by the fall of

¹⁰³ Douglas Gwyn, 'Captivity among the Idols: The early Quaker view of sin and evil', *Quaker Religious Thought* 22 no.3 (1987), 7.

¹⁰⁴ Ibid.

¹⁰⁵ Douglas Gwyn to Glen Reynolds, 1. 9. 2000, pers. comm., quoted by Glen Reynolds, 'Was Fox a Gnostic?' (Ph.D diss., University of Sunderland, 2004), 89f.

¹⁰⁶ George Fox, Epistle (1664), in *Works* 7: 265.

¹⁰⁷ George Fox, 'A general epistle to Friends, and all people, to read over and consider in the fear of God' (1667), in *Works* 7: 284.

humanity. Whilst there was no suggestion of the possibility of the restoration of the physical world from within itself, redemption was possible for humanity, and by this means the creation as a whole would be relieved of its ‘burden’.

2.2.3 The Creation Restored

Reynolds’ characterisation of Fox’s view of creation is incompatible with Fox’s belief in the potential and actual transformation of the creation as a whole as human beings were restored in Christ. Indeed, other differences of emphasis and ambiguities were resolved when the creation was seen under the guidance of the divine inward light.

Rex Ambler writes of Fox that ‘seeing creation in the light one can see that evil and destruction are not primary: fundamentally all things are “blessed”’.¹⁰⁸ Isaac

Penington described how to the ‘creaturely eye’, ‘every thing’ was ‘unlovely’; viewed by the ‘true eye’, however, the created world ‘you shall see [things] all new’ and ‘an excellency appear’.¹⁰⁹ Corruption and evil were not denied, but ‘seen to be based on deceit, the denial of truth’:¹¹⁰ the world as fallen humanity knows it was a travesty based on selfish human ends that were ultimately an illusion. Fox compared the state of spiritual knowledge that made this possible with that of Christ’s apostles:

Therefore now you that are come to know the gospel preached again which was amongst the apostles, in this power of God you will feel before the fall of Adam and Eve, where all things were good and blessed before the fall...¹¹¹

¹⁰⁸ Rex Ambler, ed., *Truth of the Heart: an anthology of George Fox 1624-1691* (London: Quaker Books, 2001), 195.

¹⁰⁹ Isaac Penington, *Light or Darknesse, Displaying or Hiding itself, as it pleaseth, and from whom or to whom it pleaseth...* (London: John Madock, 1650), 4.

¹¹⁰ Ambler, *Truth of the Heart*, 195.

¹¹¹ Fox, *Works* 7: 264.

The 'New Creation'

According to Fox, 'Christ came to set at liberty the captive...for liberty is a natural right, and every natural creature would have its natural right, its liberty...and where the spirit of the Lord rules, there is liberty.'¹¹² Christ was come to set not only human beings, but also the rest of the living creation, at liberty through the restoration of God's order. As men and women were renewed in Christ, they not only saw the creation anew, but the whole of creation was itself transformed as a consequence, involving 'the *restoration of all things* to God's order and kingdom'.¹¹³ In this 'new creation', relationships between God and humanity, and between humanity and the rest of creation, were transformed as God, humanity and the creation were restored to their original state of unity. This belief, which seems to have been shared by other radical groups (see 2.6.3), was widely expressed by the first Quaker leaders, including Fox, Nayler, Burrough and Howgill and also James Parnell, Richard Farnworth and William Dewsbury.¹¹⁴ Using the metaphor of 'the seed' to refer to the potential growth of the new spirituality, James Nayler described the process as follows:

and as man beholds the Seed growing, so he comes to see the new Creation, and what he lost in the Fall, and so is restored by the power of the Word in the Son of God, into his Dominion, power and purity...so comes man to be reconciled to his Maker, in the eternal Unity beyond what is to be expressed.¹¹⁵

James Parnell (1636-56) described Christ's coming in spirit, and the 'new creation' as actual or imminent realities: 'Christ was come, even to destroy the Old Creation, and create New Heavens and New Earth... and those are they that are the New Creatures,

¹¹² Fox, *Works* 4: 320.

¹¹³ Gwyn, *Apocalypse of the Word*, 200.

¹¹⁴ Adams, 'Early Friends and Creation', 147-8. Moore also notes that both Farnworth and Dewsbury appear to have come to uphold 'Quaker-type' beliefs independently of Fox (Moore, *Light in Their Consciences*, 12).

¹¹⁵ James Nayler, *Love to the Lost, and a Hand held forth to the Helpless, to Lead out of the Dark* (London: Giles Calvert, 1656), 3.

in whom this New Work is witnessed'.¹¹⁶ However, the extent to which early Quakers saw the restoration of a perfect creation as an objective reality as opposed to a metaphorical expression of spiritual transformation is, however, not altogether clear. Gwyn has suggested that the order that Fox saw may have been primarily protological/eschatological,¹¹⁷ and Melvin Keiser has described the 'new creation' being as 'one with the primordial and eschatological creation'.¹¹⁸ Gwyn contends that Fox was searching 'to find the inward and new revealed in counterpart to the outward and old', rather than reducing the outward merely to the status of an allegory of the inward world'.¹¹⁹ Whilst Fox did not always recognise distinctions between the natural and the miraculous, the detail contained in his vision of the renewed creation, his concern for animal welfare, and his knowledge of natural medicine suggest that he did, at least to some extent, see the creation as an objective reality.

Keiser argues that 'this intimate indwelling of the New Creation' is fundamental to Fox's mature spirituality. 'Not only is he centred in the Light, he is situated in the world in its original vitality...our present ordinary world but as experienced in depth, illuminated by the divine Light'.¹²⁰ He describes the 'ongoing movement between formlessness and form', between Fox's 'convincement of the light within and experience of the new creation' as typical of the Quaker position on creation.¹²¹ Dean Freiday commented that it was 'obvious that Fox did not see creation as a one-week job from which God rested on the seventh day, and then abandoned it to fend for itself.' Freiday wrote:

¹¹⁶ James Parnell, 'The Watcher, or the Stone cut out of the Mountain Without Hands, Striking at the Feet of the Image...', in *A Collection of the Several writings Given forth from the Spirit of the Lord, through that Meek, Patient and Suffering Servant of God, James Parnell...* (n.p. 1675), 173-4.

¹¹⁷ Douglas Gwyn (pers. comm.)

¹¹⁸ Keiser, *Inward Light*, 13.

¹¹⁹ Gwyn, *Apocalypse of the Word*, 115.

¹²⁰ Keiser, *Inward Light*, 8.

¹²¹ *Ibid.*, 11.

As it was for the early Church Fathers, creation for Fox is a continuing process. He sees God's creative purpose as extending through redemption and the continuing transformation of humankind to its ultimate perfection in the pattern set by our Redeemer as the second or final Adam, and summed up in his preaching about the Kingdom or Reign of God.¹²²

Keiser also argues that Isaac Penington, in particular, was 'explicit about the unfinished nature of the world; the redeemed life shares in divine creativity'.¹²³

Penington wrote that 'When the creation of God is finished, when the child is formed in the light, and the life breathed into him, then God brings him into his holy Land, where he keeps his Sabbath'.¹²⁴

2.2.4 God's Relationship to Creation

The first Friends were concerned with the direct experience of God in the human conscience and the consequences of that experience for human behavior, rather than with metaphysical ideas about God and the creation. Despite the fact that the creation played a significant part in George Fox's account of his own experience of the divine, contemporary theological exploration of Fox's and other early Friends' experiences is generally very limited. Nevertheless, there is evidence in early Quaker writing of both transcendent and immanent views of God in relation to the creation. Moreover, significant differences of emphasis in this respect can be found between different authors. In particular, Fox emphasized divine transcendence and the eschatological immanence of God in human beings, whilst Burrough was also interested in the immanence of God in the creation as a whole, in its protological, present and eschatological states.

¹²² Dean Freiday, response to Schurman, 'Quaker Theology of Creation', 44.

¹²³ Keiser, *Inward Light*, 15.

¹²⁴ Isaac Penington, *The Way of Life and Death made manifest and set before men* (London: Lodowick Lloyd, 1658), 20.

The Development of Fox's View

Melvin Keiser has argued that George Fox's early position on the relationship between God and the physical world generally was not fixed. Using evidence from the *Journal*, he refers to Fox's growing awareness of the presence of God in the world, as he moved from 'dichotomising spirit and world, to reducing spirit to world, to affirming the spirituality of the world as divine creation'.¹²⁵ Writing of his experiences in 1647, Fox contrasted God and the world, as he 'found that there were two thirsts in me, the one after the creatures, to have gotten help and strength there, and the other after the Lord the creator and his Son Jesus Christ'.¹²⁶ In 1648, whilst in the Vale of Belvoir, Fox described how he was tempted to suppose that God was no more than the natural world; perhaps 'all runs according to natural laws and causes'.¹²⁷

And one morning... a great cloud came over me, and a temptation beset me; but I sat still. And it was said 'All things come by nature'; and the elements and stars came over me so that I was in a manner quite clouded with it.¹²⁸

Fox went on to relate how such a view was quickly dispelled in him, as:

a living hope arose in me, and a true voice, which said, 'There is a living God who made all things.' And immediately the cloud and temptation vanished away, and life rose over it all, and my heart was glad, and I praised the living God.¹²⁹

Fox subsequently made a clear distinction between the inward light of Christ, to which John bore witness that it 'was the true light which had enlightened every man that came into the world', and the 'natural lights'¹³⁰ of the creation:

¹²⁵ Keiser, *Inward Light*, 11.

¹²⁶ Nickalls, *Journal*, 12.

¹²⁷ Keiser, *Inward Light*, 11.

¹²⁸ Nickalls, *Journal*, 25.

¹²⁹ Ibid.

¹³⁰ Nickalls, *Journal*, 303.

The foundation of God, which was before any creature was made, is the power of God, Jesus Christ the light... Which light was before conscience was, or creature was, or created or made light was. He made the sun the moon, &c and the light which was before these were made; and he is life and spirit too. For that which convinceth of sin is above the creature; checks him, and reproves him, and lets him see where he goeth astray from the Creator, and that is the light of Christ...¹³¹

Thus Fox's experience led him to believe in an immanent God in a very particular sense in human beings, in terms of the inward divine light. Fox consistently emphasised the eschatological character of the immanence of God in humankind, the realisation of which was an imminent reality:

And God will dwell in the saints as the creator, he creates in them right minds, new hearts, new spirits; gives them understanding and knowledge to know him, which is eternal life and wisdom; to walk in his ways which are perfect...¹³²

At the same time, many of his statements on right and wrong relationships between God, human beings and the creation described or implied a transcendent God, greater than and independent of creation. These include quotations that Reynolds uses to support his argument that Fox saw the creation to be in a fallen or contaminated state.

Burrough's Exploration of God's Immanence

Evidence to support the view that God was immanent in creation comes from James Nayler, and especially Edward Burrough, although the clarity with which this was expressed varied. For example, Nayler's assertion that 'God is the life of every Creature' (2.2.2) could be interpreted to mean a relationship between God and his creation that was no more than that allowed within the classical theist position that the creation was wholly outside of God.¹³³ Burrough supported both transcendent and

¹³¹ George Fox, 'The Great Mystery' (1659), in *Works* 3: 48.

¹³² Fox, *Works* 3: 457.

¹³³ See Charles Hartshorne and William L. Reese, eds., *Philosophers Speak of God* (Chicago: University of Chicago Press, 1953), 15-17.

immanent views of God in creation, asserting that ‘Life was all, over all, through all, and in all in the Beginning...in and over all the Works of the Creator’, and he stands alone among early Friends in the extent to which he developed a theology of creation. Much of Burrough’s writing on the creation reflected his experience of God’s immanence in creation, in its original state, its present condition, and as an eschatological reality.

Burrough identified in the original creation a particular form or facet of God that he called ‘Life’ which he described as ‘in the beginning with God’ but also ‘in its Being is God and God is Life’. He then went on to describe the intimate indwelling of ‘Life’ in the physical creation:

And Life put forth itself out of its invisible being, into work and action in the beginning of the World, and appeared in visible operations and works, and brought forth all creatures, and all things, into visible appearances...and Life ruled and reigned in every Creature that was brought forth, and was the Glory and Substance thereof; for Life was and is that only Begotten of the Father, the Son and the Heir of the Everlasting Father, his express Image and Brightness; being one with the Father, not separated or divided from him.¹³⁴

Burrough’s conception of God immanent, but slightly at ‘arm’s-length’, in creation, contrasts with the very confident assertion by the ‘Digger’ leader, Gerrard Winstanley, that ‘God dwells in every creature’¹³⁵ (see appendix 1), which Gwyn describes as ‘pantheistic’.¹³⁶ However, Burrough came close to equating God with his concept of ‘Life’, and might be characterised in the same way. Taking up Paul’s theme from Ephesians (see above), he appeared to claim the primordial inseparability of God and the physical creation:

¹³⁴ Burrough, *Discovery of Divine Mysteries*, 7-8.

¹³⁵ Gerrard Winstanley, preface to ‘The Saints Paradise or, the Fathers Teaching the only satisfaction to waiting soules wherein Many Experiences are Recorded, for the comfort of such as are under Spiritual Burning’, in *Several Pieces Set Forth in Five Books Gathered into one Volume* (London: Giles Calvert, 1649). Winstanley wrote: ‘And this is the Spirit, or Father, which as he made the Globe and every creature; so he dwells in every creature, but supremely in man...’ (ibid).

¹³⁶ The belief that ‘the Being of God includes and penetrates the whole universe, so that every part of it exists in Him, but...that His being is more than, and is not exhausted by, the universe’ (Cross & Linvingstone, *Oxford Dictionary of the Christian Church*, 1213).

But Life was all, over all, through all, and in all in the Beginning, before Disobedience and Transgression entered to war against Life: But Life was Prince, Ruler and Governor, in and over all the Works of the Creator. And Life in its Being is God, and God is Life; and in its Government, and Fruits and Effects is Purity, Righteousness, Truth, Holiness, Meekness, and all the Works that are Just and Equal according to God, and like him, and which shows him forth in the Creation...¹³⁷

In the context of the present creation, the nature of the relationship between the divine spiritual reality and the material creation was both a wonder and a mystery beyond the capacity of human reason. Burrough introduced a second intermediary or facet of God – ‘Mystery’ – to develop a similar argument. In this passage he suggested that he believed God to be immanent even in the present, fallen state of creation:

And as for the Mystery of God, it is infinite and eternal in being, and which was, and is, and is to come, without beginning or end: and this Mystery reaches itself forth more or less in every creature upon the face of the whole Earth, and is the Life, and Being, and Substance of all Things: and all Creatures upon the face of the Earth...for the life of every Creature, and the virtue of every Creature is a Mystery, and proceedeth out of the great Mystery of God...¹³⁸

Like Winstanley, Burrough’s indwelling divine presence in creation was not only a protological / eschatological reality.¹³⁹ Burrough wrote that ‘Life *was and is* that only Begotten of the Father, that the creatures ‘*stood and did remain in Blessedness*’, and the ‘Mystery of God...’ which *was, and is, and is to come*’ and ‘*reaches itself forth* more or less in every creature upon the face of the whole earth’ [my italics]. Both Nayler and Burrough strongly suggested that God’s immanence in his creation was

¹³⁷ Burrough, *Discovery of Divine Mysteries*, 7.

¹³⁸ *Ibid.*, 16.

¹³⁹ John Polkinghorne, for example, has drawn a distinction between panentheism as an eschatological, as opposed to a present, reality. He writes that ‘the *ultimate* destiny of creation...understood as the seed from which God’s new creation has begun to grow through the redeeming transformation of the old creation, will indeed be a state in which God is ‘all in all’ (1 Cor. 15:28)’. (John Polkinghorne, *Faith, Science and Understanding* (London: Society for Promoting Christian Knowledge, 2000), 90-91).

partly independent of eschatology since they claimed the existence of the intimate presence of God in ‘every creature’ despite human ignorance of it (2.2.2).

However, the restoration of the creation to its intended destiny was clearly an integral part of realised eschatology for all these early Friends. The full and complete expression of God’s immanence in creation could only be an eschatological reality since it depended on the recognition of that reality by human beings, and that was dependent on humankind being restored to God. It was the light of Christ that revealed to the restored believer the eternal mysteries of God and ‘Life’ – the ‘new creation’ (2.2.3). Burrough’s ‘Life’ was the contingent face of God: ‘Life’ changed its mode of appearance, but the ‘Life that made the world’, the Life that was in all things, and the Life that would come again to rule in human hearts, was the same:

Life again comes to take possession of the Creature, which it made in the beginning; and Life comes to reign again, whose Right it is to reign; for, by it the Creature, Mankind, and all Creatures were in the beginning formed and brought forth, and therefore it is Right to reign, and have dominion over the works of its own hands...¹⁴⁰

Burrough’s introduction of the intermediary terms, ‘Life’ and ‘Mystery’, into theological expositions on the creation seems to have been an attempt to interpret his own spiritual experience of the physical creation.¹⁴¹ More typical of the first Quakers than such expositions, however, was a direct witness to a personal experience of the divine spirit at work in the creation, and a significant level of consensus in terms of the way in which that spiritual reality is expressed. There is, however, a difference in the focus of such experiences and ideas. Burrough emphasised the immanence in creation as a whole, both in its original and present state. Fox’s emphasis, on the

¹⁴⁰ Burrough, *Discovery of Divine Mysteries*, 8.

¹⁴¹ Characterization of the position in this way introduces similar issues of theological ambiguity, as well as depth, that Moore discusses in relation to the category of the inward light in human beings. She likens the latter to the ‘introduction of something like a Fourth Person to the Trinity’ (Moore, *Light in their Consciences*, 102-3, 109).

other hand, was on God's immanence in human beings, and his transcendence over the creation as a whole.

2.3 THE CREATION DIALECTIC

This section identifies three kinds of translational experience between God and the outward creation described by early Friends. The first of these involves solitary spiritual encounters by Friends, early in their spiritual lives, that took place in physical settings reminiscent of the biblical 'wilderness'; this is followed by evidence for Fox's 'sense of place'. The second part concerns the God-centred dimension of the dialectic, focussed on Fox's personal experience of God's revelation of the creation to him, and his belief that all those who were truly restored in Christ could enjoy the same revelation. The third part explores evidence for the creation-centred dimension of the dialectic, by way of Friends' use of metaphors and, more importantly, the ability to see God's wisdom and providence, and read other spiritual truths, for themselves in the works of creation. The section concludes with an assessment of the place of the outward creation in early Quaker spiritual transformation, and of the overwhelming importance of the divine inward light in the operation of the creation dialectic.

2.3.1 Experiences in the Wilderness

Seeking God

Something akin to the biblical concept of ‘wilderness’¹⁴² figured in several early Friends’ descriptions of their personal search for God. Mary Penington related how she grew sick of worldly pleasures, and would instead retire for periods ‘into the country’, where, having gone ‘out from the company into a field’, she ultimately experienced a direct revelation of God.¹⁴³ Francis Howgill recalled his discontent of orthodox Christian teaching, and sought solace in silent and solitary contemplation ‘at home and in desert places’ until ‘something spoke within me from the Lord’.¹⁴⁴ Fox, too, related how, as a young man, he avoided church services but would ‘get into the orchard or the fields’,¹⁴⁵ and to other ‘lonesome places’ in his search for spiritual fulfilment. This he did not find at this stage, but recognised with hindsight that these early experiences were part of the ‘first workings’ of the divine spirit within him:

But my troubles continued, and I was often under great temptations; and I fasted much, and walked abroad in solitary places many days, and often took my Bible and went and sat in hollow trees and lonesome places till night came on; and frequently in the night walked mournfully about by myself, for I was a man of sorrows in the times of the first workings of the Lord in me.¹⁴⁶

In these examples, God was not revealed as such either in or by the creation. Instead, the natural landscape of woods, fields and streams provided a passive environment that could be conducive to a (limited) degree of direct, immediate revelation of God.

¹⁴² In this context, ‘wilderness’ refers to any rural environment in which individuals could find solitude, including fields and orchards, as well as hills and mountains commanding extensive views.

¹⁴³ Mary Penington, *Experiences in the Life of Mary Penington* (London: Friends Historical Society, 1992), 30-33.

¹⁴⁴ Francis Howgill, ‘The inheritance of Jacob discovered, After His Return out of Egypt’ (1655), in *Works*, 53.

¹⁴⁵ Nickalls, *Journal*, 7.

¹⁴⁶ *Ibid.*, 9-10.

Quaker physician, Charles Marshall, described how he had sought solace in nature but found that this only served to emphasise the fallen state of humanity:

And seeing I could not find the living among the dead professions, I spent much time in retirements alone, in the fields and woods, and by springs of water, which I delighted to lie by and drink of... And in those days, as I walked and beheld the creation of God Almighty, every thing testified against me, heaven and earth, the day and the night, the sun, moon, and stars... keeping their respective places; the grass and flowers of the field, the fish of the sea and fowls of the air, keeping their order; but man alone, the chief of the work of God's hand, [I saw was] degenerated.¹⁴⁷

Marshall's experience of nature was distinctive in that it played an active part in his revelation. However the revelation was primarily of a negative character, illustrating the contrast between man and the rest of creation and between their respective relationships to God, rather than of God directly.

Fox's Sense of Place

Although Dorothy White proclaimed that 'now is Sion appearing in beauty',¹⁴⁸ such language was untypical of the published writing of early Quakers, and the direct contemplation of outward beauty in nature was generally avoided.¹⁴⁹ However, Larry Ingle refers to a letter of 1656 from Will Caton (a young friend of Fox's), in which the author gave a rare glimpse of another side of George Fox.¹⁵⁰ Here, Caton quoted Fox recommending him to enjoy the walk along the coast back to London: '...he

¹⁴⁷ *The Journal, Together with Sundry Epistles and Other Writings of Charles Marshall, a Minister of the Gospel in the Society of Friends...* (London: Richard Barrett, 1844), 2-3. See also Douglas Gwyn, *Seekers Found: Atonement in Early Quaker Experience* (Wallingford, PA: Pendle Hill Publications, 2000), 252.

¹⁴⁸ Dorothy White, *This to be delivered to the Counsellors that are sitting in Counsel, As a Warning from the Lord unto them before the Terrible day come before his wrath be kindled...* (London: Thomas Simmons, 1659).

¹⁴⁹ Anne Thomas, *Only Fellow-Voyagers: Creation Stories as Guides for the Journey* (London: Quaker Home Service & Birmingham: Woodbrooke College, 1995), 34.

¹⁵⁰ Ingle, *First Among Friends*, 139.

would have me go up the way he [Fox] came down near unto the sea coasts and to look at it outwardly...¹⁵¹ Ingle regards this as:

the most unusual statement I have ever found him making... For one who recoiled from the external, particularly if pleasure was involved, Fox's endorsement of natural beauty for its own sake points to a seldom-seen side of the man.¹⁵²

Yet, in the *Journal*, Fox showed that he was very much alive to an outward sense of place: his spiritual experiences and insights were, to a greater or lesser extent, fixed within a framework of time and place. His 'openings' of the divine generally came to him on his travels, and he frequently made a point of mentioning the outdoor context of these. On one such occasion in 1647, he told of his revelation that God was to be found not in buildings but in human hearts:

But the Lord showed me, so that I did see clearly, that he did not dwell in these temples which men had commanded and set up, but in people's hearts; for both Stephen and the Apostle Paul bore testimony that...his people were his temple, and he dwelt in them. This opened in me as I walked in the fields to my relations' house.¹⁵³

Several passages in the *Journal* recording key events in Fox's ministry gave as much prominence to the detail of his interaction with the physical environment as they did to the content and manner of his ministry. Mountains, hills and water were generally the principal elements mentioned as Fox travelled further from his native English Midlands. This was his account of his vision on Pendle Hill in Lancashire in 1652:

As we went I spied a great high hill called Pendle Hill, and I went on the top of it with much ado, it was so steep; but I was moved of the Lord to go atop of it; and when I came atop of it I saw Lancashire sea; and there atop of the hill I was moved to sound the day of the Lord; and the Lord let me see a-top of the hill in what places he had a great people to be gathered. As I went down, on the hillside I found a spring of water and refreshed myself, for I had eaten little and drunk little for several days.¹⁵⁴

¹⁵¹ Will Caton to Margaret Fell, May 23, 1656, Swarthmore MS., 1, 313, FHL.

¹⁵² H. Larry Ingle, 'Unravelling George Fox: the Real Person', in Mullett, *New Light*, 42.

¹⁵³ Nickalls, *Journal*, 8.

¹⁵⁴ *Ibid.*, 103-4.

Referring to this famous incident, Quaker historian, William C. Braithwaite commented that ‘A mount of vision is an inspiration to the Seer; it uplifts his heart and supplies the ample horizons which his soul requires....’.¹⁵⁵ Thus not only was Fox led by God to high wild places to minister to the people, but whilst in such places, he received a vision from God of other places where ‘there was a great people to be gathered’. The vision itself concerned both people’s spiritual condition and the physical places they inhabited. For Fox, Pendle Hill was not only a commanding topographical feature, but, in Hilary Hinds’ words, ‘also a place of prominence in his spiritual landscape, ascended with difficulty but with godly assurance’.¹⁵⁶ Hinds sees Fox’s vision being ‘precipitated by the hill’s composite spiritual/material loftiness’.¹⁵⁷ She believes that Fox’s description of his experience at Pendle Hill ‘set the tone for the [Quaker] movement’s habitual blending of a sense of place with spiritual commentary, as well as of journey and text’.¹⁵⁸ Fox later stated that he enjoyed this kind of experience many times subsequently:

And the same thing I have been moved to do in many other places and countries, the which have been rude places, and yet I was moved to declare the Lord had a seed in those places; and after, there has been a brave people raised up in the covenant of God and gathered in the name of Jesus, where they have salvation and free teaching.¹⁵⁹

Fox referred not only to the biblical precedent (of the transfiguration) behind his leading to find a place ‘in the mountain’, but also to his conviction that people could find God in such wild places just as much as in church buildings and grounds. At Firbank Fell, near Sedbergh, he related how ‘the word of the Lord came to me I must

¹⁵⁵ Braithwaite, *Beginnings of Quakerism*, 78-9.

¹⁵⁶ Hilary Hinds, ‘An Absent Presence: Quaker Narratives of Journeys to America and Barbados, 1671-81’, *Quaker Studies* 10, no.1 (2005): 7.

¹⁵⁷ *Ibid.*

¹⁵⁸ *Ibid.* See also Geoffrey Cantor, *Quakers, Jews, and Science: Religious Responses to Modernity and the Sciences in Britain, 1650-1900* (Oxford: Oxford University Press, 2005), 230-1.

¹⁵⁹ Nickalls, *Journal*, 302.

go and set down upon the rock in the mountain even as Christ had done before'.¹⁶⁰

Here he 'was made to open to the people that the steeplehouse and that ground on which it stood were no more holy than that mountain...Christ was come, who ended the temple, and the priests, and the tithes'.¹⁶¹

2.3.2 God's Revelation of Creation

George Fox showed a spiritual awareness of the created world early in life. He later recalled how, as a child of 11, he 'knew pureness and righteousness', having been *taught by the Lord* [my italics] 'to be faithful in all things, and to act faithfully two ways, viz. inwardly to God and outwardly to man'.¹⁶² The following passage, in which Fox set out for the first time in his *Journal* his own early religious beliefs, makes prominent reference to his awareness of the creation:

For the Lord showed me that though the people of the world have mouths full of deceit and changeable words, yet I was to keep to 'yea' and 'nay' in all things; and that my words should be few and savoury, seasoned with grace; and that I might not eat and drink to make myself wanton but for health, using the creatures in their service, as servants in their places, to the glory of him that created them...¹⁶³

Whilst this text was actually written some 40 years after the time to which it refers, it contains two key elements of his view of creation. Firstly, Fox made it clear that it was God who showed him how to act in relation to the creation. Secondly, the passage reflects his belief that salvation had consequences for conduct,¹⁶⁴ and the explicit attribution of spiritual significance to the avoidance of waste and extravagant show in the use of God's creation is very typical of Fox.

¹⁶⁰ Ibid., 108.

¹⁶¹ Ibid., 109.

¹⁶² Nickalls, *Journal*, 1-2.

¹⁶³ Ibid., 2.

¹⁶⁴ Moore, *Light in Their Consciences*, 115-6.

Writing in the 1870s, William Howitt¹⁶⁵ appears to have been one of the earliest Quaker authors to recognise explicitly that Fox's spiritual experiences opened 'not only the spiritual but also the natural world' to him.¹⁶⁶ Whilst Glen Reynolds describes Fox's revelations in terms of being brought to a 'state of divinity',¹⁶⁷ he is not alone among modern Quaker historians in largely ignoring the references to the natural world in Fox's own accounts of his spiritual experiences (5.2.1). However, restoration to an original state of unity with God and his creation was very real for Fox. In what has been described as one of 'the most profoundly moving passages of his rhetoric', it is these images that Fox used in an attempt to 'articulate the meaning of human existence'¹⁶⁸ in terms of the restoration of paradise on earth:

Now was I come up in spirit through the flaming sword¹⁶⁹ into the paradise of God. All things were new, and all the creation gave another smell unto me than before, beyond what words can utter. I knew nothing but pureness and innocency, and righteousness, being renewed up into the image of God by Christ Jesus, so that I say I was come up into the state of Adam which he was in before he fell. The creation was opened to me, and it was showed me how all things had their names given them according to their nature and virtue.¹⁷⁰

Fox proceeded to universalise his own experience, relating how God showed him that this 'opening' was potentially available to all people renewed in the light of Christ:

And the Lord showed me that such as were faithful to him in the power and light of Christ, should come up into that state in which Adam was before he fell, in which the admirable works of the creation, and the virtues thereof, may be known, through the openings of that divine Word of wisdom and power by which they were made.¹⁷¹

Virginia Schurman argues that for Fox, Christ was simultaneously the Son of God, God the creator, the upholder and sustainer of all things (in whom was "unity with the

¹⁶⁵ William Howitt (1792-1897), Quaker poet and popular writer.

¹⁶⁶ William Howitt, 'A Monograph on George Fox'. Unpublished typescript of 1936; originally written late 1870s (Woodbrooke Quaker Study Centre Library).

¹⁶⁷ Reynolds, *Was Fox a Gnostic*, 66.

¹⁶⁸ Graves, 'Mapping the Metaphors', 53.

¹⁶⁹ Genesis 3: 24.

¹⁷⁰ Nickalls, *Journal*, 27.

¹⁷¹ *Ibid.*

creation”); as well as the ‘Inward Light or Teacher’, in whom men and women were reborn’.¹⁷² Fox assured Elizabeth Claypole in 1658:

Then thou wilt feel the power of God, that will bring nature into his course, and to see the glory of the first body. And there the wisdom of God will be received, which is Christ, by which all things were made and created, in wisdom to be preserved and ordered to God’s glory.¹⁷³

Catherine Wilcox writes that ‘the idea of a full restoration in Christ was an important Quaker tenet, and one worked out in some detail by the earliest Quaker writers’.¹⁷⁴ Early Quakers believed that man and woman were originally endowed with a complete range of attributes that reflected God’s nature. All these attributes were restored, together with unity with God and with the creation, as the believer was brought by Christ, not only to the pre-Fall state, but even to the state of Christ himself; that is, to perfection.¹⁷⁵ Thus, the mystery of God’s creation that had been hidden was now revealed to those who followed the light of Christ.¹⁷⁶ Humanity’s rightful place in creation, and true understanding of it, were restored through personal spiritual transformation in Christ. James Nayler, for example, declared that the true knowledge of these matters were ‘not things of Man, nor by Man did I receive them, but by the revelation of Jesus Christ, which is contrary to the Wisdom and Will of Man’.¹⁷⁷ In particular, the wisdom to use and manage the creation as God had intended it should be, giving dominion to humanity, was restored through God. This was the same wisdom in which the creatures had been made by God in the first place and was of crucial practical importance (2.4.2 and 2.5.2).

¹⁷² Schurman, ‘Quaker Theology of Creation’, 35.

¹⁷³ Nickalls, *Journal*, 347.

¹⁷⁴ Wilcox, *Theology and Women’s Ministry*, 26.

¹⁷⁵ Margery Post Abbott, Mary Ellen Chijioke, Pink Dandelion, and John William Oliver, Jr., eds., *Historical Dictionary of the Friends (Quakers)*, (Lanham, MA: Scarecrow Press, 2003), 218.

¹⁷⁶ Burrough, *Discovery of Divine Mysteries*, 16.

¹⁷⁷ Nayler, *Love to the Lost*, 4.

2.3.3 Creation-centred Elements

Husbandry as Metaphor

One of the simplest manifestations of a creation-centred element in the dialectic amongst early Quakers, was their use of biblical images from husbandry as metaphors to describe the work of God in the human soul. Margaret Fell, for example, likened those redeemed by the light to:

living plants in the garden of the Lord which now he is dressing & watering & pruning that to him fruit may be brought forth [,] who is Lord of the vineyard, & the husbandman which purgeth every plant which beareth fruit, that it may bring forth more fruit, & every branch which beareth not fruit he taketh away...¹⁷⁸

In her ‘letters’, Fell frequently used metaphors of this kind, which would have been familiar to her readers.¹⁷⁹ Their effectiveness, however, was based partly on her readers’ experience or knowledge of such practices and partly on their knowledge of the Bible. Arguably this is one of the very few examples of natural theology (2.6.2) amongst Friends at this time.

The Creation as a Witness to God

More robust evidence for this side of the dialectic comes in the form of statements about the personal experience of creation by the restored believer. Fox asserted that those who were renewed in the light of Christ would come to realise that all of creation celebrated its creator. Whilst those who were ‘out of the light’ would complain about the weather and the seasons:

¹⁷⁸ Margaret Fell, ‘To Friends, Brethren and Sisters’ (1656) in *Undaunted Zeal: The Letters of Margaret Fell* (Richmond, IN: Friends United Press, 2003), 212.

¹⁷⁹ See Michael Birkel, *The Messenger that Goes Before: Reading Margaret Fell for Spiritual Nurture* Pendle Hill Pamphlet 398 (Wallingford, PA: Pendle Hill Publications, 2008), 14-28.

...such as are turned to the Light which comes from him who is the Heir of all things, which upholds all things by his word and power; these come to see how all the works of the Lord praise him, his works praise him, day and night praise him; Summer and Winter praise him; Ice and Cold, and Snow praise him...Seed-time and Harvest praise him; and all things that are created praise him. This is the language of them who learn of him...¹⁸⁰

Adams has researched the 'praise poems' and other material written by several early Friends to celebrate the new vision of the creation (see also 3.4.1).¹⁸¹ James Nayler, for example, described how he was shown the wonders of creation by God, and at the same time the works of creation demonstrated the power of God:

When I look back into thy Works I am astonished and see no End of thy Praises: Glory, Glory to thee, faith my Soul and let my Heart be ever filled with Thanksgiving; whilst thy Works remain they shall shew forth thy Power; then didst thou lay the Foundation of the Earth, and led'st me under the Waters, and in the Deep did'st thou shew me Wonders, and the Forming of the World.¹⁸²

Fox's Creation 'Parables'

For Fox, the inward light could also reveal meaning in the outward creation in another way. The creation was a rich source of outward pointers to inward truths.¹⁸³ Nature had long been looked upon as an allegory of the spiritual world,¹⁸⁴ but Fox saw in the outward creation a resource specifically for people to gain an understanding of their own spiritual condition as a prelude to the process of restoration and salvation in Christ:

As the light opens and exerciseth thy conscience, it will open to thee parables and figures, and it will let thee see invisible things...which are clearly seen since the creation of the world, that doth declare the eternal power and

¹⁸⁰ George Fox, *Concerning Good-Morrow, and Good-Even; the World's Customs...*(London: Thomas Simmons, 1657), 11-12.

¹⁸¹ Adams, 'Early Friends and Creation', 148.

¹⁸² James Nayler, 'And in the day when God lifted my feet out of the pit was this given forth' (1659), in *A Collection of Sundry Books, Epistles, and Papers...* (London: J.Sowle, 1716).

¹⁸³ See Gwyn, *Apocalypse of the Word*, 114-5.

¹⁸⁴ See, for example, Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800* (London: Allen Lane, 1983), 64.

Godhead....All who mind the measure [of the light] which God hath given you, it will open unto you these outward figures which God spake, and will teach you...¹⁸⁵

However, Fox's examples from the outward creation were derived not from the observation of nature, but from scripture: in Gwyn's words, Fox found 'the realities of the outward world described in scripture to be the types of the inwardly revealed new world'.¹⁸⁶ He quotes Fox: 'the light of God which gave forth the scripture, this light of God according to its measure will open the scripture to thee'. Fox cited numerous examples of such 'outward figures', such as

thorny ground without thee, so thy heart is as thorny ground...as forests within thee, so the wilderness in thy heart...as swine without thee, thou art a swine wallowing in the mire...as tall cedars without thee, thou wilt see thyself a tall cedar, who livest without the truth, spreading thyself...¹⁸⁷

Thus nature could, when seen through the inward light, communicate scriptural truths to ordinary men and women who, being 'unlearned in the letter', were unable to read in scripture for themselves.¹⁸⁸ Fox explained that, in this way, God spoke to man and woman in their fallen condition through the creation, whose 'figures and parables' of the inward state of man and woman could be read everywhere by those who 'hearken to the light within':¹⁸⁹

for man being drove into the earth, and the earth being above the seed; so as the earth without thee, so the earth within thee; the Lord speaking low things, comparisons like to that nature in man; that man may look upon the creation with that which is invisible, and there read himself; there thou mayest see wherever thou goest...¹⁹⁰

¹⁸⁵ George Fox, 'A Word from the Lord, to all the World, and all Professors in the World, spoken in Parables' (1654), in *Works* 4: 36.

¹⁸⁶ Gwyn, *Apocalypse of the Word*, 114.

¹⁸⁷ Fox, *Works*, 4:34. See also Gwyn, *Apocalypse of the Word*, 113-5.

¹⁸⁸ Fox, *Works*, 4: 36.

¹⁸⁹ *Ibid.*, 36-7.

¹⁹⁰ *Ibid.*, 37.

2.3.4 Limitations of the Creation-Dialectic

Significant as the creation may have been in the early Quaker witness to redemption, however, there were limits to the role of the creation and the creation-dialectic in the spiritual lives of early Friends. Whilst James Nayler, and especially Edward Burrough, ¹⁹¹ started to explore the idea that the visible universe reflected the divine attributes of its unseen creator, there is no evidence to suggest they believed that it was possible to learn of God from the creation through empirical observation and human reason alone. True understanding of the creation, God, or humanity through the creation, was consequential upon divine revelation and the work of the divine inward light upon the human conscience. Thus early Quakers leaders placed a heavy emphasis on the primacy of spiritual truths over material things (see 2.5.1/3).

Secondly, Fox himself referred to the fact that his experience of the creation being ‘opened’ to him did not of itself signify that he had achieved the ultimate state of union with the divine. For Fox, regaining the state of Adam before the Fall, and his perfect knowledge of creation, was a key stage, but did not signify the completion of his spiritual journey to a state of perfection:

And I was at a stand in my mind whether I should practise physic for the good of mankind, seeing the nature and virtues of the creatures were so opened to me by the Lord. But I was immediately taken up in spirit, to see into another or more steadfast state than Adam’s in innocency, even into a state in Christ Jesus, that should never fall.¹⁹²

Isaac Penington described how, early on during his spiritual quest, he was shown the secrets of the creation but was unable to respond to the direct presence and love of God. His experience ‘made not only the scriptures, but the very outward creatures glorious in my eye, so that everything was sweet and pleasant and lightsome round

¹⁹¹ Rosemary Moore describes Burrough as succeeding James Nayler as the leading Quaker theologian after 1656 (Moore, *Light in Their Consciences*, 19/105).

¹⁹² Nickalls, *Journal*, 27.

about me',¹⁹³ and he sought refuge in such outward things. However, he 'did not then know how to turn to and dwell with that which gave me the favour, nor rightly to read what God did daily write in my heart': he 'durst not receive any thing from God immediately, as this estate was too high and glorious for me'.¹⁹⁴

2.4 EPISTEMOLOGY OF THE CREATION

This section, in three parts, explores in more detail the early Quaker understanding of the idea of the knowledge of creation, and evidence for views on different sources of knowledge. Based on the biblical account of the creation and the Fall, the first part considers beliefs about the nature of the first man's God-given knowledge, and its loss in the fall. The second concerns the restoration of that perfect knowledge to those restored in Christ, reviews previous authors' assessments of its significance, and explores the Quaker belief in the primacy of 'inward' over 'outward' knowledge. The final part looks at evidence for emerging interest in the role of empiricism and human reason in the knowledge of creation.

2.4.1 Man's Original Knowledge of Creation

The belief that God had originally endowed Adam with an intimate and detailed knowledge of the works of the creation, and their virtues and uses was of many centuries standing when Fox wrote of his experience.¹⁹⁵ Wilcox notes that this belief was held not only by Fox, but also by James Nayler,¹⁹⁶ described by Moore as 'the

¹⁹³ Isaac Pennington, 'A Brief Account of my Soul's Travel towards the Holy Land...', *The Works of the Long-Mournful and Sorely-Distressed Isaac Pennington...* vol.2 2nd ed. (London: Samuel Clark, 1761), 50.

¹⁹⁴ Ibid.

¹⁹⁵ See, for example, Almond, *Adam and Eve*, 44; Harrison, *Rise of Natural Science*, 61/211.

¹⁹⁶ Wilcox, *Theology and Women's Ministry*, 26.

most competent theologian'¹⁹⁷ amongst the first Friends. In the most comprehensive statement of Quaker theology up to that time (1656),¹⁹⁸ he described himself as 'a lover of the creation of God' and includes one of the earliest expositions of Quaker protology.¹⁹⁹

In the beginning God made all things good, so did he Man, whom then he made in his own image, and plac'd in him his own Wisdom and Power, whereby he was completely furnish'd with Dominion, Power and Authority over the Works of God's Hands, Knowing the Nature and Use of each Creature, by that Image God had placed in him of Himself who in that State was the Son of God, whose Seed was in himself²⁰⁰

Here Nayler elaborated the biblical text²⁰¹ to emphasise, firstly, the close link between knowledge of the creation and dominion over it, and secondly, that such knowledge was a function of the divine wisdom of God in humankind. Charles Marshall adhered more closely to scripture in his description of the naming of the creatures by Adam, but also explained the latter's ability to do this in terms of 'man' being 'endued [sic] with ...divine wisdom'.²⁰² Nayler went on to discuss the biblical distinction between 'life' and 'knowledge'. 'Life' was in keeping with God's will and reveals the 'hidden wisdom', but was lost in the Fall: 'knowledge' of things in this context was a departure from the divine will, a product of the corrupted imaginings and vanities of the human mind. Nayler referred to 'man' having 'become brutish in his understanding',²⁰³ whilst William Smith wrote of the first man having become 'earthly', with 'an earthly wisdom, sensual and devilish, in which the serpent stood exalted'.²⁰⁴

¹⁹⁷ Moore, *Light in Their Consciences*, 104.

¹⁹⁸ Ibid.

¹⁹⁹ Nayler, *Love to the Lost*, 1.

²⁰⁰ Ibid.

²⁰¹ Genesis 2: 19-20.

²⁰² Marshall, *Journal*, 71: 'And man was endued with that divine wisdom, that when the Lord God brought every beast of the field, and fowl of the air, to Adam, he gave names unto them; and whatsoever Adam called every living creature, that was the name thereof' (ibid.).

²⁰³ Nayler, *Love to the Lost*, 1.

²⁰⁴ Smith, 'New-Creation', 11.

The whole Creation is put out of its Holy Order, and travelleth in pain, and the whole course of nature is set on fire, whereby Man is deprived of that pure Understanding in which he was created, and in which he discerned through the Order of the whole Creation, and had knowledge of it as it stood in the Power and Wisdom of God...²⁰⁵

2.4.2 Knowledge of Creation Restored

Fox saw human preoccupations with the material world as symptomatic of a wider process of alienation from God that Douglas Gwyn refers to as ‘objectification’.²⁰⁶

This was the loss of humanity’s original inward knowledge *shared with* God, and its replacement by partial, compartmentalized views *of* God and the creation. Hugh Doncaster considered that Fox’s experience of a miraculously-imparted knowledge of the created world as an indicator of the transforming power of Christ in the soul gave him an insight into the consequent unity of all true knowledge. Indeed, quoting the final section of Fox’s account of his vision, Doncaster suggested that, in the context of the early Quakers’ doctrine of perfection, Fox’s description of his insights could be interpreted as ‘a claim to universal knowledge’:²⁰⁷

Great things did the Lord lead me into, and wonderful depths were opened unto me, beyond what can by words be declared; but as people come into subjection to the spirit of God, and grow up in the image and power of the Almighty, they may receive the Word of wisdom, that opens all things, and come to know the hidden unity in the Eternal Being.²⁰⁸

²⁰⁵ Smith, ‘New-Creation’, 138. Rosemary Moore writes that ‘My understanding of this passage is that the Fall upset the whole order of creation, and that man’s loss of understanding of creation was part of what went wrong’ (R. Moore, e-mail message to author, December 10, 2006). Douglas Gwyn also remarks that this passage is unusual in that it ‘seems to imply that human fallenness is a part of – even the result of – a general fallenness in creation. Generally, orthodox Christianity and I think Fox too conceive it the other way round – the fall of humanity has put creation out of order as well’ (D. Gwyn, e-mail message to author, February 28, 2001).

²⁰⁶ Gwyn, ‘Captivity among the Idols’, 6-7.

²⁰⁷ L. Hugh Doncaster, ‘Early Quaker Thought on “That State in which Adam was before he Fell”’, *Journal of the Friends Historical Society* 41 (1949): 21.

²⁰⁸ Nickalls, *Journal*, 27-28.

Moreover, James Nayler, like Fox, went so far as to contrast the position of the restored believer with that of the ‘first man’, in that the former would gain access to the ‘hidden wisdom’ that pre-dated the creation of the physical world:

So that which leads out into the knowledge, is the Fall; but that which leads into Simplicity of Life, which is manifest in the Spirit, and not in the Knowledge of the first man, that leads to the Resurrection of Life; for it is the hidden wisdom, that God ordained before the world unto glory: So to the hidden man of the heart must you look to find it, which is not Corruptible.²⁰⁹

Although Fox was clear that the wisdom to manage the creation came from God (2.5.2), Gwyn has questioned whether Fox saw the order that was revealed to him in creation as ‘protological/eschatological’ or a ‘present objective reality’.²¹⁰

Whilst the actual nature and extent of Fox’s newly acquired knowledge of creation is unclear (see 2.1.2 & Appendix 1), some modern authors have had no doubts about its potential significance to him as a religious leader at the time. Fox himself evidently attached considerable importance to being shown ‘how all things had their names given them according to their nature and virtue’:²¹¹ whilst the bible records that God put Adam in the garden of Eden ‘to dress it and to keep it’,²¹² naming the creatures is, in fact, the only action specifically attributed in the Genesis account to man (or woman) before the Fall. Thus, as Richard Bauman explains, in the view of those contemporary seekers of the Adamic language, ‘the names assigned to natural things by Adam were at least in some way representative of the true essence of those things.’²¹³ The re-discovery of this language ‘would not only be a means of acquiring knowledge; it would itself *be* knowledge, since each ‘word’ would provide

²⁰⁹ Nayler, *Love to the Lost*, 4.

²¹⁰ Douglas Gwyn, e-mail message to author, February 28, 2001. Gwyn also remarks that it is not clear from William Smith whether ‘one can see the order of creation even with the light within, if the creation is fundamentally out of order’ (ibid).

²¹¹ Richard Bauman, *Let your words be few: symbolism of speaking and silence among seventh-century Quakers* (London: Quaker Home Service, 1998), 3-4.

²¹² Genesis 2:15.

²¹³ Bauman, *Let your words be few*, 3.

an accurate description of the things signified'.²¹⁴ Hugh Ormsby-Lennon has described Fox's experience as a 'shamanic vision of the *Ursprache*':²¹⁵ as the primordial insight of Adam was restored to him, 'the *Ursprache* again became legible (and tangible).'²¹⁶ Ormsby-Lennon sees that it is 'that fusion of autobiography with archetype which renders Fox's cult-dream of 1648 (and its later elaborations) so compelling'.²¹⁷ The restitution of the "the pure language of nature, which [Adam] then spake, and understood, and afterwards so miserably lost and defaced",²¹⁸ would have been widely held by religious seekers of the time to be 'one of the primary signs and wonders characterising the Last Days' before Christ's inauguration of the millennium'.²¹⁹ Despite its potential significance at the time, and the fact that Fox referred to it again many years later,²²⁰ however, the belief in Adam's perfect knowledge of creation was, as Wilcox observes, 'not destined to survive in Quaker thought'.²²¹

Fox's Inward and Outward Knowledge

Douglas Gwyn describes 'outward' and 'inward' as 'two different ways of knowing' for Fox.²²² Outward knowledge, whether of God or the creation, was based on rational thought or sensory perception: it was fallible and subject to change. Inward

²¹⁴ James Knowlson, *Universal Language Schemes in England and France, 1600-1800* (Toronto: University of Toronto Press, 1975), 8, quoted by Bauman, *Let your words be few*, 3.

²¹⁵ Hugh Ormsby-Lennon, 'Fields of Dreams: Diggers, Cargo Cults and the *Ursprache*' (manuscript, 1988?), 21.

²¹⁶ 'Ursprache' is defined as 'primitive language' or 'original speech' in Harold T. Betteridge, ed., *Cassell's German & English Dictionary* (London: Cassell, 1968), 508.

²¹⁷ Ormsby-Lennon, 'Fields of Dreams', 22.

²¹⁸ John Webster, *Academiarum Examen* (1654), 32, quoted by Ormsby-Lennon, 'Fields of Dreams', 19-20.

²¹⁹ Ormsby-Lennon, 'Fields of Dreams', 22.

²²⁰ George Fox, 'Sermon at Wheeler Street, London...1680', in Hugh Barbour and Arthur O. Roberts, eds., *Early Quaker Writings 1650-1700* (Grand Rapids: William B. Eerdmans Publishing, 1973), 503.

²²¹ Wilcox, *Theology and Women's Ministry*, 26.

²²² Gwyn, *Apocalypse of the Word*, 98.

knowledge was superior: being ‘revealed directly to the heart by the spirit of Christ’: it was certain knowledge, not subject to change, and ‘surpasses and judges the human mind’. According to Gwyn, early Quakers believed that there was ‘no evil inherent in the outward knowledge nor in the outward world...but if the outward mind is not kept in subjection to the inward Spirit of Christ, one will come to destruction’.²²³ Quakers were openly hostile to what they regarded as arbitrary theories or conclusions based on abstract speculation, including those rooted in classical scholastic traditions.

Whilst Fox may have been influenced by continental mystical traditions, and apparently had knowledge of them, his *Journal* suggests that he did not move far from a knowledge base derived from his own spiritual insights. Whilst he interpreted these insights and experiences using biblical ideas and images as well as language borrowed from other mystics and traditions, for Fox, true knowledge of the creation was revealed to men and women by God.

Medicine and the Professions

The early history of Quakers’ attitudes to nature and also to science is closely linked to their views on the professions and to medicine in particular. For Fox, the true practice of medicine was a divinely inspired vocation. In the light of his own spiritual experiences, he considered ‘whether I should practise physic for the good of mankind, seeing the nature and virtues of the creatures were so opened to me by the Lord’ (2.3.2).²²⁴ Whilst Fox believed he had particular abilities to discern and to cure ‘hidden’ ailments in himself and others, he believed this was a direct gift from God.

²²³ Ibid.

²²⁴ Nickalls, *Journal*, 27.

The unlearned Fox contrasted a true knowledge of the creation revealed by God with the tradition-based book-learning of the physicians, the priests, and the lawyers of his day. Fox claimed that God that revealed to him that these professionals ‘ruled the world out of the wisdom, out of the faith and out of the equity and law of God’.²²⁵ In his challenge to the ‘mountebanks’ at Lyme (Regis) in 1657, Fox queried ‘whether any knew the virtue of all creatures in the creation, whose virtue and nature was according to its first name, except they were in the wisdom of God by which they were made and created.’²²⁶

Edward Grubb considered that the intense spiritual experience of Fox and other very early Friends ‘not only quickened their moral and spiritual perceptions but raised their whole inner being to a new level of insight, efficiency and power’.²²⁷ Although he never pursued a career as a physician, Fox retained a keen interest in medicine, believing that insight was given him to discern the inward condition of others, and to set right what was wrong, including the ability to heal their minds and bodies.²²⁸ This included not only the knowledge and application of natural remedies, but also, on occasion, the use of apparently miraculous powers.²²⁹ In contrast to mainstream Puritan belief, early Quakers shared with other spiritual Puritan sects a strong anti-professionalism in their views of the church, the law and the practice of medicine (see also 3.4.3). This made for a distinctively revolutionary social platform; since divine illumination was potentially available to all, and was the only real qualification for knowledge of God and of the natural world, anyone could gain this

²²⁵ Ibid., 28.

²²⁶ Ibid., 287.

²²⁷ Edward Grubb, ‘George Fox and spiritual healing’, *The Friend*, July 11, 1924, 600-01.

²²⁸ David Hodges, *George Fox and the Healing Ministry* (Guildford: Friends Fellowship of Healing, 1995), 9-10.

²²⁹ Rufus M. Jones, foreword to *George Fox’s ‘Book of Miracles’*, ed. Henry J. Cadbury (Cambridge: Cambridge University Press, 1948), ix.

understanding, regardless of sex, or social or religious background. This was clearly a threat to the professional and socially privileged elite.²³⁰

2.4.3 Reason and Experience

Like other radical Puritan groups, early Quakers consistently subordinated human reason to spiritual experience.²³¹ Melvin Keiser quotes Isaac Pennington's assertion that real knowledge was not a product of human reason, 'but a tasting, feeling, indwelling knowing of the divine presence in the original creation'.²³² Eating of the Tree of Knowledge of Good and Evil was 'knowledge without Life [which] makes...[people] wise in the wrong parts, exalts them against the life, dulls the true appetite, and increases the wrong appetite'.²³³ In order to taste of the Tree of Life, which was the inward Christ, people 'must loose their knowledge, they must be made blind, and be led to it by a way they know not'.²³⁴

The first Quakers were concerned with their experiences of or from God, rather than the natural world as such. There is little evidence to suggest they were involved, or particularly interested in, the scientific study of man and the natural world attributed by some to the Calvinist tradition (2.6.4).²³⁵ As Pickvance has observed, Fox's famous phrase 'this I knew experimentally'²³⁶ refers to knowledge

²³⁰ Richard L. Greaves, 'The Nature of the Puritan Tradition', in R. Buick Knox, ed., *Reformation, Conformity and Dissent: Essays in Honour of Geoffrey Nuttall* (London: Epworth Press, 1977), 271.

²³¹ Nuttall, *Holy Spirit*, 36/38/47.

²³² Keiser, *Inward Light*, 14.

²³³ Isaac Pennington, 'The Way of Life and Death made manifest and set before men' (1658), in *Works* (London: Benjamin Clark, 1681), 55-6.

²³⁴ *Ibid.*, 56.

²³⁵ Ian G. Barbour, *Issues in Science and Religion* (London: SCM Press, 1966), 20. See also Charles Webster, *The Intellectual Revolution of the Seventeenth Century* (London: Routledge & Kegan Paul, 1974), 15-17.

²³⁶ Nickalls, *Journal*, 11.

gained through personal experience, rather than scientific observation.²³⁷

Nevertheless, Fox's language has been described as reflecting 'the new spirit of empiricism that was sweeping the intellectual world',²³⁸ language based not on book-learning, the word of authority, or idle speculation, but on personal experience.

Thomas Ellwood (1639-1713) remarked that the view expressed by outsiders (such as Thomas More) that early Quakers were anti-intellectual was not borne out by his own experience.²³⁹ Herbert Wood suggested that Fox's insistence 'on accuracy of observation and accuracy of statement among Friends'²⁴⁰ would, in the longer term, be likely to prove conducive to the pursuit of science, especially of certain kinds, amongst the Quaker community. Conventional scholastic discourse, with its figurative language, ambiguities and lack of precision was seen by leaders of the new scientific movement as inadequate to describe God's creation. Increasingly they sought not to rediscover an Adamic language, but to construct a new type of scientific discourse characterised by simplicity, economy and plainness,²⁴¹ an endeavour that was to resonate with Quaker sensibilities in the years to come (see 3.3.2). Fox's account of his debate with a Jesuit in London in 1655 over the efficacy of the Mass (appendix 2) provides a fascinating illustration of his own understanding of the concept of experiment in a more modern sense.²⁴² Fox challenged his opponent to conduct an experiment: if consecrated bread and wine was indeed 'immortal and

²³⁷ Pickvance, *Reader's Companion*, 28/71. See also Geoffrey Cantor, *Quakers, Jews, and Science: Religious Responses to Modernity and the Sciences in Britain, 1650-1900* (Oxford: Oxford University Press, 2005), 237.

²³⁸ Frank Parkinson, 'Science and Technology', in Abbott et al. *Historical Dictionary*, 256. Parkinson considers that 'it is without doubt significant that the new religion and the new 'natural philosophy' had a practical orientation and that both rejected the validation of truth through appeal to tradition, authority or majority opinion' (ibid.).

²³⁹ Thomas Ellwood, One-time secretary to John Milton, Ellwood was to become a leading British Quaker later in the 17th century, and the editor and publisher of Fox's *Journal* in 1694 (Abbott et al., *Historical Dictionary*, 88-9).

²⁴⁰ Herbert G. Wood, 'George Fox and Modern Thought', *The Friend*, July 11, 1924, 592-3.

²⁴¹ Baumann, *Let your words be few*, 2.

²⁴² Nickalls, *Journal*, 345.

divine and the very Christ',²⁴³ then surely it would no longer be subject to the growth of mould and physical decay. Fox suggested that both the wine and the bread be divided into two portions, one of which (to be chosen by his opponents) would be consecrated and the other unconsecrated: they would all be placed in the same conditions and a watch kept over them to ensure that no portion was tampered with. Fox offered to abandon his Quaker beliefs if the consecrated items proved immune from decay, but insisted that bread and wine were 'but bread and wine, temporal things; things seen, and may turn to ashes'.²⁴⁴ The bread was 'not spiritual after consecration': it was 'but the same bread that it was before', and was 'no nearer the body of Christ after they have consecrated it'.²⁴⁵

2.5 LIVING IN GOD'S CREATION

The first part of this section extends the survey of views on the nature of the creation in history given in 2.2, to look specifically at the relationship between human beings and the rest of creation before and after the Fall. The second part explores views on the nature of God's new covenant with humankind and the whole of creation, and its implications for the relationship between humanity and nature as God's will for the creation was restored. The third part considers evidence of the reality of that relationship, including views on the treatment of animals, as the transformation of human souls took place in practice.

²⁴³ Ibid.

²⁴⁴ George Fox, 'The Great Mystery of the Great Whore Unfolded; and Antichrist's Kingdom Revealed Unto Destruction' (1659), in *Works* 3: 272.

²⁴⁵ Ibid.

2.5.1 Humanity and Creation in History

The Dominion of Man

In its original state, the good creation included humanity whose role in God's plan for creation included 'dominion' over other creatures:

...and Power and Wisdom was given unto man to rule and gover [sic] in Dominion, in Righteousness, and in Wisdom, over all living creatures, and was Lord over all things, and had rule and authority over all the Creation, and was Steward over all things whom the creator had made, who made all things for man, and made them subject unto him, to be ordered and governed by him, and used to his glory by whom they were made.²⁴⁶

This passage is notable in its use of the term 'steward' in relation to the creation.

Burrough was clear that not only was humanity given by God the right and authority to 'rule and govern' the creation, but also had responsibilities to God in relation to the way those rights were exercised.

In a typically succinct overview of the state of the original creation, James Nayler used a variant of the popular phrase 'unity with the creation', which was also adopted by Fox: 'and the Will of God, and the Will of Man agreed, and so at Unity with all the Creation.'²⁴⁷ William Smith explained that the harmony of creation was compatible with man's dominion over nature since the latter was determined by the will of God and not by purely human desires:

...and here Man stood in obedience to the Father of Spirits; ...and man had no will nor desire after any Creatures; but stood in the Eternal Will, and ruled over all the Creatures, and his desire was to enjoy the Holy Life, in which he was generated and brought forth; and what he desired to partake of in the Life, it was ministered unto him according to the good pleasure of the Creator...²⁴⁸

²⁴⁶ Burrough, *State and Condition of Mankind*, 2. On the title page of this paper, the author describes himself as 'one who hath measured and viewed in true judgement [sic] the condition of all mankind; who is a lover of souls, and a friend to the creation of God'.

²⁴⁷ Nayler, *Love to the Lost*, 1.

²⁴⁸ Smith, 'New-Creation', 129.

Nevertheless human dominion over the natural world was generally viewed as an intrinsic and important element of God's plan for the creation. William Bayly's very explicit statement that the sole original and ultimate purpose of the creation was to reflect the divinity of God should probably be interpreted as emphasising the unity of creation rather than implying that man's dominion over the creation was of lesser importance:²⁴⁹

...in the beginning, God created the heavens and the earth, the sea and all living creatures, and the end of their creation was to serve, and manifest the glory and wisdom, power and goodness of God their creator, and for no other end were they created in the beginning...²⁵⁰

Life in the Fall

In the Fall, God's purposes for the creation were subverted by humanity in two paradoxically different ways. On the one hand, physical things and human creations took the place of God as the object of human worship and reverence. As Fox observed, people 'worship the creatures by making idols of them, and worship the works of their own hands. Like the disobedient in every age, they invent their own religions, using their own wisdom'.²⁵¹ At the same time, God's creation was seen to be trivialised, wasted and abused by people. Fox saw contemporary human pre-occupations with trivial diversions and fashionable adornments as outward signs of the debased character of people's relationship with God's creation, and a perversion of God's plan for the proper use of the creation by human beings:

Now, are not all these that have got their ribands hung about their arms, backs, waists, knees, hats, hands, like unto fiddler's boys and show that you are gotten into the basest contemptible life as be in the fashion of the fiddler's-boys and stage- players, and quite out of the paths and steps of solid men. Are

²⁴⁹ William Bayly, 'Jacob is become a Flame and the House of Esau Stubble' (c.1662), in *A Collection of the Several Writings of... William Bayly* (n.p., 1676), 187.

²⁵⁰ Ibid.

²⁵¹ Fox, *Works* 6: 4/11/32.

not these the spoilers of the creation, and have the fat and the best of it, and waste and destroy it? Do not these cumber God's earth?²⁵²

Fox's use of botanical and horticultural metaphors to illustrate the fallen state of human spirituality incidentally reveals his view of God's intentions for humanity and the creation. It was not God's intention that the created world be left to its own devices as 'wilderness', but was to be managed by humans in a productive way:

that which was planted as a vineyard is become as a wilderness for barrenness, grown over with thorns, and bryars,²⁵³ Sturdy Oaks, and tall Cedars, for want of the Vine-dresser; and where the Lilly should grow, it's grown over with weeds, thistles and Nettles; so that God walks not there because of the great abomination; and that is the cause of all your woe...²⁵⁴

2.5.2 The New Covenant

The concept of covenant was fundamental to Fox's views on humanity and the natural world and his insight into the unity of all creatures in God. He stated that, as a child, he was shown by God that the creatures were 'in their covenant', and that he too was 'brought up into the covenant, as sanctified by the Word which was in the beginning, by which all things are upheld; wherein is unity with the creation'²⁵⁵ (see also 2.1.2).

Doug Gwyn describes covenant in this context as '*the creative, redemptive, reconciling power of God in the universe*': it 'expresses the will of God, transcending all human power, desires or interests'.²⁵⁶ Gwyn distinguishes 'covenant' from 'contract' in that only the former is 'predicated upon a transcendent authority'.²⁵⁷ He writes 'for Fox, the only instrument of the covenant was the human conscience itself':

²⁵² Nickalls, *Journal*, 206.

²⁵³ The dominant view in the 17th century of noisome plants and animals was that they had formed part of the original creation, since Genesis records that God completed his creative activity on day six, but were harmless before the fall (see Almond, *Adam and Eve*, 204).

²⁵⁴ Nayler, *Love to the Lost*, 5. The oak and the cedar were metaphors used by several Quaker writers for human arrogance and power (see, for example, Smith, 'New-Creation', 145).

²⁵⁵ Nickalls, *Journal*, 2.

²⁵⁶ Gwyn, *Covenant Crucified*, 3.

²⁵⁷ *Ibid.*

Quakers rejected the ‘university –trained franchise of biblical preaching’, the sacraments and communion in favour of the ‘living Word’, the inward experience of baptism and the bread of life.²⁵⁸ Thus the elements of conventional faith were ‘humanised into unmediated personal experience and concrete ethical behaviour’; the Puritans’ ‘covenant of grace’ was transformed into a new ‘covenant of light or life’.²⁵⁹

The first Quakers believed that the creation and redemption were two aspects of God’s single covenant.²⁶⁰ The old covenant which God had made with every living creature²⁶¹ and the new covenant into which George Fox describes being ‘brought up’, and which was now accessible to everyone, were both united in God. Gwyn notes that this resonates closely with Karl Barth’s description of covenant as ‘the inner condition, or purpose of God’s creation; likewise, creation is the outer condition, the space-time field, of God’s covenantal purpose’.²⁶² The basic linkage that the Quakers’ single covenant provided between creation and redemption explains the prominent place that Fox accorded to the creation in his descriptions and explanations of some of his profoundest spiritual insights. It also explains his convictions on the proper utilisation of creation and his practical interest and approach to medicine. The concept of covenant also implied an innate sense of order in the created world – a regularity of pattern – that could and should be the object of study by first-hand observation. Whilst the seed of this idea seems to have been effectively embodied by early Quakers within their single covenant, it was the moral binding force with which the framework imbued that order which was consistently emphasised by Fox and other early Quakers both before and after the Restoration.

²⁵⁸ Ibid., 98.

²⁵⁹ Ibid., see John 1: 4.

²⁶⁰ Ibid., 96.

²⁶¹ Genesis 9: 9-17 and Hosea 2: 18.

God's Will for Creation Restored

Thus, the original order of creation as God had intended was restored through Christ. Fox referred to God setting man 'above all the works of his hands, before he fell; and so he is in the restoration by Christ again, though in the fall he is in the captivity under the creatures'.²⁶³ Listening to and acting according to the inward light, Quakers claimed that people would know the 'true nature of creatures through a felt unity with them in God' and would act in accord with that unity.²⁶⁴ the redeemed life was to 'dwell in unity with God and world'.²⁶⁵ Having become 'new creatures', Richard Farnworth stated that people would 'praise and glorify his great and glorious name...using all his creatures in the use and service, as they were created for the health and preservation'.²⁶⁶ Dominion, involving the responsible and sympathetic utilisation of the creation according to God's will, was restored to humanity as an integral part of its re-discovery through Christ of the unity designed by God.

In a chapter in his *Standard Lifted Up* entitled *Concerning all creatures that God made, this testimony I give unto all the world*, Edward Burrough wrote at some length, using images of unity, harmony and a delight in human restraint, to create a picture of a restored paradise:

...but man being restored and redeemed, and renewed again into Covenant with God...then all creatures to him are restored and made blessed, the curse being removed out of his own heart, the creatures are no longer cursed to him, but good and decent, and enjoyed and received in the covenant of God in the life and vertue by which they were created, and by the wisdom which they were made, man comes to order them, and exercise himself in them,...and all creatures are seen to be the Lord's, and the whole earth is his and the fulness

²⁶² Gwyn, *Covenant Crucified*, 3.

²⁶³ George Fox, 'To All Sorts of People in Christendom' (c.1666), in *Works* 4: 321.

²⁶⁴ Keiser, *Inward Light*, 15.

²⁶⁵ Ibid. See also Schurman, 'Quaker Theology of Stewardship', 27.

²⁶⁶ Farnworth, *Light risen out of darkness*, 46-7.

thereof, and the abuse of all creatures is ceased...and the blessing is felt which is more than all creatures.²⁶⁷

2.5.3 Human Behaviour in Practice

John Whitehead, writing in 1661, declared that Quakers testified to this view of creation²⁶⁸ in their simplicity of living, which John William Wilson considered ‘emerged from a spirit within’.²⁶⁹ Like Burrough’s reference to the original creation (2.5.1), Whitehead used the term ‘steward’ to describe Quaker attitudes to the utilisation of the creation:

And being sensible that the earth is the Lords and the fulness thereof, and that they [the Quakers] are but Stewards of the portion he has given them...yet do not use things *superfluous*, which are *destructive* to the *creation*, and hurtful to their *neighbours*, but in apparel they are *modest*, in meats and drinks *temperate*, that they may have wherewith to give a *portion* to the *afflicted*...²⁷⁰

Burrough and Whitehead suggested that the restored believer, having ‘turned to the Light’, would conduct himself or herself in a way befitting the restored order of creation. For Fox, too, the way in which Friends behaved in relation to the creation was an integral part of their witness to the new covenant. However, restoration of God’s true order for creation brought with it responsibilities as well as gifts of the spirit, and Fox was generally more didactic in his approach. The restoration of human dominion over the rest of creation was of great importance for Fox, and the wisdom to manage creation as God intended came from God:

Hearken to the spirit of God in you, that checks you for vanity, that you may come into the fear of God, whereby you may learn wisdom, and may not destroy the creation...love the Lord God above all his creatures, and delight

²⁶⁷ Burrough, *Standard Lifted Up*, 19.

²⁶⁸ John Whitehead, *A Small Treatise, wherein is briefly declared some of those things which I have heard, and seen, and learn’t of the Father*, 2nd ed., (London: n.p., 1665)

²⁶⁹ John William Wilson, ‘From the House of the Four Winds XXXIX’, *Friends Quarterly Examiner* no. 264, March 10, 1932, 289-90. Wilson quoted this section from Whitehead, without giving its author or title.

²⁷⁰ Whitehead, *Small Treatise*, 16-17.

not in vanity, that to the Lord God in your generation, you may be a blessing, for all the destroyers of the creatures are accursed;²⁷¹

According to Fox, ‘that wisdom which is pure, is from above, which is gentle, and easy to be entreated, nor hurtful, nor destructive, but is to the preserving of the whole creation’.²⁷² Heeding the divine light would bring the wisdom to treat the creation properly, the same wisdom by which it had been made by God originally. Fox also warned that human strife over the use of the creation is ‘not from the light’:

And wait all in the light for the wisdom by which all things were made, with it to use all the Lord’s creatures to his glory, (and none to stumble one another about the creatures, for that is not from the light), for which end they were created, and with the wisdom by which they were made, ye may be kept out of the misuse of them, in the image of God, that ye may come to see, that the ‘earth is the Lord’s, and the fulness thereof’, and the earth may come to yield her increase, and to enjoy her sabbaths...²⁷³

In practice, Fox repeatedly found it necessary to remind Friends to be diligent to order their lives and their dealings with the creation always according to the will of God, and not according to ‘the cares of the world’. True spirituality brought the gift of wisdom: those whose minds were ‘kept up to God’ rather than dwelling on material concerns would receive the wisdom to use the creation according to God’s will:

All Friends, to that which is pure, take heed, that with that all your minds may be kept up to God, who is pure: that as the lily ye all may grow, and receive wisdom from God how to use the creatures in their places, to the glory of him that created them...Look at the life which is more than food, and the body which is more than raiment; and consider the lilies and the ravens, and who feedeth them, and clotheth the earth?²⁷⁴

His reference to ‘the lilies and the ravens’ here might be understood to mean that contemplation of the outward creation could inform humanity about the unseen mind of God. However, Fox’s advocacy of such a notion was restricted to the endorsement

²⁷¹ George Fox, ‘To the High and Lofty Ones’ (c.1655), in *Works* 4: 50.

²⁷² George Fox, ‘Truth’s Triumph in the Eternal Power, Over the Dark Inventions of Fallen Man’ (1661), in *Works* 4: 272.

²⁷³ George Fox, ‘To Friends, for all to wait and walk in the truth’ (1653), in *Works* 7: 40.

²⁷⁴ George Fox, ‘To all Friends, to keep in the power of God, out of the cares of the world’ (1656), in *Works* 7: 121.

of conventional biblical metaphors. His emphasis, like that of other early Quakers, was invariably on the primacy of the inward spirit of Christ which gave true knowledge, whilst purely human reactions to outward forms of the creation could be misleading:

And all be diligent in your places, serving the Lord, and that your spirits may not be plucked down with earthly things nor limited by them; but that in the power of the Lord God ye may act over them, (the handiworks of God) out of the entanglements and thralldom of them, and out of the vain inventions of men, but keep in the power of the Lord God over them; in which power is the mystery of the fellowship and the dominion...²⁷⁵

Fox's account of an invitation to join him in a pipe of tobacco reveals that whilst he considered the concept of 'unity with creation' to be an important part of the Quaker revelation, others interpreted the phrase differently:

and there came John Story to me, and lighted his pipe of tobacco, and, said he 'Will you take a pipe of tobacco', saying, 'Come, all is ours';²⁷⁶ and I looked upon him to be a forward, bold lad. Tobacco I did not take, but it came into my mind that the lad might think that I had not unity with the creation, for I saw he had a flashy, empty notion of religion; so I took his pipe and put it to my mouth and gave it to him again to stop him lest his rude tongue should say I had not unity with the creation.²⁷⁷

Braithwaite suggested that Fox's use of the phrase was probably related to his 'interest in herbs and in medicine'.²⁷⁸ Catherine Wilcox remarks that Fox would also have been reluctant to leave the impression that Friends enjoyed 'a lesser revelation than the Ranters'²⁷⁹ (2.6.3). However, the latter interpreted 'unity with the creation' as a license for hedonistic excess in relation to physical pleasure of all kinds.²⁸⁰ Thus, Fox also would have wished to distance Friends from the pantheistic ideas and the

²⁷⁵ George Fox, Epistle CLXXXI (1659) in *Works* 7: 171.

²⁷⁶ The same phrase, 'all is ours', was used by a Ranter to Fox in London in 1655 (Nickalls, *Journal*, 195).

²⁷⁷ Nickalls, *Journal*, 110.

²⁷⁸ Braithwaite, *Beginnings of Quakerism*, 553.

²⁷⁹ Wilcox, *Theology and Women's Ministry*, 27.

²⁸⁰ See, for example, Gwyn, *Seekers Found*, 167-70.

hedonism of the Ranters, and passed judgement on one who mistook indulgence in tobacco for ‘unity with the creation’.²⁸¹

Concern for Animals

Fox was particularly concerned with the practical consequences of restoration in Christ for human behaviour, including people’s treatment of animals. Whilst his views on the stewardship of creation were yet to be fully developed (3.5.2), being faithful to the truth that was revealed to him meant acting upon it in everyday dealings with people and God’s creation. Whilst early Friends usually regarded games in general, and not just those involving animals, as worldly pleasures out of keeping with true Christian witness,²⁸² there are several instances where concern was expressed specifically about the treatment of animals. Thomas Taylor was prominent among early Friends in expressing specific concerns about the cruelty of animal sports.²⁸³

And all ye, that can please yourselves with beholding one Creature hurt and torment another, yea, sometimes even to Death, as at Bull-baitings, Bear-baitings, Cock-fightings and the like. O! what Minds have ye, and how contrary are ye herein to the Tender Nature of Christ, and all Christians truly so called, who could never Rejoice in any such things, by reason of their tender, pitiful and merciful Nature! O ye Children of Cruelty! When will your Hearts break, your stony Hearts melt into Tears before the Lord for all your mighty Sins?²⁸⁴

²⁸¹ Carolyn Merchant quotes the Ranter, Jacob Bauthomley, writing in 1650, that ‘God is in everyone and every living thing, man and beast, fish and fowl, and every green thing, from the highest cedar to the ivy on the wall... God is in this dog, this tobacco pipe, he is me and I am him.’ (Carolyn Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution* (San Fransisco: Harper & Row, 1989), 124; no further reference given)

²⁸² William C. Braithwaite, *The Second Period of Quakerism* (Cambridge: Cambridge University Press, 1961), 508-13. See also Moore, *Light in Their Consciences*, 128.

²⁸³ Braithwaite, *Second Period of Quakerism*, 223-4.

²⁸⁴ Thomas Taylor, ‘A Faithful Warning to Outside Professors, and Loose Pretenders to Christianity of all sorts’ (1661), in *Truth’s Innocency and Simplicity Shining* (London: T. Sowle, 1697), 129. This is one of several references to the subject in Taylor’s collected works. See also Adams, ‘Early Friends Witness to Creation’, 149.

James Nayler condemned bull-baiting because it was ‘setting one of the creatures of God against another to torment’.²⁸⁵ For these Quakers at least, concern about the treatment of animals went further than the condemnation of worldly pleasures.

Leo Damrosch argues that Nayler’s position can be contrasted to that of the Puritans, whose well-known objection to bear-baiting was not on the grounds that it gave pain to the bear, but because it gave pleasure to the spectators.²⁸⁶

James Parnell specifically criticised the rich and powerful, accusing them of oppressing the poor, and spending their time ‘in Pleasures...according to your lustful minds, in Hawking and Hunting...’.²⁸⁷ Fox, too, attacked ‘hawkers and hunters’, whom he likened to animals, and described as ‘carried up in the flesh’, ‘glorifying in your strength’ and ‘puffed up, lofty and high-minded’.²⁸⁸ Describing these pursuits as ‘contrary to the way of God’, ‘contrary to the light’ and ‘to be condemned with the light’,²⁸⁹ Fox recalled an incident at Aberystwyth in 1657:

And in that inn also I turned but my back from the man that was giving oats to my horse, and I looked back again and he was filling his pockets with the provender that was given to my horse, a wicked thievish people to rob the poor dumb creature of his food, of which I had rather they had robbed me.²⁹⁰

Fox was prepared to make himself unpopular on this issue. Whilst being arrested at Ulverston, he described his captors setting him upon and then beating ‘a poor little horse’ at which point he alighted ‘and told them they should not abuse the creature at

²⁸⁵ James Nayler, *A Dispute between James Nayler and the Parish Teachers of Chesterfield, by a Challenge against him* (London: Giles Calvert, 1655), 1.

²⁸⁶ Leo Damrosch, *The Sorrows of the Quaker Jesus: James Nayler and the Puritan Crackdown on the Free Spirit* (Cambridge, MA: Harvard University Press, 1996), 45.

²⁸⁷ James Parnell, ‘The Trumpet of the Lord Blown or, A Blast against Pride and Oppression; and the defiled Liberty, which stands in the Flesh’, in *A Collection of the Several writings from the Spirit of the Lord, through that Meek, Patient and Suffering Servant of God, James Parnell...* (n.p., 1675), 29.

²⁸⁸ Fox, *Vials of Wrath*, 5.

²⁸⁹ *Ibid.*, 5-6. Such pursuits were ‘contrary to the way of God, and all such they that dwelt in the life of the Scriptures declared against, and all this which is acted out from the nature, which is contrary to the light, is to be condemned with the light, and all that will fade and wither away...Now to that in your consciences I do speak, which he hath enlightened you with all, it will let you see your prophaneness, your hunting ravening mind, your destroying minde, which destroys the creature, and destroys the creation upon your own lusts, and the whole creation groaneth with the bondage of corruption: nay you take pleasure in destroying the creatures, and make yourselves sport in destroying them...’ (*ibid.*).

which they mightily raged'.²⁹¹ That these incidents were included in the *Journal* suggests that both Fox and his editors considered them to be significant.

2.6 CONCLUSION

The main findings of this chapter are presented in terms of the place of the creation in the conceptual framework of the first Quakers, and in their personal spiritual experiences. The section continues with a brief exploration of possible differences in outlook between early Friends, and at the ways in which the early Quaker witness to the creation was distinctive in relation to mainstream Puritan thinking.

2.6.1 Conceptual Framework

Although references to the creation are not particularly numerous in early Quaker literature, the evidence presented in this chapter shows that the subject was a significant element in the spiritual experience and thinking of most of the early leaders of the Quaker movement. For George Fox, James Nayler, Edward Burrough, James Howgill and William Smith, in particular, a sympathetic spiritual awareness of the natural world was a real part of their Christian witness. Using the 'Creation-Fall-Restoration' model as a metaphor and also as the historical context for their own experiences, the first Quakers described their views and experiences of the physical world in terms of biblical images and ideas. They followed biblical tradition in seeing in nature metaphors for the failings of humanity, as well as evidence of God's creative will. Fox's revelation of the creation was the hallmark of his having 'come up into

²⁹⁰ Nickalls, *Journal*, 301.

²⁹¹ *Ibid.*, 376.

the state of Adam²⁹² before the Fall, and a key stage in his full restoration in Christ. Whilst Fox and other early Friends emphasised the primacy of the spiritual over the material realm, they were united in their support of the biblical account of God's perfect creation, the fall of humanity, and its consequences for the creation as a whole.

In general, the unity and scope of Fox's experience and the early Quaker message is striking. The first Quakers believed that Christ had already come in spirit, and that unity with God and creation would be re-established under the 'new covenant', as human consciences turned to the light of Christ within. The Quakers' 'covenant of light', involving the fusion of biblical narrative and personal spiritual experience, is of fundamental importance to an understanding of their approach to the creation. Their views of creation, and of human relationships with the rest of creation, were centred on God; for some Friends, at least, the 'new creation' was a living holistic concept encompassing the restoration in Christ of the spiritual and material worlds, things inward and outward, in which all could participate. In its historical context, it was comprehensive and universal in its scope. In modern terms, such a view of the natural world was undifferentiated and non-scientific; relatively unconcerned with the specific, and with the individual only insofar as the latter's relationship to God was concerned.

2.6.2 The Creation in Quaker Experience

The creation had an important supporting role in spiritual transformation. Firstly, it could provide a 'natural' environment that was more likely to be conducive to immediate revelation of God to people seeking God. Secondly, to those restored in

²⁹² Nickalls, *Journal*, 27.

Christ, the creation reflected divine wisdom and power, and God's providence to humanity. Thirdly, a profound understanding of the creation was a significant sign to others of spiritual enlightenment. But more importantly, it was the inward light that would reveal the reality of unity between God, humanity and the creation under the new covenant, and would transform and restore the world.

The Inward Light: Spiritual and Material Transformation

All true knowledge, whether of God, his creation, or how to live a good life in that creation, was revealed not by human reason but by the inward light. Fox and other early Friends stated explicitly that their understanding of the creation was revealed to them by God through Christ – not from the contemplation or study of the natural world. The writings of these early Friends suggest that the vision of creation that was revealed to them, although reflected in the present world, was essentially of the creation as it was originally made by God, where humankind was in unity with itself and with the rest of creation through God. Early Quakers were agreed that true knowledge of the creation came from God: similarly, when they saw the wisdom of God manifested in the order of creation, they did so by means of the divine inward light. Despite the dualism of Fox and his contemporaries in terms of spiritual ('inward') and material ('outward') things, at this time there was no tension evident between these two dimensions of the creation-dialectic. Both were dependent on recognising and heeding the light within, and were based on the reality of the 'new creation', the unity of the spiritual and material worlds made possible by the 'covenant of light'.

Whilst Fox's conception of the creation incorporated a kind of complex but tightly integrated 'indicator' of the moral state of the human soul, his relationship

with the physical world was also strongly practical. Spiritual and material relationships between people and the creation were an integral part of Fox's mystic experiences upon which the vision and beliefs of the first Quakers were largely based. Thus a radically new world would be created in and by the spiritual experience of the individual. It was also the inward light that showed men and women how to use the creation, both for the practical benefit of humanity and to God's glory. Fox has been described as a man of action, rather than contemplation,²⁹³ and Gwyn points out the conjunction between the extremely spiritual character of early Quaker faith in terms of unmediated revelation on the one hand, and the emphasis that was placed on the transforming power of inspired practical action to revolutionise ethics and socio-economic life on the other.²⁹⁴ Indeed, Quaker beliefs and practices on plain living, the equal status of women, non-payment of tithes, as well as the place of creation, all date from the early days of the movement and were the logical consequence of the application of their spiritual insights to the practicalities of life. Adams considers that early Quaker writings constitute a 'testimony to the creation', which is greater than simply a stewardship of creation identified by Schurman.²⁹⁵ She also contends that such a testimony not only pre-dates, but is also more surely founded, than the much better known 'peace testimony'.

Empiricism and Natural Theology

Despite Quakers' distrust of 'outward' knowledge, Fox's challenge to the efficacy of the Mass suggests that he did not exclude a secondary role for both empirical

²⁹³ Herbert G. Wood, 'George Fox and his Religious Background', in *New Appreciations of George Fox: A Tercentenary Collection of Studies*, ed. J. Rendel Harris (London: Swarthmore Press, 1925), 52. See also Mullett, 'George Fox and the Society of Friends', 7.

²⁹⁴ Gwyn, *Covenant Crucified*, 113.

²⁹⁵ Adams, 'Early Friends Witness to Creation', 150.

knowledge and human reason in the discovery of truth. However, this role was strictly limited: empirical observation and human reason were not a significant part of the creation-dialectic, and were, at most, of secondary importance in the pursuit of true understanding of the creation. William Penn's description of Fox as 'a divine and a naturalist',²⁹⁶ suggests that empirical knowledge was of significant interest to Fox. However, except in the context of children's education (see 3.4.3), the first Friends appear to have left very little record of any interest in the relationship between empirical observation and the advancement of knowledge of the creation. Similarly, there is no evidence to support truly natural theology on the part of early Friends. Any intimations of understanding or knowledge of the divine that might come from the experience of the natural world did so only under the guiding influence of the divine inward light, not from human reason.

2.6.3 Distinctiveness of Early Quaker Views

Nature of Creation

Fox was in accord with both Puritan elements and continental mystical traditions that took the view that God was at work in the contemporary material world. However, the first Quakers were convinced that through Christ, humanity could be restored to its rightful relationship with God and the rest of creation, as it was in the Garden of Eden. In this, they differed sharply from the pessimistic view of Fox's contemporary, the Anglican poet, Henry Vaughn,²⁹⁷ for example, who saw the fall of humanity as inevitable and permanent: humanity could only look to the un-fallen creation with

²⁹⁶Nickalls, *Journal*, xlvii.

²⁹⁷Henry Vaughn (1621-1695), poet, hermeticist and physician: brother of Thomas Vaughn. See F.E. Hutchinson, *Henry Vaughn* (Oxford: Clarendon Press, 1947).

envy and longing for a lost age²⁹⁸ Rex Ambler contrasts Fox's very positive experience of the creation as it was revealed to him with the view of the Puritans 'who generally saw it as fallen and corrupted beyond repair'.²⁹⁹

Early Friends, however, sought to distinguish their movement from the views and practices of the Ranters (see also 2.1.2). J. F. McGregor described the Ranter tracts of the period 1649 to 1651 as setting 'antinomianism'³⁰⁰ within a framework of mystical pantheism which denied the reality of the carnal world to the spiritual man'.³⁰¹ Writing in 1650, before he became a Quaker, Isaac Pennington had reflected the Ranter position that, 'with a true eye', the creation was transformed to a state of perfection.³⁰²

To the creature, in the present state of the creature, under the present law of the creature, according to the judgement of the eye of the creature, every thing is unlovely; and he that sees them not to be so, falls short of the perfection of the creaturely eye. But come deeper beyond this state, beneath this Law; look with a true eye, and then you shall find all this unloveliness pass away; and an excellency appear, that the creature could never so much imagine or dream of. And now come back with this eye into the present state of all things, and behold them through the true glass, and you shall see them all new here also, and as far as differing from what you did or could take them to be in your creaturely apprehension.³⁰³

The Ranters viewed the creation and human behaviour in the same way: 'all acts were inspired by God', and, according to the leading Ranter prophet, Laurence Clarkson, sin had its conception only in the human imagination.³⁰⁴ Fox explicitly refuted this position, when, for example, he spoke with 'Baptists and Ranters' at Reading in 1655:

The Ranters pleaded that God made the devil, but I denied it and I told them...he became a devil by going out of truth and so became a murderer and a destroyer. And so I showed them that God did not make the devil, For God

²⁹⁸ Nuttall, 'Unity with the Creation', 138.

²⁹⁹ Ambler, *Truth of the Heart*, 195.

³⁰⁰ Deriving from Paul's claim that 'if you are led by the spirit, you are not under law' (Gal.5:8), the doctrine that Christians are not bound by Moral Law (Hastings et al., 27)

³⁰¹ McGregor, 'Ranterism and Early Quakerism', 350.

³⁰² Isaac Pennington, *Light or Darkness* (London, 1650), 3, quoted by Christopher Hill, *The Collected Essays of Christopher Hill* (London, 1985-6), 1, 232, and in Almond, *Adam and Eve*, 68.

³⁰³ Pennington, *Light or Darkness*, 3.

³⁰⁴ *Ibid.*

is a God of Truth and made all things good and blessed them, but did not bless the devil...³⁰⁵

According to McGregor, Quakers ‘avoided the amoral implications of radical antinomianism by requiring allegiance to a strict code of ethical conduct’, revealed by the inward light.³⁰⁶ After official attempts to suppress Ranterism in 1650/1, there were frequent contemporary Quaker references to the subversive doctrine and unruly behaviour of the Ranters. However, Christopher Hill argued that, despite public Quaker opposition to the Ranters, pre-Restoration Quakerism as a whole actually shared many of the moral and social attitudes of Ranterism.³⁰⁷ McGregor identified ‘a notable decline’ in anti-Ranter references by Quakers after 1655, which he suggested might be attributable in part to ‘the absorption of the less obdurate into the ranks of the Quakers’.³⁰⁸

Faith and Reason

Geoffrey Nuttall distinguished Quakers and other ‘radical Puritans’ from more conservative mainstream Puritans, not by their radical social ideas, but principally by their perception of the relationship between faith and reason.³⁰⁹ For Quakers, human reason was subordinate to spiritual experience; they ‘assigned a more restricted sphere of operations than that accorded to it by the Puritans’.³¹⁰ True knowledge was not a product of human reason, ‘but a tasting, feeling, indwelling knowing of the divine presence in the original creation’.³¹¹ Keiser quotes Isaac Pennington: in order to ‘feed

³⁰⁵ Nickalls, *Journal*, 212.

³⁰⁶ McGregor, ‘Ranters and Early Quakerism’, 350.

³⁰⁷ Hill, *TWTUD*, 232.

³⁰⁸ McGregor, ‘Ranters and Early Quakerism’, 359. Isaac Pennington was convinced a Quaker in 1658.

³⁰⁹ Nuttall, *Holy Spirit*, 36,38,47.

³¹⁰ Richard L. Greaves, ‘The Nature of the Puritan Tradition’, in R. Burek Knox (ed.), *Reformation, Conformity and Dissent: Essays in Honour of Geoffrey Nuttall* (London, 1977), 262.

³¹¹ Keiser, *Inward Light*, 14.

on the Tree of Life', which was the inward Christ, 'they must loose their Knowledge, they must be made blind, and be led to it by a way they know not'.³¹² There is little evidence from Quakers of an interest in the reasoned study of the human being or the natural world advocated by Calvin and later elements within the Puritan tradition.³¹³ Early Quakers also shared with other spiritual Puritan sects a strong anti-professionalism in their attitudes to the church, the law and the medical profession. Since divine illumination was potentially available to all, and was the only real qualification for knowledge of God and of the natural world, anyone could gain true understanding, regardless of sex, or social or religious background. This was clearly potentially threatening to the professional and social elites.³¹⁴

Fox resembled German mystics in his insistence on the primacy of personal experience of God over all other forms of knowledge, and especially Boehme, in his personal experience of revelation in relation to the creation (2.1.2 & appendix 1). However, whilst Boehme made elaborate speculative theosophical constructs over and beyond his experience, Fox's theology adhered closely to his original biblical interpretation of his experience. Whilst Fox believed he had particular abilities to discern and to cure 'hidden' ailments in himself and others, he believed this to be a direct gift from God. Whilst he may well have been influenced by continental mystical traditions, there is little evidence that he was interested in their occult lore or esoteric practices: true knowledge for Fox was that which was revealed to him by God.

³¹² Penington, *Way of Life*, 55-6, quoted by Keiser, *Inward Light*, 14.

³¹³ Ian G. Barbour, *Issues in Science and Religion*, (London: SCM Press, 1966), 20. See also Charles Webster, *The Intellectual Revolution of the Seventeenth Century* (London: Routledge & Kegan Paul, 1974), 15-17.

³¹⁴ Greaves, 'Puritan Tradition', 271.

Treatment of Animals

Fox looked to the practical consequences of restoration in Christ for human behaviour, including the way people treated the creation. Whilst his views on the stewardship of creation may not have been fully developed at this stage (3.5.2), being faithful to the truth that was revealed to him meant acting upon it in everyday dealings with people and God's creation. For some early Quakers at least, concern about the treatment of the creation went further than simply the condemnation of worldly pleasures. Leo Damrosch contrasts James Nayler's concern about bull-baiting (2.5.3) with those of the Puritan mainstream.³¹⁵ Thus the Puritans condemned bear-baiting not because it was cruel to the bear, but because it gave pleasure to the spectators. It was wrong, Nayler said, because it was 'setting one of the creatures of God against another to torment'.³¹⁶

Variations in the Quaker Position

Restoration of human dominion over creation through God was central to Fox's experience and understanding of creation: indeed, his most profound revelation of the reality of restoration in Christ was concerned with the benefits of the creation to humanity. Yet Fox's concept of dominion was one of reciprocity: it was both spiritual, reflecting God's order for the whole of creation, and at the same time immediately practical in that the benefits of creation for humanity were to be tempered by responsibilities on the part of people towards the creation and one another. Fox was not primarily interested in the theology of creation: he wrote mainly about his own experiences and about practical matters of human behaviour. For Fox,

and at least some of the other leaders of the early movement, the restoration of the original creation seems to have been a reality, certainly in a spiritual sense and also, at least to some extent, in some physical sense too, the latter being contingent on the former. For other Friends, however, the ‘new creation’ may have been meaningful only as one of several available metaphors (and one used less frequently than the others), for the coming of Christ in the human soul.

Nayler, and particularly Burrough, the leading Quaker theologians of the period,³¹⁷ were also concerned to establish the place of the creation as a whole in history, past and present. Christopher Hill referred to Nayler having been described as ‘the culmination of the Ranter tendency in Quakerism’, and to Burrough who ‘straddled the gap between Ranters and Quakers’.³¹⁸ Like Penington in 1650 (see above), they showed more interest in the ethics of the creation itself and in the celebration of the creation, not primarily for its utility to humans, but as direct evidence for an immanent God. Howgill and Smith were also clearly keenly aware of God in the creation. These Friends were not averse to more philosophical reflections in this context, although this scarcely amounted to metaphysical speculations of which most Quakers were deeply suspicious. Burrough’s attempts, in particular, to describe the relationship between God and his creation appear to be the result of a heightened personal awareness of the creation, and are remarkable in their avoidance of arbitrary constructions or speculations. Although it might be argued that Nayler and Burrough adopt a more explicitly panentheistic position, asserting that the creation is the

³¹⁵ Leo Damrosch, *The Sorrows of the Quaker Jesus: James Nayler and the Puritan Crackdown on the Free Spirit* (Cambridge, Mass: Harvard University Press, 1996), 45.

³¹⁶ *Ibid.*

³¹⁷ Moore, *Light in Their Consciences*, 19.

³¹⁸ Hill, *TWTUD*, 248/ 254. Geoffrey Nuttall cited Henry More describing Nayler’s ‘milieu’ as ‘Familist’, and Richard Baxter as noting Nayler’s ‘inclination’ to Behmenism or Familism (Geoffrey Nuttall, *James Nayler: a Fresh Approach* (London: Friends Historical Society, 1954), 2-3).

physical embodiment of God, this seems to have had little impact on the general Quaker mistrust of outward knowledge.

All these early Quakers shared a sense of the creation as the ground of Christ's work to restore humanity to its state before the Fall. They experienced a strong spiritual bond with the created world. Insofar as there were differences of emphasis in the ways in which this was expressed, these might be attributed partly to differences of temperament and intellectual preferences. Hill implied that attempts to identify a doctrinal schism between Fox and a Ranter-leaning element headed by Nayler were overstated.³¹⁹ Moreover, Rosemary Moore holds that, by 1657, Quakers 'were beginning to care for their public image',³²⁰ and that Fox was at pains to present Quakerism in a reasonable light, not to expose differences or weaknesses in argument that might split the movement or encourage opponents.³²¹ Although Smith's position (2.5.1) may be ambiguous, only the 'Digger' (and putative Quaker), Gerrard Winstanley, stood in contrast to the Quaker mainstream of the 1650s in his 'opening-up' of the dialectic when he explicitly compared the divine power manifested in creation with that in the human soul (see 2.1.2 & Appendix 1).

Summary

Whilst comparatively few of the individual elements of the early Quaker testimony on the natural world were peculiar to Quakers, their approach may be said to be distinctive in its combination of several key elements. It was:

³¹⁹ Hill, *TWTUD*, 232.

³²⁰ Moore, *Light in Their Consciences*, 105.

³²¹ *Ibid.*, 105-110.

- *mystical*: apocalypse (in the sense of revelation)³²² was placed within the realm of personal experience; since the creation was part of Fox's revelation, personal spiritual experience of the creation became a reality. Thus the creation was seen not as separate from restoration in Christ, but as the context for that restoration.
- *holistic*: whilst spiritual knowledge was superior to 'natural' knowledge, the spiritual and material realms were intimately connected, since a new outward world was created in and by the inward experience of the individual
- *universal*: restoration of a state of unity with God's order and creation was possible for all, regardless of status, gender or religion, simply requiring an act of human will to acknowledge and to follow the Light of Christ;
- *optimistic*: Christ was come in spirit to restore humanity to its state before the Fall, and to restore God's intended order between God, humanity and the creation, including a knowledge of the 'nature and virtues' of creation;
- *practical*: spiritual restoration had practical implications involving individual responsibilities for the proper use of creation and the rightful claims of others to a share in its resources.

2.7 CHAPTER SUMMARY

Evidence was presented under each of the four themes identified in chapter 1. It was demonstrated that the created world had a significant role in the spiritual experiences of several early Quaker leaders, who believed that their understanding of the nature and potential of the creation was divinely revealed to them, and a consequence of their spiritual restoration in Christ. Their views of creation were based not on philosophical or scientific ideas, but on this lived experience, which they understood

³²² Gwyn, *Apocalypse of the Word*, 3.

and interpreted in terms of the biblical Creation-Fall- Restoration framework. Early Quakers believed that, as men and women were spiritually transformed by the divine inward light, God, humanity and the rest of creation would be brought into unity in the 'new creation'. The inward light showed people how they should behave: God, not the creation, should be the object of worship and the search for inward knowledge, whilst the created world should be used to the greater glory of God. Whilst there were differences of emphasis at the metaphysical 'edge' of their ideas, early Quakers otherwise showed much unity in their writing on the creation. The next chapter demonstrates how that unity was lost in the period after 1665.

3. DIVERSE IDEAS: RESTORATION QUAKERS 1666-1715

3.1 INTRODUCTION

3.1.1 Synopsis

Using the same thematic divisions as chapter 2, this chapter charts the fragmentation of early Quakers' vision of the restored creation, and the differentiation of more specific and diverse ideas about the created world. It is argued that this was a period of transition, in which responses to the natural world were heavily influenced by several factors, as Quakerism adjusted to the religious and political realities of the day. These include a decline in the place of the creation in Quaker revelation and conviction, the new dominance of well-educated Friends in writing about the physical world, and a shift in focus from life in the end-time to life in the meantime. Quakers started to distinguish the particular, the 'here and now', on the one hand, from universal abstract concepts about God and the creation on the other. Whilst the role of the inward light remained central to Quaker experience, Quaker discourse on the creation is no longer dominated by personal spiritual experience, but by intellectual ideas, in which reason and the human senses started to assume a greater importance. This is also reflected in the role seen by Friends for the creation in the education of their children. Whilst views on the validity of modern science appear to have been divided, the period saw the first evidence of serious engagement by Quakers in the scientific exploration of creation, as well as support for natural theology.

Elements of the early position on the nature of creation, especially relating to Quaker support for scriptural authority, were re-iterated, and the exploration of the

theology of creation continued. Peculiar to this period are extensive metaphysical accounts by a small group of Quakers, followers of Francis Mercury van Helmont, based on the premise of the unity of spirit and matter. More typical, however, was the contrasting of the superior, spiritual and inferior, material worlds. The period saw a notable development of the creation-centred dimension of the creation-dialectic, as some Friends recognized a wider and deeper role for the outward creation in the spiritual life. Whilst this was still largely dependent on the guiding influence of the divine inward light, there is also the first clear evidence for Quaker belief in true natural theology, albeit in a very limited sense.

It is argued that an ‘epistemological scale’ can be recognized in Quaker attitudes to the nature of knowledge of creation. This ranges from the purely speculative and scholastic (of least or no value), through ‘outward’ knowledge acquired by human efforts, to ‘inward’ or spiritual knowledge resulting from unity with the divine (of highest value). Individual Friends varied in their attitudes to particular types of knowledge, and their views on how the ‘book of nature’ should be read, and reactions to modern science were mixed. Generally, however, science was not just the product of empirical observation and human reason; true knowledge required inward confirmation, and Quakers argued the importance of submission to the divine will in the search for knowledge. Nevertheless, the period saw the first evidence of Quaker engagement in the practice and promotion of modern science.

Friends continued to see God at work in the physical creation, in terms of the providence of the natural world, and also in divine intervention in its operation. Living in God’s creation, however, also entailed the perception of nature as a material resource, to be catalogued and utilized to the benefit of humanity and the glory of God, particularly in relation to agriculture and the growing of trees, and also in

medicine. Views on human responsibilities for the utilization of these resources and their stewardship for future generations are explored.

In conclusion, it is argued that Quaker approaches to the creation after the restoration can be characterized by:

- ***Intellectualization***: the apparent decline in the place of creation in personal spiritual transformation, and the expression of diverse ideas imported by educated Quakers from the intellectual world outside;
- ***Empiricism and the Inward Light***: the emergence of heterodox views on the place of empiricism and human reason in the pursuit of truth, including scientific discovery and elements of natural theology, as subsidiary to the Quaker orthodoxy of the divine inward light;
- ***Living in the Meantime***: an increasing focus on present practical issues relating to the utilization of natural resources and the treatment of the non-human world.

3.1.2 Background and Previous Scholarship

The Changing Nature of Quakerism

Quakers were almost unique among the many radical puritan groups that formed during the Civil War to survive beyond that period and into the 18th century.¹ Their survival has been attributed in part to the way in which the Society was highly organised in the 1670s and to its ability to adapt to the challenges of the time. Although the history of Quakerism in this period has been documented in

¹ Christopher Hill, *The World Turned Upside Down: Radical Ideas During the English Revolution*, (Harmondsworth, UK: Penguin Books, 1975), 378-83.

considerable detail, principally by Braithwaite,² and more recently (and more briefly) by Punshon³ and by Dandelion,⁴ it has attracted less attention than the first period. Richard Vann has argued that, by 1670, the early Quaker movement had effectively changed its character from that of a movement to a religious organisation or sect.⁵ As Nikki Coffey Tousley has shown, second-generation Quakers were less certain than the pioneers about the nature of their experience of God, and saw the significance of their spiritual transformation as individual rather than universal.⁶ Doug Gwyn has argued that the concept of the universal ‘Quaker covenant of light’ was increasingly diluted and fragmented, and replaced with a ‘contractual’ Quakerism that developed allegiances with worldly activities including mercantilism.⁷ In the face of continuing official persecution,⁸ Quakers re-positioned themselves so as to present Quakerism as a rational and respectable interpretation of the Christian gospel. This involved the establishment of a highly ordered internal structure for Quakers as a body, as well as the writing of ‘apologetics’; systematic treatises setting out to explain and justify Quaker belief and practice. Quakers also became concerned about the education of their children.

² William C. Braithwaite, *The Second Period of Quakerism* (Cambridge: Cambridge University Press, 1961, repr. York: William Sessions, 1979).

³ John Punshon, *Portrait in Grey: A Short History of the Quakers* (London: Quaker Home Service, 1984), 81-103.

⁴ Pink Dandelion, *An Introduction to Quakerism* (Cambridge: Cambridge University Press, 2007), 37-58.

⁵ Richard T. Vann, *The Social Development of English Quakerism, 1655-1755* (Cambridge, MA: Harvard University Press, 1969), 200-2.

⁶ Nikki Coffey Tousley, ‘The Experience of Regeneration and Erosion of Certainty in the Theology of Second-Generation Quakers: No Place for Doubt?’, *Quaker Studies* 13, no.1 (September 2008), 43-45.

⁷ Douglas Gwyn, *The Covenant Crucified: Quakers and the Rise of Capitalism* (Wallingford, PA: Pendle Hill Publications, 1995), 317-37.

⁸ Parliament legislated against Quaker worship in 1662, and again in 1664 and 1670: 11,000 Quakers were imprisoned during the reign of Charles II, and many hundreds died, until the Act of Toleration was achieved in 1689 (Pink Dandelion, *An Introduction to Quakerism* (Cambridge: Cambridge

Persecution and Migration

Renewed persecution of Quakers after the Restoration of Charles II, which continued until the Act of Toleration of 1689, may have had a significant influence on the development of Friends' involvement with the natural world. Quakers, who were excluded from the English universities and the teaching profession generally, could be led to an interest in the natural world that could be pursued independently of the educational establishment. The case of the schoolmaster-turned-naturalist, Thomas Lawson, is the subject of a detailed biography by Jean Whittaker.⁹ The emigration of large numbers of Quakers to America to escape persecution in Britain, making new lives in a largely unexploited natural environment, encouraged the exploration and utilisation of the abundant natural resources of north America.¹⁰ Geoffrey Cantor has researched Charles Marshall's involvement in medicine,¹¹ and the relationship of William Penn and other Friends to the Royal Society.¹² Erin Bell has researched various aspects of the significance of agriculture and associated occupations to Quakers.¹³ Papers by Adams¹⁴ and Schurman¹⁵ are also relevant to this chapter.

University Press), 43-4; Dandelion, *The Quakers: A Very Short Introduction* (Oxford: Oxford University Press, 2008), 16).

⁹ E. Jean Whittaker, *Thomas Lawson 1630-1691: North Country Botanist, Quaker and Schoolmaster* (York: Sessions Book Trust, 1986).

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¹¹ Geoffrey Cantor, notes on Charles Marshall, unpublished typescript.

¹² Geoffrey Cantor, 'How Successful Were Quakers at Science?', *Quaker Studies* 7, no.2 (March 2003): 214-226. See also Cantor, 'Quakers in the Royal Society, 1660-1750', *Notes and Records of the Royal Society of London* 51 (1997): 175-93; and John Hedley Brooke and Geoffrey Cantor, 'A Taste for Philosophical Pursuits' - Quakers in the Royal Society of London', in *Reconstructing Nature: The Engagement of Science and Religion* (Edinburgh: T. & T. Clark, 1998): 282-313.

¹³ Erin A. Bell, 'From Ploughing the Wilderness to Hedging the Vineyard: Meanings and Uses of Husbandry among Quakers, c. 1650-c.1860', *Quaker Studies* 10, no.2 (March 2006): 135-159.

¹⁴ Anne Adams, 'Early Friends and their Witness to Creation', *Friends Quarterly* 31, no.4 (October 1998): 145-52.

¹⁵ Virginia Schurman, 'A Quaker Theology of the Stewardship of Creation', *Quaker Religious Thought* 24, no.4 (1990): 27-41.

Ideas from outside the Society of Friends

By the 1670s, Quaker writing on the natural world had become the province largely of well-educated Friends who also tended to be drawn from the higher social classes, including landed gentry. These Friends brought a wide range of intellectual ideas to their discourse on the subject, whose non-Quaker origins they frequently acknowledged. This applies to influential Friends who were central to the life and development of British Quakerism, including Robert Barclay (1648-1690) and William Penn (1644-1718), and also to figures on the fringes of Quakerism, principally Francis Mercury van Helmont (1614-1698) and his followers. Such authors were knowledgeable about the Christian Fathers and about classical literature and philosophy, and whilst they were often scathing in their condemnation of classical authors as both philosophically flawed and as un-Christian, they also quoted them as authorities when it suited them to do so. They were also aware of contemporary ideas in religion, philosophy and to some extent science, including the work of Descartes, Bacon and others, and appear to have been variously influenced by their thinking. Robert Barclay has been seen as particularly influenced by the philosophical ideas of John Calvin.¹⁶ Barclay's theology has been the subject of comparative studies by Maurice Creasey¹⁷ and, more recently, Melvin Keiser.¹⁸ Previous relevant scholarship also includes Melvin Endy on the ideas and beliefs of William Penn,¹⁹ whilst the metaphysics of the 'Helmontian' Quakers (3.2.2) has been explored by

¹⁶ Keiser, 'Touched and Knit', 147.

¹⁷ Maurice Creasy, '“Inward” and “Outward”: A Study in Early Quaker Language', *Journal of the Friends' Historical Society* suppl.30 (1962): 20.

¹⁸ R. Melvin Keiser, 'Touched and Knit in the Life: Barclay's Relational Theology and Cartesian Dualism', *Quaker Studies* 5, no.2 (2001): 141-64.

¹⁹ Melvin B. Endy, Jr., *William Penn and Early Quakerism* (n.p.: Princeton University Press, 1973).

Allison Coudert.²⁰ Evidence of outside influences also comes from Friends' detractors: for example, Penn was accused by former Quaker intellectual George Keith (1638-1716) of 'deism' (see 4.1.2).

Keith Thomas has drawn attention to the importance of the telescope and the microscope in revealing hidden worlds beyond the reach of common human experience, and their contribution to the erosion of the long-standing conventional view that the world had been created more or less exclusively for the benefit of humanity.²¹ Thomas quotes the Puritan naturalist, John Ray:

It is a generally received opinion...that all this visible world was created for Man; [and] that Man is the end of the Creation, as if there were no other end of any creature but some way or other to be serviceable to man... But though this be vulgarly received, yet wise men nowadays think otherwise.²²

Thomas claimed that the 'explicit acceptance' by the later 17th century of the view that the world did not exist for man alone 'can be fairly regarded as one of the great revolutions in modern Western thought, though...one to which historians have scarcely done justice'.²³

3.1.3 Sources and Nature of Evidence

As in chapter 2, contemporary published works, in this period particularly by Penn, Barclay, and Lawson, are a major source for this period. By far the most prolific author was F.M. van Helmont whose metaphysical works on the nature of God and the creation do not appear to have ever been of more than peripheral importance to the

²⁰ Allison P. Coudert, *The Impact of the Kabbalah on the Seventeenth Century: The Life and Thought of Francis Mercury van Helmont (1614-1698)* (Leiden: Brill, 1999). See also Allison P. Coudert and Taylor Corse, eds., introduction to Anne Conway, *The Principles of the Most Ancient and Modern Philosophy* (Cambridge: Cambridge University Press, 1996).

²¹ Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800* (London: Allen Lane, 1983), 166-7.

²² John Ray, *The Wisdom of God manifested in the Works of Creation* (London: S. Smith, 1691), 127-8.

²³ Thomas, *Man and the Natural World*, 166.

development of Quaker thinking on the subject. Other leading Friends making brief but important contributions to the understanding of the period were Isaac Penington and George Whitehead, whilst Margaret Fell, Thomas Ellwood and Stephen Crisp, for example, made more limited references to the subject of the physical world in their published works. Additional material comes from the published works of Charles Marshall and John Kelsall. Whilst the epistles of Fox continue to be a significant source, private correspondence, especially from Penn,²⁴ and also Lawson, provides important evidence not found elsewhere.

Such authors were accustomed to hearing and presenting reasoned arguments: indeed, Barclay was the author of the first, and often regarded as the only, systematic exposition of Quaker theology.²⁵ Moreover, Friends' writings from this period on the subject of education are a valuable source of information on their views of the status of the natural world.

The writings of individual Quakers sometimes encompass more than one viewpoint. Although theological stability is a feature of Fox's writing, some Friends appear to have modified their views significantly during these politically and intellectually challenging times. Unlike that of most other authors, Fox's writing is not always easy to categorise; reflecting his own experience, he continued to deal with spiritual and practical matters in close proximity (2.1.3). Otherwise, the nature of much of the evidence changed over this period as a greater emphasis emerges on the deployment of the human senses and human reason. This was manifested in terms of reasoned arguments and speculation about the nature and perception of the created

²⁴ Richard S. Dunn and Mary Maples Dunn, eds., *The Papers of William Penn*, 5 vols. (Philadelphia: University of Pennsylvania Press, 1981-6).

²⁵ Robert Barclay, *An Apology for the True Christian Divinity* (1678: repr. Glenside PA: Quaker Heritage Press and Warminster PA: Peter D. Sippel, 2002).

world (or their rebuttal), and also in accounts of direct observations and detailed factual descriptions of the natural world.

3.2 THE NATURE AND STATUS OF CREATION

This section is in three parts. The first gives examples of Quakers' continuing belief in the biblical doctrine of creation, and in the reality of sin being peculiar to human beings. The second part provides evidence for belief in the immanence of God in creation, including examples from the extensive writing of Francis Mercury van Helmont and Anne Conway on the metaphysical nature of the creation, based on the premise of the unity of the essential unity of spirit and matter. The third part looks at ways in which leading Friends contrasted matter and spirit, and at Quaker unanimity on the distinction between God and his creation.

3.2.1 The Creation as God's Work

Leading Quakers continued to support the orthodox Christian and early Quaker view of the status of the physical creation (3.4.1). According to William Penn, in the beginning 'All was then good that the good God had made',²⁶ whilst George Fox continued to affirm that as long as the first man and woman 'stood in God's counsel, and in obedience to his word, and wisdom, and power',²⁷ they:

did neither corrupt nor burden themselves nor the creation, but stood blessed and perfect in their good estate, which God...had placed them in...And likewise all the creation stood in its blessed and good estate, as God Almighty had made it in, who is good, and made all good, perfect and blessed.²⁸

²⁶ William Penn, 'A Brief Account of the Rise and Progress of the People call'd Quakers' (1694), in *A Collection of the Works of William Penn* (London: J. Sowle, 1726), 1: 859.

²⁷ *The Works of George Fox* (1831, repr. Pennsylvania: New Foundation Publications, George Fox Fund, 1975), 6: 4.

²⁸ *Ibid.*

Sometime Quaker convert, Francis Mercury van Helmont (see below), went beyond the biblical account, in his identification of the creative powers originally given to humanity by God. Until Adam named them, the creatures were only ideas in Adam's mind, "for all things were placed within him"²⁹ (3.4.1). Through the inward power originally placed in man by God, the act of giving names to these ideas brought the creatures into physical existence, 'because to call Things by their Names is to give them their Nature'.³⁰ In this view, therefore, man originally shared with God the power to give physical 'existence to something separate from himself', but had largely lost this power through the Fall.³¹

William Penn wrote of 'man' after the Fall 'being no longer fit for Paradise, he was expelled from the Garden of God...to wander in the Earth, the habitation of Beasts',³² suggesting that both humanity and, at least in some sense, the earth had been debased. Nevertheless, Robert Barclay, one of the least 'creation-centric' of Restoration Quaker leaders and generally an advocate of a dualistic view of spirit and matter (3.2.3), followed the position of Edward Burrough (2.3.2) that although the creation as a whole was damaged by the Fall, it was not intrinsically sinful. In the earliest systematic treatise on Quaker theology, Barclay argued that, like children, the non-human elements of creation were intrinsically free of sin despite the first man and woman's disobedience:³³

For though the whole outward creation suffered a decay by Adam's fall, which groans under vanity; according to which it is said in Job that 'the heavens are not clean in the sight of God'; yet will it not from thence follow that the herbs, earth, and trees are sinners.³⁴

²⁹ Coudert, *Impact of the Kabbalah*, 64.

³⁰ F. M. Van Helmont, *Some Premeditate Thoughts on Genesis*, 134, quoted by Coudert, *Impact of the Kabbalah*, 64.

³¹ *Ibid.*, 65-6. Thus, had it not been for the Fall, it was believed that humanity would propagate itself by thought and speech, not by sexual activity: this was a popular topic of debate at the time (*ibid.*).

³² William Penn, 'A Brief Account of the Rise and Progress of the People called Quakers' (1694), in *Works*, 1: 860.

³³ Barclay, *Apology*, 94-95.

³⁴ *Ibid.*, 95.

Whilst the Fall was highly significant for Fox, he too continued to see the natural world, even in its present state, as the product of God's creativity. In 1671, Fox declared that it was the only wise, omnipotent, and everlasting God that Quakers 'do own and believe in, who is the creator of all things both in heaven and in earth, and the preserver of all that he hath made'.³⁵ Using biblical images,³⁶ he celebrated that creativity, even in the 'corrupted' elements of the natural world, and contrasted it with the destructive power of 'the world's God':

For the *Glory* of the Creation is the Lord's, who created it; *for the Earth is the Lord's, and the Fulness thereof*, and he gives the Increase. For as Christ saith, *that Solomon, the Wise Man and Great King in all his Glory was not arrayed like one of the Lillies*. So Christ set a Lilly beyond and above all *Solomon's Glory*; for the Lilly was arrayed of God, and every Herb, and every Weed and every Tree are arrayed by God with the Glory they have. The *world's God*, the Devil, the Prince of Darkness, he cannot array a *Nettle*, a *Thistle* nor a *Thorn*; for he is no Creator, but a Destroyer...³⁷

3.2.2 Immanence of God in Creation

John Bellers (1654-1725) was unusually explicit for this period in his description of the immanence of God in creation. According to Bellers, God was 'infinite and omnipresent in all Places...and fills all things'.³⁸ Being 'the most invisible Light, Spirit and Life', God penetrated 'all Beings and Spirits', although 'Beings' differed in their 'Capacity...to apprehend and see so pure invisible and intellectual a Spirit'.

³⁵ John L. Nickalls, ed., *The Journal of George Fox*, (1952, repr. Philadelphia, Religious Society of Friends and London: Quaker Home Service, 1997), 602.

³⁶ Psalms 24:1; Matthew 6:28-9; Luke 12:27.

³⁷ George Fox, *Concerning the Living God of Truth and the World's God...* (London: Benjamin Clark, 1680), 34-5.

³⁸ John Bellers, *Essays about the Poor, Manufactures, Trade, Plantations, & Immorality, And of the Excellency and Divinity of the Inward Light* (London: T. Sowle, 1699), in George Clarke, *John Bellers: His Life, Times and Writings* (London: Routledge, 1987), 104.

Although by this time George Keith (1639-1716) had dissociated himself from Quakers, he argued that the divine light occurred not only in humankind but also universally throughout the creation, being found:

both universally in all Men, and more specially in the Faithful, it being generally acknowledged, not only by Christians, but by Heathen Poets, Orators, and Philosophers, that God, and his Word and Spirit, is in all the Creatures; and as it is said in the Book called *Wisdom*, God's incorruptible Spirit is in all things, *Wisdom* 12.1. So that there is no Goodness, or Virtue, or Excellency, that is in either Stone, Metal, Vegetable or Animal, but God is the Author and the first Cause of it; and that, not as at a distance, or without things only, but as near, yea, so near, that, as God is in all things, so all things are in him; and in him we live, and move, and have our Being...³⁹

Unity of Spirit and Matter

In his exploration of the nature of the created world, Keith had been part of a small group of 'Helmontian Quakers', named after the polymathic philosopher and alchemist, Francis Mercury van Helmont (1614-1698).⁴⁰ The basic premise of the unity of matter and spirit, and various ideas about the creation derived from it, were largely peculiar to this group, of whom Anne Conway (1631-1679) and van Helmont himself wrote extensively on the subject. Based on a combination of scripture, other non-scientific assumptions about the nature of created matter, and common observations of the natural world, they were the product of intellectual speculation, and were criticised by leading Quakers in the 1670s and 80s (3.4.1).

Van Helmont rejected the concept of creation *ex nihilo*, arguing that the visible world arose 'out of, or by the Power or Spirit of this most perfect Being, which

³⁹ George Keith, *The Deism of William Penn and his Brethren, Destructive of the Christian Religion, Exposed, and plainly laid open* (London: Brab. Aylmer, 1699), 65.

⁴⁰ Coudert, *Impact of the Kabbalah*, xvi. Much influenced by his father, Jan Baptista van Helmont (1579-1644), an early chemist and disciple of Paracelsus, the younger van Helmont wrote extensively on the subject, and his intellectual explorations took him deep into the realms of metaphysics. Van Helmont was also crucially influenced by the doctrines of the Jewish kabbalistic tradition (*ibid.*, xiv).

we call God'.⁴¹ He cited support from scripture, which 'expressly teaches us that to create, is to produce something visible, out of that which is spiritual or invisible'.⁴² Since God could not create anything 'completely contrary to himself', the creation must therefore be or contain something 'of a spiritual nature'.⁴³ Also drawing on kabbalistic ideas and tuition from van Helmont, Anne Conway's vitalistic philosophy of 'spiritual monism' treated spirit and matter as 'simply two ends of a single continuum'.⁴⁴ Matter and spirit were interchangeable: 'every body can change into a spirit and every spirit into a body because the distinction between body and spirit is only of mode, not essence'.⁴⁵ matter was itself alive, endowed with force and activity.

Evolution of the Creatures

Whilst actual unity with God was not possible, the Helmontians believed that the natural processes at work in the creation tended towards its perfection, so that it approached increasingly close to God. Van Helmont saw a 'universal Spirit of the World'⁴⁶ at work in the everyday operation of the creation, from the erosion of rocks to the consumption of plants and lower forms of life by carnivorous animals and humans. All creatures contained a measure of this spirit, whose presence drove a

For van Helmont and his followers, however, 'the quest for and acquisition of both knowledge and eternal life is wholly positive' (ibid): all forms of knowledge were 'interconnected, with the Kabbalah offering the surest path to both natural and divine wisdom' (Coudert, *Impact of the Kabbalah*, 141).

⁴¹ Franciscus Mercurius Baron of Helmont [Francis Mercury van Helmont], *The Spirit of Diseases; or Diseases from the Spirit: Laid open in some Observations Concerning Man, and his Diseases* (London: Sarah Howkins, 1694), 6.

⁴² Ibid., 7.

⁴³ Coudert, *Impact of the Kabbalah*, 200.

⁴⁴ Coudert and Corse, introduction to Conway, *Principles*, xxx.

⁴⁵ Conway, *Principles*, 41. Anne Conway's philosophy was 'a formative influence' on Leibniz's concept of "monads", the basic units from which the created world is formed. Unlike atoms, they were seen to be self-activating, themselves endowed with "force" and "perception": thus matter was itself alive, and operated independently of external forces (Coudert and Corse, introduction to Conway, *Principles*, xxx-xxx).

⁴⁶ Francis Mercury van Helmont, *The Paradoxal Discourses of F. M. Van Helmont, Concerning the Macrocosm and Microcosm, or the Greater and Lesser World, And their Union* (London: Robert Kettlewel, 1685), 20-21.

continuous pattern of death and re-birth throughout the physical world.⁴⁷ The operation of creation was perceived as gradually but surely working towards restoring it to its original, spiritual state, such that ‘the very dirt of the earth will be raised up and perfected’.⁴⁸ Van Helmont described this process as:

a never-ceasing Revolution of whole Nature, as if it were a living Clock-work, bounded within a certain beginning and end, in which the whole Age of the World consists, and wherein the same must work out it self until its total perfection and Sabbath...⁴⁹

In a metaphor that came to be conventionally associated with deism, he described ‘the Creator of this beautiful World’ as ‘the Master of this Clock-work’.⁵⁰ It was God’s intention that every part of ‘this beautiful living World’ should ‘work joyntly [sic] in one harmony’.⁵¹ Therefore, no part or particle of creation, or of the human body, could be regarded as insignificant to the divinely ordained journey of a continual ‘revolution’ to perfection.⁵²

Anne Conway explored in some detail the philosophical nature and implications of change in the creation, particularly in relation to animal (and plant) species. Conway argued that the capacity of species to change, made possible by the ‘mediation’ of Christ, was an intrinsic part of the divine plan for creation. Without this capacity, ‘no creature could attain further perfection and greater participation in divine goodness, nor could creatures act and react upon each other in different ways’.⁵³ Conway described a process of evolution that originated with the divine will

⁴⁷ Ibid., 20.

⁴⁸ Coudert, *Impact of the Kabbalah*, 196. Coudert sees the idea of the perfectability of the present created world as an extension by van Helmont, Conway and George Keith of the doctrine of the pre-existence and transmigration of existence and transmigration of human souls to ‘its very limit’. Every soul had participated in Adam’s sin and must therefore suffer for it. Souls had twelve re-incarnations or ‘revolutions’ in which to perfect themselves and escape the cycle of birth and death – the foundation for a belief in universal redemption (see Coudert, *Impact of the Kabbalah*, 190-1).

⁴⁹ Helmont, *Paradoxal Discourses*, 21.

⁵⁰ Ibid.

⁵¹ Ibid., 58.

⁵² Ibid.

⁵³ Conway, *Principles*, 32.

but involved the operation of properties intrinsic to the creatures themselves. Since every ‘degree of evil or sin’ brought its own appropriate punishment to the creature, it would return to that ‘pristine state of goodness in which it was created and from which it can never fall again because, through its great punishment, it has acquired a greater perfection and strength’.⁵⁴ Conway reasoned that it was ‘almost common knowledge that this visible earth will not always remain in its present state’. Thus, if the environment of the earth were to change such that it no longer supported vegetation, for example, then ‘animals will cease to be as they were before’, since they would be denied ‘their proper nourishment’.⁵⁵ Such animals would ‘change their configuration along with the earth, and the earth would produce nourishment for them according to their new configurations’. However, she precluded the possibility of the extinction of species, ‘since the goodness of God towards his creatures always remains the same and since the preservation or continuation of his creatures is a constant act of creation’.⁵⁶ Van Helmont and Conway defended the integrity of the individual living creature and of different species as they understood these terms. Conway argued that ‘in terms of its substance or essence one species cannot change from one into another and equally ...one individual cannot change into another’.⁵⁷ Such changes would ‘cause great confusion not only for creatures but also for the wisdom of God’.⁵⁸ Van Helmont saw the evolution of the creatures as a process that operated within definite boundaries as part of an essentially ordered creation:

⁵⁴ Ibid., 42.

⁵⁵ Ibid., 33.

⁵⁶ Ibid.

⁵⁷ Ibid., 30. She continued: ‘For species are nothing but individual entities subsumed under one general and common idea of the mind or one common term, as, for instance, man is a species including all individual men and horse is a species including all individual horses. If one man cannot change into another, much less can that man change into an individual of another species’ (ibid).

⁵⁸ Ibid., 29. See also Van Helmont, *Spirit of Diseases*, 58-9. Ignorant of contemporary and later discoveries about microscopic forms of life and the life cycles of animals and plants, Conway shared the traditional belief – still widespread at this time – in the spontaneous generation of living creatures from decaying or non-living matter.

we are informed from Scripture, as well as Nature, that God is a God of Order, who hath created every thing in its certain and determinate number, measure, and weight, to the end that by a never-ceasing Revolution it might be still renewed, until it grow up to its full age maturity, and perfection...⁵⁹

Infinity and the Age of the Earth

The concept of infinity, in time and space, was an important element in Conway's philosophy of the nature of God and of the world.⁶⁰ Whilst God was 'in time', he was 'not bound by time',⁶¹ having true eternity and therefore no beginning. Conway argued that the creation, by contrast, originated not from eternity but from the beginning of time. Indeed, time and the creation were intimately related, because 'time is nothing but the motion or change of creatures from one condition or state to another'.⁶² Both had a beginning, 'which is God or the eternal will of God'.⁶³ Time started from the moment of the first creation, and was, as the Kabbalah declared, infinite.⁶⁴ Thus Conway argued that the earth was far older than the conventional figure of about six thousand years, or even than the 'greatest [number of years] that the created intellect could imagine'.⁶⁵ In addition, the conventional figure was unreasonable since it restricted 'the [creative] power of God to a certain number of years'.⁶⁶

⁵⁹ Van Helmont, *Spirit of Diseases*, 105.

⁶⁰ Conway developed these ideas under the tutelage of the Cambridge Platonist, Henry More. Marjorie Nicolson suggested that More's 'greatest service to his generation' was his contribution to 'that greatest of seventeenth century conceptions' and 'one of the most significant of all human ideas', the '*idea of infinity*' (Marjorie Hope Nicolson, *Conway Letters The Correspondence of Anne, Viscountess Conway, Henry More, and their Friends, 1642-1684* (London: Humphrey Milford, Oxford University Press, 1930), 43).

⁶¹ Conway, *Principles*, 14.

⁶² *Ibid.*, 51.

⁶³ *Ibid.*, 13.

⁶⁴ *Kabbala Denudata* ii, last tract; also *Adumbratio Kabbalae Christianae* ch.7 sec.4, 5, 7 quoted by Conway, *Principles*, 14.

⁶⁵ Conway, *Principles*, 12.

⁶⁶ *Ibid.*, 12-13. 'But if someone should say that time is finite, let us suppose that there were about six thousand years from the beginning...I ask if the world could have been created earlier or before this

Mutuality within Creation

Conway visualised both time and space as infinitely divisible into progressively smaller parts. She argued that this property of created things led to an understanding of the essential unity of all creatures, and also of ‘the emanations from one creature to another, through which they can act upon one another at the greatest distance’. She also saw this mutuality in creation as the basis for unlocking the hidden knowledge of creation since an understanding of the ‘sympathy and antipathy’ between creatures enabled one to ‘easily see into the most secret and hidden causes of most things, which ignorant men call occult qualities.’⁶⁷ All creatures were the product of a single origin, and could be described as ‘a single species in substance or essence’, although including ‘many individuals gathered into subordinate species’ distinguished from each other in lesser ways.⁶⁸ Citing Paul, Conway stated that God created ‘all tribes of human beings from one blood so that they would love one another and would be bound by the same sympathy and would help one another’.⁶⁹ She proceeded to argue that ‘all tribes and troops of creatures’ were created from the same ‘one blood’, and that ‘in their primitive and original state’ the creatures ‘were a certain species of human being’.⁷⁰ Thus all humanity and the living creation as a whole were bound by a mutual sympathy:

Thus God has implanted a certain universal sympathy and mutual love into his creatures so that they are all members of one body and all, so to speak,

time? If they deny this, they restrict the power of God to a certain number of years. But if they affirm this, they admit that there was time before all times, which is a manifest contradiction’ (ibid.).

⁶⁷ Conway, *Principles*, 20.

⁶⁸ Ibid., 31. Helmontian metaphysics posited a three-fold typology of being: God the creator, Christ ‘the mediator’, and the creatures. The characteristics of each of these three levels of being and the relationships between them were the basis for this imperative of mutuality between the creatures.

⁶⁹ Ibid.

⁷⁰ Ibid.

brothers, for whom there is one common Father, namely God in Christ or the word incarnate.⁷¹

3.2.3 The Primacy of the Divine Spirit

Despite Keith's apparently panentheist leanings, both van Helmont and Anne Conway sought to distance their emanationist concept of creation from that of the pantheism of the Ranters,⁷² or of Hobbes or Spinoza.⁷³ Van Helmont held that the present physical world was the state that the spiritual creation had assumed when it became 'more gross'; it represented a 'temporary state of privation'.⁷⁴ Although Quakers ultimately rejected van Helmont's metaphysical speculations (see 3.3.1), there was agreement on the basic point that God and his creation were fundamentally distinct from one another. Van Helmont likened the relationship to that between a ray of sunshine and the sun,⁷⁵ and Anne Conway, following the *Kabbala Denudata*,⁷⁶ stated that:

[God] is also in a true and real sense an essence or substance distinct from his creatures, although not divided or separate from them but present in everything most closely and intimately in the highest degree. Nevertheless, they are not parts of him or changeable into him, just as he is not changeable into them.⁷⁷

Restoration Quakers in general consistently supported the Christian doctrine of an absolute distinction between the creator and his creation (2.2.4). Fox's understanding of the distinction between the material and the spiritual is illustrated by his attitude to the status of bread and wine in Christian communion (2.4.3), a theme developed by

⁷¹ Conway, *Principles*, 31.

⁷² Conway, *Principles*, 28.

⁷³ *Ibid.*, 64.

⁷⁴ Coudert, *Impact of the Kabbalah*, 200.

⁷⁵ F. M. van Helmont, *A Cabbalistical Dialogue in answer to the Opinion of a learned Doctor in Philosophy and Theology...* (London: Benjamin Clarke, 1682), quoted by Coudert, *Impact of the Kabbalah*, 201.

⁷⁶ *Kabbala Denudata* I pt.2, 30/332, cited by Conway, *Principles*, 9.

⁷⁷ Conway, *Principles*, 9.

Robert Barclay at some length.⁷⁸ Fox was primarily concerned with human salvation and behaviour, and emphasised the distinction between the transient, changeable nature of the material world and the eternal, unchangeable nature of God in his injunctions about the objects of worship and the priority to be afforded to spiritual knowledge. Thus Fox contrasted ‘the word of God that lives, and abides, and endures for ever’ with ‘the flower of the field that fadeth’,⁷⁹ and ‘outward things’ in general that were ‘not durable riches, nor durable substance, nor durable habitations nor durable possessions, for they have wings and will fly away’.⁸⁰

The Creation in Eschatology

The transience of the physical world was seen not just as a metaphor, but as a physical reality, both in the sense of present change and in eschatological terms. Coudert describes van Helmont’s perception of the material state of the creation as an inferior state of being, a ‘temporary makeshift’ which in time would be restored to its original – fully spiritual- state and relationship with God.⁸¹ William Penn appears to have made a similar claim when he stated that to live fully in Christ was to dispense with the need for the physical universe:

And the time comes, and now is, that we shall have no need of the Sun, nor Moon, nor Stars; but the Lamb of God, that was slain, and now lives shall be the Light and Life of all true Christians here and hereafter.⁸²

However, a suggestion that the outward creation was also perceived as having a role in the end-time comes from Thomas Story. In a rare example of a Quaker

⁷⁸ Barclay, *Apology*, 373-407.

⁷⁹ George Fox, ‘A general epistle to Friends, and all people, to read over and consider in the fear of God’, in *Works* 7: 291.

⁸⁰ George Fox, ‘Not to trust in uncertain riches’ (1669), in *Works* 8: 18.

⁸¹ Coudert, *Impact of the Kabbalah*, 200.

⁸² William Penn, ‘To All Those Professors of Christianity, that are externally separated from the Visible Sects and Fellowships in the Christian World (so called)...’ (1677), in *Works* 1: 215.

convincement narrative from this period that makes reference to the creation, Story related apocalyptic events as they appeared to him in a dream in 1686. He described how he ‘beheld five great Lights in the Heavens’ – four moons and the sun – and all the stars extinguished and dashed to pieces in the ensuing darkness. In terror he fled, but then resigned ‘all to the Will of him who shaketh the Heavens, and dissolveth the earth’. His fear subsided, ‘tho’ all Hopes were gone’, as he ‘went out into a spacious and verdant Valley; where the Flowers were many, fragrant and perfect’. Here he encountered men and women telling of their terrible experiences but, like himself, restored to innocence and ‘delivered from the horrible Darkness by the Return and Coming of the glorious Light, rejoiced together in unspeakable Love’.⁸³ Thus Story appears to have seen the restored creation as an integral part of his vision of the Second Coming.

Dualism in Fox and Barclay

In chapter 2, it was shown how Fox had a distinctive position in respect to the creation, whereby the outward face of creation, and its perception by human beings had been fundamentally affected by the Fall (2.2.2). Fox continued to contrast the limitations of the present created world with the gifts of the spirit, but in two later epistles indicated that by ‘outward things’ he meant primarily human inventions, possessions and preoccupations than the created or natural world as such. Thus he referred to ‘outward things, figures, types, shadows, and inventions’ that had been ‘set up since Adam fell; which inventions Christ destroys’.⁸⁴ ‘Outward things’ in this context included ‘goods, houses, lands, or inventions of vanities, in the foolish vain

⁸³ *A Journal of the Life of Thomas Story* (Newcastle upon Tyne: Isaac Thompson, 1747), 3.

⁸⁴ George Fox, ‘Epistle CCXL’ (1664), in *Works* 7: 265.

fashions'.⁸⁵ Fox's duality was a contingent state, a consequence of the Fall, matter being neither intrinsically evil nor originally radically separated from its creator. Thus the rift between the visible creation as a whole and the invisible, that is the divine spirit, was potentially capable of rectification.

Barclay's position, however, owed more to philosophy than to scripture, being influenced by Descartes' views on the absolute distinction between matter and spirit.⁸⁶ The duality he described between divinely originated ideas on the one hand (3.4.1), and base matter on the other, appears to describe an intrinsic condition of the material creation, apparently unrelated to the redemption of humanity. These two kinds of duality also had potentially different implications for natural philosophy/science. Scientific endeavour for Fox was dependent on true spiritual redemption in Christ, whilst Barclay's position was more ambiguous. The divine origin Barclay ascribed to human ideas served to raise the status of ideas, whilst tending to minimise the epistemological status of the physical creation, and thus of scientific inquiry whose focus was on outward objects. His position also served to accentuate the difference between humankind and the rest of creation.⁸⁷

⁸⁵ George Fox, 'A general epistle to Friends, and all people, to read over and consider in the fear of God' (1667), in *Works* 7: 284.

⁸⁶ Hugh Pyper suggests that Barclay was probably influenced by Descartes' ideas as a student in Paris (Hugh S. Pyper, 'Resisting the Inevitable: Universal and Particular Salvation in the Thought of Robert Barclay', *Quaker Religious Thought* 29, no.1 (August 1998), 8).

⁸⁷ Maurice Creasey argued that under Barclay's influence, Quakerism 'became wedded to a prevalent and quasi-Cartesian dualism', in which the revelation of the outward Christ in history was seen as distinct from, and inferior to, the personal revelation of the inward Christ in the conscience. Creasey contended that this was a misrepresentation of Fox's understanding of the 'inward' and 'outward' Christ as two facets of the same revelation (Maurice A. Creasey, *'Inward' and 'Outward': A study in early Quaker language* (London: Friends Historical Society, 1962). Some more recent authors have sought to modify this view. Whilst Barclay may be seen as 'instrumental in stimulating divergence', at the same time, John Punshon sees him defining the unity between the spiritual light and the historic Christ, and the relationship between the spirit and scripture Punshon, *Portrait in Grey*, 125).⁸⁷ Gwyn sees Quaker 'universalism' being maintained by Barclay, who balanced an empirical approach to outward forms with his belief in the invisible inward life that 'brings all into unity' (Gwyn, *Covenant Crucified*, 321). Melvin Keiser agrees, concluding that 'Barclay and other early friends' held such dualisms together, 'seeing God as a transcendent presence within the self', the inward spirit 'working through all five senses' (Keiser, 'Touched and Knit in the Life', 153). Keiser goes so far as to include in this position, seeing 'the self as inherently connected with all creatures within the original creation present in our depths' (*ibid.*, 144).

3.3 THE CREATION DIALECTIC

In the previous chapter, evidence relating to a creation-dialectic drew heavily on the personal spiritual testimony of George Fox. There is, by contrast, relatively little evidence from this period by way of direct narrative on the role of the creation in personal spiritual revelation. Whilst the God-driven dimension of the dialectic largely ceased to be personal testimony, the creation-driven dimension drew variously on experiential and empirical evidence, and also upon older, medieval ideas. Generally, the available evidence is more intellectual, often polemical, in character. At the same time, the period saw a significant development of the dialectic, and specifically of its creation-centred dimension. Whilst true spiritual knowledge and wisdom came from God, the outward creation was also a source, not only of wisdom about the human condition (2.3.3 & 3.3.1), but also of knowledge about God. However, this dimension of the dialectic was effective only under the guidance of the inward light. The relative emphasis placed upon these two factors - the knowledge of creation, and the inward light - varied between different authors.

3.3.1 Creation-centred Dimensions

This sub-section considers three ways in which Quaker authors expressed the creation-centred dimension of the dialectic. The first category includes statements on the evidence of God's power, wisdom and goodness that could be read in the created world, and on nature as an exemplar for human behaviour. Secondly, F.M. van Helmont, in particular, saw the harmony of creation as proof of a creator God and, as a follower of the Kabbalah, argued that the created world was the gateway to a

knowledge of God. The sub-section concludes with a discussion of the character and varieties of natural theology that can be recognised in the writings of Restoration Quakers.

Divine Wisdom Manifested in Creation

Particular emphasis on the creation-driven dimension of the dialectic came from Thomas Lawson, although his view on the dialectic appears to have changed over time. In the 1650s, Lawson was apparently a staunch advocate of the Quaker position that true knowledge of God came from the inward light. A Baptist minister, Matthew Caffyn, specifically refuted Lawson's doctrine at that time, asserting that it was scripture and the creation that told of God:

As Paul informs us that which may be known of God is manifest in (or to) man...so also he informs us how it comes there, and by that we find him to have a spirit differing from Lawsons: for Paul tells us that God hath shewed it unto man by the things that are made.⁸⁸

If Caffyn's account of Lawson's position was accurate, then it suggests that, at that time, consideration of the outward creation played little or no part in Lawson's teaching. By the late 1670s, however, Lawson's views on the significance of the external world would appear to have modified significantly. He saw Adam's original knowledge of God and the outward creation to be equally the product of the divine wisdom in which Adam had been created (3.4.1). For Lawson, knowledge of the outward visible world revealed the nature of God. He quoted the case of Solomon:

...his Work within and his Works without, even the least of plants preaches forth the power and the wisdom of the Creator, and, eye'd in the sparke of eternity, humbles man'⁸⁹

⁸⁸ Matthew Caffyn, *The Deceived, and deceiving Quakers Discovered* (London: Francis Smith, 1656), 2, quoted in Whittaker, *Thomas Lawson*, 35.

⁸⁹ Thomas Lawson to John Rodes, November 18, 1690, in Sophie Lampson (Mrs Godfrey Locker), ed., *A Quaker Post-Bag: Letters to Sir John Rodes of Barlborough Hall, in the County of Derby, Baronet, and to John Gratton* (London: Longman's, Green & Co., 1910), 20-21.

William Penn wrote that ‘we are told that the invisible Things of God are brought to light by the Things that are seen’, and that the visible world ‘may not be improperly styled the *hieroglyphics* of a better’.⁹⁰ Penn reiterated and amplified the view widely held in the Puritan tradition that the visible wonders of the natural world reflected and revealed the glories of God.⁹¹ He contrasted the works of God with those of ‘Man’, arguing that ‘God’s works ‘declare his Power, Wisdom, and Goodness; but Man’s Works, for the most part, his Pride, Folly and Excess’. He recommended the country life, ‘for there we see the works of God’; the countryside was ‘both the Philosopher’s Garden and Library, in which he Reads and Contemplates the Power, Wisdom and Goodness of God’. Indeed, Christ himself ‘lov’d and chose to frequent Mountains, Gardens, Sea-sides’, and these were ‘requisite to the growth of Piety’.⁹² Penn also urged the scientific study of the human body, the seat of the ‘rational soul’, since this would induce a ‘more reverent sense of the Wisdom and Goodness of God’.⁹³

Nature as a Model for Human Behaviour

Both Fox and Penn revived the old idea⁹⁴ that nature provided a model of God’s will for human behaviour. In one of his later letters, George Fox drew analogies between human and animal behaviour, with the latter providing role models for humans: ‘doth not the beasts and the fowls teach their young to pick, suck, and feed their young? And will not the young ones cry after the old ones for their food? All these things

⁹⁰ William Penn, ‘Some Fruits of Solitude in Reflections and Maxims, relating to the Conduct of Human Life’, in *Works* 1: 820.

⁹¹ Peter Harrison, *The Bible, Protestantism, and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998), xxx

⁹² Penn, ‘No Cross, No Crown’ (1682), 1: 296.

⁹³ Penn, ‘Fruits of Solitude’, 1: 821.

⁹⁴ Harrison, *Rise of Natural Science*, 21-3.

might teach people.’⁹⁵ Emphasising the spiritual and moral value of the contemplation of the natural world, William Penn also saw analogies of this kind, urging Friends to take ‘God’s Creation for their Model’.⁹⁶ Having studied the ways of nature, people should act ‘according to Nature; whose Rules are few, plain and most reasonable’.⁹⁷

Helmontian Quakers

The Helmontians were particularly interested to discover the ‘hidden forms and essences’ of things behind the world of outward appearances.⁹⁸ Like Lawson, Francis Mercury van Helmont cited Solomon in his defence of the authority of nature:

‘wisdom is everywhere, according to the testimony of *Solomon, Prov.8 vers. 1,2,3*’⁹⁹ and explicitly asserts that ‘the Creator in and through the Son of God, is everywhere present in the Creatures, in the greater as well as in the lesser world, Man’.¹⁰⁰

However, according to the Kabbalah, the study of the outward world was the key to a true understanding of humanity and of God’s purposes for both the microcosm and the macrocosm (3.4.1).¹⁰¹ Thus it was by means of the tree of knowledge that human salvation was to be achieved, a view that was at variance with both the mainstream Quaker position and orthodox Christian belief.¹⁰²

⁹⁵ George Fox, ‘To all the men and women’s meetings every where’ (date?), in *Works* 8: 172-3.

⁹⁶ Penn, *No Cross, No Crown* (1669), 50.

⁹⁷ Penn, *Fruits of Solitude*, 1: 820.

⁹⁸ Coudert, *Impact of the Kabbalah*, xx

⁹⁹ *Ibid.*, 72.

¹⁰⁰ Helmont, *Paradoxal Discourses*, 2.

¹⁰¹ Coudert, *Impact of the Kabbalah*, xvi. For van Helmont and his followers, ‘the quest for and acquisition of both knowledge and eternal life is wholly positive’ (*ibid.*, 140): all forms of knowledge were ‘interconnected, with the Kabbalah offering the surest path to both natural and divine wisdom’ (*ibid.*, 141).

¹⁰² Rosenroth, *Kabbala denudata*, 1: 629. This passage is translated by Coudert as ‘It is not possible to come near the tree of life except via the tree of knowledge, which is like a vestibule, through which access is given to the tree of life (Coudert, *Impact of the Kabbalah*, 140).

For Lawson, the purpose of the study of the outward creation was to reveal and learn of God's wisdom as manifested in the observed nature and operation of creation. Van Helmont, however, went further than Lawson or Penn not only in his espousal of the kabbalistic doctrine of the outward creation as the gateway to the knowledge of God, but also in arguing explicitly that the natural world provided proof of the existence of God. Thus the universe itself could be thought of as a complex 'creature' that could be explained only by the existence of a creator:

Indeed when we attentively consider, that all the Beings of the Universe do so amicably and harmoniously co-operate...as that it does plainly appear to be but one onely [sic] Creature made up of several Members, we shall be forced to acknowledge that all things...were the product of one onely cause.¹⁰³

Whilst Burrough and Nayler in the 1650s also described the harmony and unity of creation, they referred to the protological creation as described in scripture. Van Helmont was making an inference on the basis of his understanding of the creation as it was at the present time which, whilst also inspired by scripture, drew additionally on his personal study and contemplation of nature.

Natural Theology in Restoration Quakers

The extent to which the above statements can be construed as natural theology depends on how that term is understood. The origins of natural theology, as that knowledge of God that could be obtained through human reason, date back to classical times.¹⁰⁴ Use of the concept of natural theology in apposition to 'revealed'

¹⁰³ Helmont, *Spirit of Diseases*, preface.

¹⁰⁴ William Fulton, *Nature and God: An Introduction to Theistic Studies with Special Reference to the Relations of Science and Religion*, (Edinburgh; T.&T. Clark, 1927). Plato argued that there were certain truths about God which could be proved, namely that God exists, God is good, and God's rule is just. For Aristides, the order and beauty of the world showed that its' mover and controller is God' (ibid., 33).

theology in a Christian context was established by Thomas Aquinas (c.1225-74),¹⁰⁵ whilst the term itself has been attributed to Raymond of Sebonde (d. 1436).¹⁰⁶ Natural theology based purely on reason has been exemplified by the ‘ontological argument’ as expounded by Anselm (c.1033-1109), for whom God’s existence was a logical necessity that was immediately apprehended, that is, without recourse to empiricism. Anselm argued that God was not only the ultimate entity capable of existence, but was also greater than any entity that could be conceived by the human mind.¹⁰⁷ Aquinas, on the other hand, argued that arguments for God must start with facts of the natural world. Francis Bacon defined natural theology as ‘that spark of knowledge of God which may be had by the light of nature and the consideration of created things’.¹⁰⁸ Thus, Professor Fulton recognized two early expressions of natural theology: the ‘subjective’, exemplified by the ontological argument, and the ‘objective’,¹⁰⁹ illustrated by Aquinas, and by Bacon’s ‘consideration of created things’.

Evidence presented above for the creation-centred dimension of the dialectic generally falls within this broad understanding of natural theology. However, statements from this period that could be construed as support for natural theology are generally concerned with the experience and recognition of divine attributes in the creation, not with using the creation as the basis for reasoned arguments for the existence of God. Much of the evidence for natural theology amongst Quakers at this time reflects the experience of beauty or harmony in the created world. Fox, Lawson

¹⁰⁵ Thomas Aquinas, *Proslogion*, 1078-9, cited by F.L. Cross and E.A. Livingstone, *The Oxford Dictionary of the Christian Church* (Oxford: Oxford University Press, 2000), 73-74.

¹⁰⁶ Fulton, *Nature and God*, 15-16, 37-38. See also Cross and Livingstone, *Dictionary of the Christian Church*, 1369.

¹⁰⁷ *Ibid.*, 35-36.

¹⁰⁸ Francis Bacon, *De Augm.* iii 2 ‘talis scientiae scintilla, qualis de Deo haberi potest per lumen naturae et contemplationem rerum creaturarum.’ quoted by William Fulton, *Nature and God: An Introduction to Theistic Studies With Special Reference to the Relations of Science and Religion* (Edinburgh: T.&T. Clark, 1927), 16.

and Penn described their experiences of the natural world in terms of God's providence, wisdom and power: such statements are based primarily on personal spiritual experience (supported by scripture) rather than on reasoned argument.

Limited support for natural theology based on reason came from Penn in relation to the existence of human reason itself,¹¹⁰ and from perceptions of the ordering of the world as revealing the hand of God, and the divine will for humanity. Geoffrey Nuttall described models for human behaviour from the animal world as 'natural theology';¹¹¹ here scriptural precedent appears to have been supported by personal experience. Van Helmont's position was atypical of Quakers in the very high status he accorded to nature as a theological resource (see above). Although Robert Barclay was critical of Van Helmont's reasoning on the nature of God and creation (3.4.1), he admitted that the outward creation 'doth, of itself, without any supernatural or saving principle in the heart, even declare to the natural man that there is a God'.¹¹² Evidence that Barclay had some sympathy with natural theology also comes from his reference to a 12th century story of an Indian Prince, one Hai Ebn Yokdhan (Hayy ibn Yaqzan).¹¹³ Barclay described how the latter, 'without converse of man...attained to such a profound knowledge of God, as to have immediate

¹⁰⁹ Fulton, *Nature and God*, 33-35.

¹¹⁰ William Penn's blurring of the clear distinction made by Barclay between reason and the inward light raised the possibility of human reason itself being guided by the divine will (Endy, *William Penn*, 245-51). Nevertheless, Penn's justification for the pursuit of natural philosophy (science) appears to have been more concerned with the re-establishment of the proper place of humanity in creation (albeit a position justified by theology), than it was a product of natural theology.

¹¹¹ Nuttall, *Holy Spirit*, 143-4.

¹¹² Barclay, *Apology*, 145.

¹¹³ Abu Jaafar Ebn Tophail [Ibn Tufayl], *The Improvement of Human Reason Exhibited in the Life of Hai Ebn Yokdhan*, trans. by Simon Ockley (London: Edmund Powell, 1708). Ockley was an Anglican vicar who was unsympathetic to Quakers, and to the message of the book he had newly translated from the Arabic. The work was first translated into Latin from Arabic in 1671 by Edward Pococke, jnr. and thence into English 'once by a Dr. Ashwell, another time by the Quakers, who imagin'd that there was something in it that favoured their Enthusiastick Notions' (ibid., translator's note). It was known to George Keith and F. M. van Helmont, the former translating the Latin version into English (Coudert, *Impact of the Kabbalah*, 269-70). Modern rendering of Arabic names is from Martin Wainwright, 'Desert Island Scripts', *Guardian*, March 22, 2003.

converse with him'.¹¹⁴ However, Barclay did not explain that the story (described elsewhere as a 'famous essay in natural theology')¹¹⁵ related how its subject came to know God through the study of nature and his own powers of reason,¹¹⁶ ideas to which he extended only qualified support (3.3.2).

The foregoing evidence for belief in a relationship between knowledge of creation and knowledge of God may be compared with statements from Thomas Lawson. Lawson argued that true, divinely-inspired, wisdom was to be found in two ways: from the direct experience of God in the human soul, and from the study of the creation (3.4.1). Whilst Lawson believed that the study of the natural world was an exploration of divine wisdom, his emphasis was on such study as an end in itself. Nature was a major theological resource not, as the Helmontians argued, because it was the gateway to an esoteric knowledge of God, but because it was, in itself, the manifestation of divinely-inspired wisdom whose knowledge had been possessed by the first man before the Fall. Such an approach tended to blur the distinction between natural philosophy and natural theology, since the application of reasoned thought to the creation could lead at least to a partial understanding of the divine in this sense.¹¹⁷

3.3.2 God-centred Dimensions

The nature of the evidence for God-centred elements of the creation dialectic from this period is markedly different from that presented in chapter 2. Whilst Lawson

¹¹⁴ Barclay, *Apology*, 165.

¹¹⁵ Fulton, *Nature and God*, 20.

¹¹⁶ *Ibid.*, 20-22.

¹¹⁷ Lawson's enthusiasm for the study of the creation in Quaker education is compatible with this position. It could also be interpreted as helping to secure an experience of the outward world that was conducive to a way of life that reflected God's order and Christian values, if not actually to the immediate revelation of the divine by the individual. The interest shown by Fox and Penn in the role of the creation in education was probably also a function of the latter, rather than evidence for natural theology. Their emphases in education were on the practical benefits of factual knowledge, and, in Penn's case, on the development of the personality.

affirmed that ‘Such as have pleasure in the Lord, cannot but have pleasure in his Works’,¹¹⁸ more focused statements takes the form of reactions to the claims of natural science and natural theology, as opposed to accounts of personal experience of the revelation of creation by God. Thus Friends presented arguments for the necessity of inward spiritual guidance in order to gain a true understanding of the created world and how it should be used, although the nature of the relationship between spiritual experience and knowledge of creation was less straightforward than in the previous period. This sub-section concludes with arguments for the dependence of the claims of natural theology upon the operation of the divine inward light.

The Inward Light and ‘Pseudo-natural’ Theology

Although it was widely accepted that knowledge of particular details of creation could come from the observation of the material world, the discovery of the underlying principles of creation, or the fundamental nature of created things, was a task that human reason and effort could not achieve alone. Quoting the Paracelsian alchemist Oswald Croll,¹¹⁹ Thomas Lawson claimed that true ‘inward’ knowledge came not from books or study or other outward things, but from patience, humility and passive submission to the divine will.¹²⁰ In particular, Friends (other than Penn: see below) argued that it was God alone who could reveal how the creation was to be used and managed by humanity. Only in this way could human dominion over creation, as originally intended by God, be restored. Whilst the creation was generally seen as the embodiment of God’s wisdom and providence, Fox emphasised that the wisdom to manage creation came not from the creation itself or any outward things, but from

¹¹⁸ Thomas Lawson, *Dagon’s Fall Before the Ark* (1679, reprint, London: T. Sowle, 1703), 87.

¹¹⁹ Coudert, *Impact of the Kabbalah*, 7.

listening to the will of God. Since the creation was the embodiment of God's wisdom, those who received their wisdom from God would receive the wisdom to manage creation in accordance with God's will – the same wisdom in which it was made:

This is the counsel of the Lord to you all, who are brought into the eternal truth of God, whose minds are guided out of the earth up to God, and have received their wisdom from God; which wisdom orders all the creatures; that with it you may come to know how to order in the creation, with the wisdom by which all was made.¹²¹

Isaac Penington, in a letter to the Royal Society in 1668 (3.4.1 & appendix 3), also urged that it was only through the experience of 'union with God' that a true understanding of creation could be gained, whereby humanity could re-establish dominion over the rest of creation as God had intended.¹²²

Many leading Friends, although they accepted the teaching that the existence and glory of God were revealed in his creation, were doubtful about the value of the creation to impart knowledge of the divine and the divine will. Fox regarded the changeability of the material world, not as a sign of its journey towards perfection (3.2.2), but as evidence that true knowledge of God could not be found through

¹²⁰ Lawson, *Dagon's Fall*, 54. 'The Academical Spirit cannot understand the mystery of Intrinsical Teaching, only Humility is capable of Illumination. Osw. Coll.' (ibid).

¹²¹ George Fox, 'To go among Friends every where', in *Works* 8: 34. Fox's expression 'how to order in the creation' echoed that of Edward Burrough in his *Standard Lifted Up* where he writes 'man comes to order them, and exercise himself in them': both referred to human beings learning from God how to act in their dealings with the creation.

¹²² Isaac Penington, *Some Things Relating to Religion, Proposed to the Consideration of the Royal Society (so Termed) to Wit, Concerning the Right Ground of Certainty Therein...* (London, 1668), preface. Evidence from the Royal Society also suggests that tensions with Quakers might be expected in the Society's early years. For many years after its foundation in 1660, the Royal Society was largely a kind of gentleman's club, and although its founders included scientists of the highest order, many early Fellows had few or no scientific credentials (Cantor, 'How Successful were Quakers?', 215-6). Its first historian, the Anglican churchman Thomas Sprat, aligned the Society firmly with the powers of human reason and the Anglican Church: the 'universal Disposition of this Age is bent upon a rational Religion' (Thomas Sprat, *History of the Royal Society* (1667), ed. Jackson I. Cope and Harold Whitmore Jones (St. Louis, MI: Washington University, 1959), 374). Sprat saw the Royal Society and the Church of England laying 'equal claim to the word *Reformation*; the one having compass'd it in *Religion*, the other purposing it in *Philosophy* (ibid., 371). He was openly disparaging about religious 'separatists', suggesting that the neglect of the worship of God on the part of 'many *Modern Naturalists*' might be attributed to 'the late extravagant excesses of *Enthusiasm*, involving 'infinite pretences to *Inspiration*, and *immediate Communion with God*' (ibid., 375-6).

reliance on ‘any visible thing without you’.¹²³ George Keith insisted that those who believed that ‘to know the secrets and Misteries of Nature’¹²⁴ led to a true understanding of good and evil were wrong. Whilst Barclay accepted that that evidence for the *existence* of God could be deduced from the outward creation by human reason alone (3.3.1), real knowledge of the divine will came not from human reason but from the divine inward light:

For the outward creation, though it may beget a persuasion that there is some eternal power or virtue by which the world hath had its beginning; yet it doth not tell me...that which is just, holy, and righteous, how I shall be delivered from my temptations and evil affections and come into righteousness: that must be from some inward manifestation *in my heart*.¹²⁵

Those whose knowledge of God came only from outward things, ‘whether it be the letter of Scripture, the traditions of churches, or the works of creation and providence, whence they are able to deduce strong and undeniable arguments’ were ‘not to be esteemed Christians’.¹²⁶ Barclay accepted Paul’s injunction that ‘the invisible things of him from the creation of the world are clearly seen, being understood by the things that are made’,¹²⁷ but argued that it was only under the guiding influence of the inward light that people were:

made capable to see and discern the Eternal Power and Godhead in the outward creation; so were it not for this invisible principle we could no more understand the invisible things of God by the outward visible creation than a blind man can see and discern the variety of shapes and colours or judge of the outward beauty of the creation.¹²⁸

¹²³ Endy, *William Penn*, 79-80.

¹²⁴ George Keith, *Immediate Revelation (or, Jesus Christ the Eternal Son of God, Revealed in Man, Revealing the Knowledge of God, and the Things of his Kingdom Immediately)*, 2nd ed. (London, 1675), 68.

¹²⁵ *Ibid.*

¹²⁶ Barclay, *Apology*, 27-8.

¹²⁷ Romans 1: 20. Barclay, *Apology*, 145.

¹²⁸ *Ibid.*

Barclay's position of qualified support for natural theology, being dependent on operation of the divine inward light in human souls, is referred to here as 'pseudo-natural theology'.

3.4 EPISTEMOLOGY OF THE CREATION

As interest in the education of the children of Quakers grew, several leading Friends expressed strong views on the value of knowledge of the creation, and how this was to be acquired. The first part of this section presents evidence for a three-fold epistemological 'scale' of knowledge of the creation that can be recognized in contemporary Quaker writing, although Friends did not necessarily agree on the boundaries between these categories. Thus, knowledge based only on speculation or scholastic tradition was held to be of least value, or even harmful, whilst 'natural' or 'outward' knowledge gained from empirical observation, other reliable human agencies, and human reason was potentially useful. 'Spiritual' or 'inward' knowledge, that is the unity of knowledge of creation received from communion with the divine, and guided by scripture, was of the highest value. The second part looks at different views on how the 'book of creation' was to be read and the relative importance of the divine spirit and of human reason and science. The final part explores in more detail contemporary ideas on the role of the creation in Quaker education.

3.4.1 The Scale of Knowledge

False Knowledge

Restoration Quakers often made a distinction between what they regarded as true knowledge of both inward and outward things, which was believed to be divinely inspired, and other knowledge, which was not. Thomas Lawson condemned as worthless those practitioners whose claims derived from knowledge that had no basis in God's wisdom. Thus he dismissed 'the defilements of Astrologers, Charmers, Consulters with Familiar Spirits, Diviners, Inchanters, Magicians, Necromancers...who all derive their Power, and foolish Infernal Knowledge, from those Lying Lips which seduced Adam And Eve'.¹²⁹ He cited Moses who, although 'Excellent in the Wisdom of the Egyptians' was drawn from 'the dirty Puddle of Profane Arts and Sciences, Egyptian Wisdom, Pagan Metaphysicks, Hieroglyphics'¹³⁰ to have 'Reliance and Dependence on the Living God'.¹³¹ Lawson particularly opposed Aristotle, the 'Heathen Philosopher', whose 'Absurd and Blasphemous...Opinions' he contrasted with the 'Treasury of Wisdom and Knowledge' to be found in Christ.¹³² He also contended that Aristotle's philosophy was of no scientific or practical value. Quoting the elder van Helmont, he asserted that the 'World...hath suffer'd it self to be circumvented by *Aristotle*', whose 'Logick' is 'so far from leading to the Knowledge of Universals, that it rather thrusts men down into Errors'.¹³³

¹²⁹ Lawson, *Dagon's Fall*, 5.

¹³⁰ *Ibid.*, 7.

¹³¹ Thomas Lawson, *A Mite into the Treasury, Being a Word to Artists, especially Heptatechnists, the Professors of the Seven Liberal Arts, so called, Grammer, Logick, Pheorick, Musick, Arithmetick, Geometry, Astronomy...* (1680; repr., London: T. Sowle, 1703), 14.

¹³² *Ibid.*, 26.

¹³³ Lawson, *Dagon's Fall*, 55. These quotations come from chapter 4, which Lawson described as a 'Rehearsal of Testimonies, born by several Men, eminent in the Church since the Apostles Days, against Heathen Learning, or the Teaching of it, in Christian Schools, as also of others' (*ibid.*).

'Natural' Knowledge

Philosophy and Metaphysics: Quaker Reactions

Friends were generally cautious about the value of knowledge that appeared to be the product of human reason alone. Robert Barclay admitted that 'natural logic, by which rational men without that art and rules [of Aristotle], or sophistical learning, deduce a certain conclusion out of true propositions' has its place, and confirmed that he made use of it in his *Apology*.¹³⁴ However, he denied any essential place for 'logic and philosophy' in Christian ministry, arguing that the 'physical and metaphysical part [of philosophy] may be reduced to the arts of medicine and the mathematics, which have nothing to do with the essence of a Christian minister'.¹³⁵

Reactions from Friends to the creation-centric metaphysics of the Helmontians appear to have been mixed. It has been suggested that George Fox was initially attracted to van Helmont's ideas on herbal medicine,¹³⁶ and Fox appears to have been on good terms with Anne Conway.¹³⁷ Whilst George Keith, an unusually intellectual Friend, found 'great satisfaction in pondering the intricacies of the Lurianic Kabbala',¹³⁸ his reaction was untypical of Friends. Robert Barclay warned van

¹³⁴ Barclay, *Apology*, 264. Barclay frequently quoted classical and later authors to support his arguments (ibid., 487).

¹³⁵ Ibid.

¹³⁶ Cecil W. Sharman, *George Fox & the Quakers* (London: Quaker Home Service and Richmond, IN: Friends United Press, 1991), 219.

¹³⁷ Fox visited Anne Conway at her home in Warwickshire, and in a letter of 1679, the year of her death, addressed her as 'My esteemed Friend, whose face is set towards Sion from this dunghil [sic] world' (Henry J. Cadbury, ed., *Annual Catalogue of George Fox's Papers* (Philadelphia: Friends Book Store and London: Friends Book Centre, 1939), 160).

¹³⁸ Allison Coudert, 'A Quaker-Kabbalist Controversy: George Fox's Reaction to Francis Mercury van Helmont', *Journal of the Warburg and Courtauld Institute* 39 (1976): 182. Keith saw the doctrine of the transmigration of souls as a means to resolve the difficulty Quakers faced over the relationship between the inward light and the historic Christ. (George Keith 'An Appendix containing an Answer to some new Objections and Questions upon some passages in the Book, Intituled [sic], Immediate Revelation not ceas'd' in George Keith, *Immediate Revelation, (or, Jesus Christ the Eternal Son of*

Helmont about the dangers of speculative reasoning, urging him not to give way to ‘the dry wisdom of this world’, nor to be seduced by ‘these various & wandring thoughts & multiplicity of Images that cumber thy mind, as also that abundance of words that proceed therefrom’. He advised van Helmont to submit to ‘inward & outward Silence’ and hear the ‘lowly witness of God in thy Heart’ so that he might ‘grow up no less in the possession and enjoyment of the thing itself than in the conception and comprehension of it’.¹³⁹ More hostile criticism came from a Dutch Friend, Peter Hendricks, who in 1681, accused van Helmont of subverting the Lord’s work by ‘tending to cloud and alienate’ the minds of Quakers.¹⁴⁰ Hendricks objected particularly to van Helmont’s teaching on ‘the imperishableness...of this world, consisting...of transubstantiations’, and on the transmigration of souls, views which had ‘more in common with heathenism, than with the sound doctrine of the gospel of our Lord Jesus Christ’.¹⁴¹

The decisive negation of Helmontian metaphysics by the Quaker leadership seems to have been precipitated by the publication of the *Cabbalistical Dialogue* in 1682 and, especially, by the *Two Hundred Queries* in 1684. Soon after the appearance of the latter, George Fox submitted a memorandum for consideration by Friends, the subject of a paper by Allison Coudert.¹⁴² Fox recommended that the Meeting examine these books ‘that they may view them over, and give testimony concerning them, that friends may be caution’d and Truth Cleared’¹⁴³ (appendix 3).

God, Revealed in Man, Revealing the Knowledge of God, and the Things of his Kingdom Immediately) 2nd edn. (London, 1675).

¹³⁹ Robert Barclay to van Helmont, 17, 9-10. November 1676. *Reliquae Barclaianae*, 1870 quoted by Coudert, ‘Quaker-Kabbalist Controversy’, 184.

¹⁴⁰ Peter Hendricks [sic] to van Helmont, Amsterdam, December 24, 1681, Colchester, Quaker Meeting House, Colchester MS, fol.102 (trans. by C.W. Schoneveld), quoted by Coudert, ‘Quaker-Kabbalist Controversy’, 185-6.

¹⁴¹ *Ibid.*, 186.

¹⁴² Coudert, ‘Quaker-Kabbalist Controversy’.

¹⁴³ George Fox, ‘Memorandum from George Fox to the Second-day’s Morning Meeting, 19 January 1684’ London, FHL.

Like Barclay, Fox was suspicious about van Helmont's conclusions which he saw, not as the fruits of true spiritual experience, but of his own intellectual vanity. Fox saw his reliance on human reason and his relentless questioning as leading van Helmont, and potentially others, astray, and regarded his colourful language as irreverent. Coudert describes van Helmont's conversion to Quakerism as 'only an episode, albeit an important one, in his life. The fertility of van Helmont's thought, his interest in alchemy, medicine, Platonism, mysticism and particularly in the Kabbala [sic] proved too much for the Quakers'.¹⁴⁴

Useful Knowledge

Fox recognised that knowledge that was true in the sense that it was of practical value to people, could be known by the spiritually unenlightened. However, his direct references to 'science' or 'sciences' tend to devalue the importance of such activities, since he described the 'natural' arts, sciences or languages alike as 'the world's wisdom', human inventions by which '[man] knows not the things of God'.¹⁴⁵

Writing in 1679 (the same year as Lawson's *Dagon's Fall*) Fox dismissed such learning as fit only for 'natural' men:

But *Caesar* may make and train up Orators in the Knowledge and Learning of the Arts and Science, as of *Philosophy* and *Musick*, *Astrology* and *Astronomy*, *Logick*, *Grammer*, and such like, and to teach Natural men the Natural Tongues and Languages...¹⁴⁶

To some extent, such views may be a reflection of the prevailing character of Renaissance science in general that only began to change in the 17th century. Until the revolutionary scientific advances of that century, 'science' had been concerned

¹⁴⁴ Coudert, 'Quaker-Kabbalist Controversy', 189.

¹⁴⁵ George Fox, 'A Demonstration to the Christians in Name, without the Nature of it' (1679), in *Gospel Truth Demonstrated in a Collection of Doctrinal Books* (London: T. Sowle, 1706), 1653.

much more with belief in particular doctrines than with objective observation or experimentation.¹⁴⁷ Both Fox and Lawson appear to have distinguished between the greater authority of direct observations of nature (see below) on the one hand, and the lesser authority of human representations and interpretations of nature, including mathematics, on the other. Lawson admitted that geometry was ‘Useful and Serviceable in its place’¹⁴⁸ and, of arithmetic, that ‘there be Use and Service in this Natural Art’.¹⁴⁹ But he stressed that such knowledge, like any other ‘Natural Acquisition or Attainment’ did not lead to knowledge of God or to salvation.¹⁵⁰

Limitations of ‘Outward’ Knowledge

Van Helmont’s caution about the pursuit of knowledge in ‘things without’ at the expense of essential inward knowledge was shared, at least in general terms, by a wider spectrum of Friends (3.3.2). Isaac Penington expressed concern about the pursuit of empirical science independently of true religious experience and knowledge (appendix 2).¹⁵¹ He urged scientists to seek ‘union with God’, in order that they might ‘know and partake of the true wisdom’ which was ‘of a higher kind than Nature, and will lead higher than Nature’.¹⁵² George Keith had reservations about the study of ‘outward’ things in general. He was dismissive of those ‘who spend so much of your time in gathering Wisdom and Knowledge from either the Words or Works of

¹⁴⁶ George Fox, *Caesar’s Due Rendered unto Him according to his Image and Superscription* (n.p., 1679), 8.

¹⁴⁷ See, for example, Harrison, *Bible, Protestantism, and Natural Science*, 273. Whilst Robin Attfield considers that the view that 17th century science was anti-observational is an exaggeration that ignores the work of key scientific pioneers of the century, he admits it does reflect the derivative character of much of the body of knowledge that was still being perpetuated at this time (Robin Attfield, *Environmental Philosophy; Principles and Prospects* (Aldershot: Ashgate, 2004), 77-86).

¹⁴⁸ Lawson, *Mite into the Treasury*, 53.

¹⁴⁹ *Ibid.*, 50.

¹⁵⁰ *Ibid.*, 54.

¹⁵¹ Penington, *Some Things Relating to Religion*, preface.

¹⁵² *Ibid.*

God'.¹⁵³ Unless redeemed inwardly by the 'true and pure Principle of God, the Light of his Son', Keith declared that 'your wisdom is foolishness, your knowledge is darkness, a dead, barren, empty knowledg' [sic].¹⁵⁴ Whilst such positions agree with that of Bacon (3.4.2) in that scientific knowledge could not lead to salvation, for these Quakers, the physical creation was not in itself an adequate resource for the full understanding of the creation itself.

The Unity of True Knowledge

The Role of Scripture

Restoration Quakers were keen to demonstrate to the outside world that their beliefs and practices were in full accord with the Bible. Although Robert Barclay declared that the scriptures were 'subordinate to the Spirit' and not 'to be esteemed the principal ground of all Truth and knowledge, he accepted that they gave 'a true and faithful testimony of the first foundation'.¹⁵⁵ Margaret Fell quoted at some length from the Genesis account of the first creation, asserting that 'here is the record which is in heaven, God, the Spirit, and the Word...by which all things were made and created'.¹⁵⁶ She emphasised that this was borne out by the apostles' accounts of Jesus' teaching. Similarly, Elizabeth Bathurst affirmed that 'all who may be rightly denominated Quakers faithfully own the Scriptures'¹⁵⁷ and quoted, *inter alia*, from John 1: 1-3, concluding that all things were created by God and reconciled to Him through Christ, 'whether they be Things in Earth, or Things in Heaven'.

¹⁵³ Keith, *Immediate Revelation*, 68.

¹⁵⁴ *Ibid.*

¹⁵⁵ Barclay, *Apology*, 62.

¹⁵⁶ Margaret Fell, *The Standard of the Lord Revealed* (n.p. 1667), 1.

¹⁵⁷ Elizabeth Bathurst, *Truth's Vindication, or, a Gentle Stroke to wipe off the Foul Aspersions, False Accusations and Misrepresentations, cast upon the People of God called, Quakers...*(n.p. 1679), 7/10.

Quakers believed that the Bible was the surest *guide* to the highest forms of knowledge, and to where and how they might be found. Fox referred again to his belief in Adam's perfect knowledge of creation in 1680. Commenting on Adam and Eve's seduction into eating of the tree of the knowledge, he wrote that 'here was another wisdom gone into, besides that Wisdom Adam had, to know all that God made and to give names to them.'¹⁵⁸ The new knowledge of good and evil was 'wisdom by which the world knows not God': Lawson contrasted the 'wisdom from above' with 'a wisdom from below, Earthly, Sensual and Devilish'.¹⁵⁹ Like Fox and Nayler had done before him, Thomas Lawson regarded the Genesis account of Adam naming the creatures as highly significant. He too believed that, before the Fall, Adam knew both his Creator and the creation through the fundamental and unifying power of divinely imparted wisdom. Lawson prefaced his account of Adamic perfection with a description of that wisdom borrowed from Proverbs 3: 14-18:

There is a Wisdom, whose Merchandize transcends the Merchandize of Silver, whose Gain surmounts the gain of purest Gold...her Ways are Ways of Pleasantness, all her Paths are Peace; she is a Tree of Life; by her Kings reign, and Princes decree Justice...she was from Everlasting, or ever the Earth was, before the Depths, before the Fountains abounding with Waters, before the Mountains were settled, before the Hills towered up, before the Curtain of the Heavens was prepared...In this Wisdom Adam was created, in Purity, Innocency, and Righteousness, a Noble Extract...through the Vertue and Influence of this, he knew his Creator, and had an understanding of the Nature and Properties of the Creation, and gave names to all Cattel, and to the Fowl of the Air, and to every Beast of the Field, and that significant Names.¹⁶⁰

Lawson likened Adam's original wisdom to 'a garment conferred upon him, out of the wardrobe of Eternity' and describes him as 'a Lover of Wisdom, not tainted by the Intermixture of the Serpent', and as a 'true Divine Philosopher'.¹⁶¹ For Lawson,

¹⁵⁸ George Fox, 'Sermon at Wheeler St. London at the General Meeting of 1 April 1680', in Hugh Barbour and Arthur Roberts, *Early Quaker Writings 1650-1700* (Grand Rapids, MI: William B. Eerdmans Publishing, 1973), 503.

¹⁵⁹ Lawson, *Mite into the Treasury*, 39.

¹⁶⁰ Lawson, *Dagon's Fall*, 3-4.

¹⁶¹ *Ibid.*, 4.

wisdom was essentially indivisible: knowledge of God and knowledge of the physical creation are not separate domains but facets of a single whole. For van Helmont too, all forms of knowledge were interconnected; in his case, ‘with the Kabbalah offering the surest path to both natural and divine wisdom’ (3.3.1).¹⁶² Lawson’s account differed from those of Fox and Nayler in its focus on the actual nature and content of the supposed Adamic knowledge. According to Lawson, Adam’s knowledge of the creation was detailed and comprehensive, including ‘the secret Vertues of Living Creatures, of Plants, of Stones, of Metals, of Minerals’: and (on the authority of Theophilus Gale) he also ‘perfectly knew the Influences of Supernal Bodies’.¹⁶³ For Lawson, scripture demonstrated not only the status of such knowledge, but also that it could be regained, even in humanity’s fallen state. He cited Solomon as a witness to the knowledge of creation being a mark of true wisdom:

That he had a clear Understanding of the Lord’s Creation, is demonstrable from Scripture Records; for he spake of Trees, from the *Cedar-Tree* that is in *Lebanon*, even unto the *Hysop* that springeth out of the Wall; he spake also of *Beasts*, and of *Fowles*, and of *Creeping Things*, and of *Fishes* 1 Kings 1. His Wisdom excelled all the Wisdom of the *East-Country*, and all the Wisdom of *Egypt*...¹⁶⁴

Thus Lawson’s position was distinctive in according high authority to the knowledge of the particulars of nature *per se*, and high priority to the acquisition of that knowledge.

Lawson’s ‘Book of Creation’

In his close juxtaposition of knowledge of the Creator and knowledge of the creation, Lawson was emphasising a relationship between two kinds of knowledge that lay

¹⁶² Coudert, *Impact of the Kabbalah*, 141.

¹⁶³ Lawson, *Dagon’s Fall*, 5.

¹⁶⁴ *Ibid.*, 11. According to Jean Whittaker, 1 Kings 1 was ‘a crucial text for apologists of the study of nature’. She referred to William Turner, the ‘Father of English Botany’, using the passage more than a

outside the scope of the creation dialectic. He was concerned here not with one kind of knowledge or experience as a gateway to, or contingent upon, another kind (3.4.2), but to establish the importance of knowledge of creation in its own right, as an integral part of the corpus of true, divinely-inspired wisdom. Whilst Friends differed in their views of the value of knowledge of outward things (see below), Lawson perceived:

a twofold wisdom, a Wisdom from above, Pure, Heavenly, full of Good Fruits; and such as grow up in this Wisdom, so become Wisdom's Children: Such as grow up in the knowledge of the Lord, and in the Book of Creation, such and only such, are the true and divine Philosophers...¹⁶⁵

According to Lawson, 'Adam...had no book to mind, but God himself, the book of life, and the book of the Creation'.¹⁶⁶ Thus Adam's wisdom could be restored, at least in some measure, through the direct experience of God in the human soul, and also through the conscientious study of the 'book of creation'.¹⁶⁷ True wisdom comprised these two kinds of knowledge, and only they were worthy of the restored life: 'if Man should live the Days of Methusalah...yet is the Lord, the Book of Life, and the Book of Creation, sufficient for his observation.'¹⁶⁸ In an ambiguous passage, Lawson wrote that 'all savoury and sound Knowledge relates primarily to God, secondarily to the Knowledge of the Creation, and of the useful and necessary Employments'.¹⁶⁹ Geoffrey Cantor cites this to argue that Lawson, like Pennington, 'placed natural

century earlier (1551) to make a case for the pre-eminence of the study of natural history over other sciences (Whittaker, *Thomas Lawson*, 122).

¹⁶⁵ Lawson, *Mite into the Treasury*, 64.

¹⁶⁶ Lawson, *Dagon's Fall*, 71-2.

¹⁶⁷ The 'book of nature' was a medieval concept in which the contemplation of nature as divine hieroglyphics ('letters written by the finger of God'), combined with the study of scripture, provided 'a means of ascending to the very source of divine wisdom' (Peter Harrison, *Rise of Natural Science*, 45). Harrison states that in the 12th century, nature started to be regarded as 'a locus of divine revelation, and potentially both a source of knowledge of God and a means whereby mankind might be reconciled to him. Nature was a new authority, an alternative text, a doorway to the divine which could stand alongside the sacred page' (ibid., 44-45).

¹⁶⁸ Lawson, *Dagon's Fall*, 88.

¹⁶⁹ Ibid., 73.

knowledge far below that of the divine'.¹⁷⁰ This interpretation is difficult to reconcile with Lawson's other statements on the 'twofold wisdom', where he consistently avoided ranking these two forms of knowledge: in the 17th century, the term 'secondarily' could be used to mean second without necessarily implying secondary importance.¹⁷¹ Lawson's reference to the two 'Books' is interesting since it represented a departure from medieval ideas not only in its advocacy of the scientific study of nature, but also in the meaning he apparently wished to convey by the term 'book of life'. Although he strongly advocated the use of the Bible in education, Lawson's 'book of life' appears to relate primarily to the direct experience of God (as enjoyed by Adam), rather than knowledge of scripture. Thus Lawson's 'Book of Creation' and 'Book of Life' both take on a particular experiential quality.

Macrocosm and Microcosm

Van Helmont restated the ancient idea that, originally, divine wisdom could be found both inwardly in man (the 'microcosm' or 'lesser world'), and outwardly in the creation as a whole (the 'macrocosm' or greater world').¹⁷² As the microcosm, man was a reflection of the macrocosm, 'the very Center [sic] of the Great World, in whom all the parts of it concur and meet together'.¹⁷³ Like Lawson, van Helmont saw Adam's knowledge of the creatures as epitomising humanity originally created in the divine image:

¹⁷⁰ Cantor, *Quakers, Jews, and Science*, 243.

¹⁷¹ *Shorter Oxford English Dictionary*, 6th ed., (Oxford: Oxford University Press, 2007), 2: 2728.

¹⁷² Helmont, *Paradoxal Discourses*, 22. The 'microcosm-macrocosm' model to explain links between humanity and the creation has its origins in the work of Plato, and was adopted by the early Christian Fathers for the purposes of scriptural interpretation. The application of the concept to the outward creation was revived and developed in the medieval period (Harrison, *Bible, Protestantism and Science*, 47-56).

¹⁷³ Helmont, *Paradoxal Discourses*, 22.

...the Image of God, according to which Man is created, consists in this inward illuminating Understanding, may be perceived in *Adam*, in that he knew how to give to all Creatures their true Names, *Gen, 2.19, 20.*¹⁷⁴

Access to this unified and divinely-inspired knowledge had been lost in humankind, being 'too far fallen into the outward obscurity of this World' through sin. However, it might be regained through the medium of the physical creation as a whole, the macrocosm. In the macrocosm, the Creator had provided humanity with a subject, 'that by the outward beholding of, he might be stirr'd up to enter into himself for to find and know that which is no less in the Microcosm than in the Macrocosm'.¹⁷⁵

Indeed, the human being was, when examined in the right way, a primary source of knowledge. Van Helmont saw self-knowledge, in terms of 'what a Body is, whereof it consists, or what that is which doth unite, or link the parts of it together...that is the cause of them) as the key to understanding the mysteries of creation. Here he appeared to go so far as to belittle efforts to gain knowledge in 'things without':

In my judgement there is no better Principle can be pitch'd upon for the acquiring of knowledge, than...*to know our selves*; and Experience doth abundantly confirm this, for we find that the reason why so few attain to a true and experimental knowledge of themselves, is, because instead of clearing up the Light that is hid in them, they do more and more darken and cloud it, by their pursuing of Truth in things without them...¹⁷⁶

Coudert claims that this became 'the defining characteristic of the new forms of spiritualism that proliferated during the sixteenth and seventeenth centuries'.¹⁷⁷

Whilst much of the corpus of more fanciful metaphysical speculations waned during this period, the idea that in some sense all things were to be found in man, and therefore, through the study of man, man could know all things, persisted. William Penn argued that 'if Man be the Index or Epitomy of the World, as Philosophers tell

¹⁷⁴ Helmont, *Spirit of Diseases*, 83.

¹⁷⁵ Helmont, *Paradoxal Discourses*, 22.

¹⁷⁶ Helmont, *Spirit of Diseases*, 1.

us, we have only to read our selves well to be learn'd in it'.¹⁷⁸ Penn regarded the human body, the physical seat for the 'rational soul', as both the pinnacle and the epitome of God's creative work.¹⁷⁹ (3.3.1).

The Nature of Ideas

Robert Barclay drew a clear distinction between any outward object perceived by human senses on the one hand, and the idea of that object in the human mind. Drawing on Descartes for support, he stated that true knowledge of any outward object was contained in the *idea* of that object, which was planted by God in the human mind, and not in the object itself¹⁸⁰ (appendix 5). Barclay believed that all true ideas, 'whether of Natural or Spiritual things', were 'of a spiritual Nature' and were 'Divinely implanted in our Minds'. Ideas were 'not begotten in us by outward Objects, or outward Causes...but only by these outward things excited or stirred up'.¹⁸¹ He did not explain how this 'implanting' related to the spiritual work of the inward light, and whether (or to what extent) the understanding that resulted was dependent on spiritual transformation (3.3.2).

Other Friends do not appear to have supported this notion, at least as a present reality. John Bellers wrote that 'all Objects whatever' have 'so free and easie an Access to our Minds, that they...Imprint their own Ideas on us'.¹⁸² F. M. van Helmont contrasted the condition of Adam in innocency with that of fallen humanity. Whilst the former 'had an inward illuminating Knowledge of all things, the said Knowledge

¹⁷⁷ Coudert, *Impact of the Kabbalah*, 16.

¹⁷⁸ Penn, 'Fruits of Solitude', 1: 821.

¹⁷⁹ Ibid.

¹⁸⁰ Robert Barclay, *The Possibility and Necessity of the Inward and Immediate Revelation of the Spirit of God* (London: T. Sowle, 1703).

¹⁸¹ Ibid., 15/17.

by sin became obscured in him; so that now the Images of all things must be conveyed to Man, from without through the senses, which Knowledge at the best is very dark'.¹⁸³ Van Helmont argued that as:

no Man can receive an Image elsewhere, than from having seen the thing itself; it unanswerably follows that it is *the thing it self, that must propagate or produce the Image in him*. And for as much as this Image doth represent the Essence of the thing, whose Image it is, it cannot proceed elsewhere than from the thing it self...'¹⁸⁴

George Keith grew sceptical about humanity's capacity for 'immediate knowledge' of the 'essence' of creation, arguing that 'at least in this Mortal State...we have no immediate Knowledge of any Creature'. Perception of things by human beings was possible only through their outward 'operations', and this revealed only their 'outward forms'.¹⁸⁵

3.4.2 Science and the Authority of Reason

Friends who regarded the physical creation as an authoritative source of knowledge variously asserted the importance of divine leadings, esoteric knowledge, as well as the empirical observation of nature in the process of reading the 'book of creation' and revealing its secrets (3.3.2). F.M. van Helmont recounted how, only after 'assiduous cogitation and contemplation, in conjunction with long experience' following 'Nature through all her secret windings and immense variety of objects',

¹⁸² John Bellers, *Essay towards the Improvement of Physick. In Twelve Proposals. By which the Lives of Many Thousands of the Rich, as well as of the Poor, may be Saved Yearly* (London, 1714), 57.

¹⁸³ Van Helmont, *Spirit of Diseases*, 84.

¹⁸⁴ *Ibid.*, 72-3.

¹⁸⁵ George Keith, *Some of the Many Fallacies of William Penn Detected* (London: Benj. Tooke, 1699), 51. 'Hence it is that the greatest Philosophers are at a loss to define the essence of any thing, because our knowledge doth not immediately reach their Essence, but only by their operation; when we see the Body of a Man, Beast or tree, we see not the Essence of these Bodies, but the outward Forms, and Shapes, and Colours of them, all which are but their accidents, and not their Essence or Substance...(*ibid.*). Keith argued that knowledge of 'the Essence of the Divine Word' of God by means of 'our inward Eyes or Sight' was not possible since even the immediate understanding of the 'essence' of creation was denied to fallen humanity (*ibid.*).

had he achieved true understanding, including the ‘discovery’ of esoteric truths and frameworks.¹⁸⁶ Although individual Quakers saw the creation as meaningful as the embodiment of the divine will and wisdom, and as a source of true knowledge, their position on the nature of the connection between religion and science (3.3.2) meant that Quaker support for modern science was slow to emerge.

Francis Bacon and Modern Science

Charles Webster provided a definitive exploration of the religious context and motivations for the philosophical revolution that took place during and immediately prior to the English political revolution. He described Francis Bacon (1561-1626) as ‘the most important philosophical and scientific authority of the Puritan Revolution’,¹⁸⁷ claiming that ‘no figure was more influential in stimulating his countrymen’s active participation in experimental science and in drawing the natural philosopher and the craftsman into the centre of the social scene’.¹⁸⁸ Bacon believed that man had both the capability and the duty to work to regain Adam’s lost knowledge of the natural world and, through it, his rightful dominion over the rest of creation.¹⁸⁹ An accurate understanding of the creation acquired through the methods of science would result in the life of mankind being brought ‘into a fuller and more intelligent correspondence with His will’.¹⁹⁰ Thus, the inductive method of science on the one hand, and the study of natural history on the other, formed the ‘twin

¹⁸⁶ Helmont, *Spirit of Diseases*, preface.

¹⁸⁷ Charles Webster, *The Great Instauration: Science, Medicine and Reform 1626-1660* (London: Duckworth, 1975), 25.

¹⁸⁸ *Ibid.*, 335. Like Paracelsus, Bacon used the craftsman as his model for science, working with rather than against nature: nature could not ‘be commanded except by being obeyed’. (see Hill, *TWTUD*, 288).

¹⁸⁹ Webster, *Great Instauration*, 22.

¹⁹⁰ Charles E. Raven, *English Naturalists from Neckham to Ray* (Cambridge: Cambridge University Press, 1947), 355.

pillars' of Bacon's system of natural philosophy.¹⁹¹ Christopher Hill wrote of Bacon's 'apparent mistrust of reason in devising theories, and his insistence on the primacy of experiment and direct observation of material things'.¹⁹²

Bacon perceived science and religion to have complementary but distinct roles in human endeavours to repair the damage of the Fall. The loss of innocence was to be addressed by 'religion and faith'; regaining dominion over creation by 'arts and sciences'.¹⁹³ Indeed, Bacon urged that care should be taken not to 'unwisely mingle or confound these learnings together'.¹⁹⁴ Whilst a man could never 'search too far or be too well studied in the book of God's word or in the book of God's works',¹⁹⁵ the 'contemplation of the creatures of God hath for end...as to the nature of God, no knowledge, but wonder'.¹⁹⁶ Presuming to gain access to the divine secrets by outward means risked repeating the errors of the Fall.¹⁹⁷

Quaker Support for Science

Webster argued that 'Baconian' science appealed to puritan reformers, including Quakers, for several reasons.¹⁹⁸ It was 'basically anti-authoritarian; its criteria of proof rested on an appeal to experiment which was seen as analogous to personal revelation', and had 'no rigid associations with scholastic metaphysics and

¹⁹¹ Webster, *Great Instauration*, 336.

¹⁹² Christopher Hill, *Intellectual Origins of the English Revolution* (Oxford: Oxford University Press, 1965), 109.

¹⁹³ Francis Bacon, *Novum Organum* Bk.II aphorism 52, quoted by Webster, *Great Instauration*, 324.

¹⁹⁴ Hill, *IOER*, 91.

¹⁹⁵ F.H. Anderson, *The Philosophy of Francis Bacon* (Chicago: Chicago University Press, 1948), 54-55, and reference there cited, quoted by Hill, *IOER*, 91.

¹⁹⁶ Bacon, *Works* iii: 218, quoted by Hill, *IOER*, 91.

¹⁹⁷ Hill argued that Bacon's emphases on first-hand observation and experiment rather than theory and on the separation of religion from science both sprang from his Calvinist background, and in particular 'assumptions about the priority of faith over reason' as well as 'the necessity for strenuous effort'. (Hill, *IOER*, 92-93).

¹⁹⁸ Webster, *Great Instauration*, 189.

divinity'.¹⁹⁹ It was of practical value to people, including the sick and the poor and, because of its role in natural theology, its status 'could be elevated to become an important ancillary to spiritual religion'.²⁰⁰

Evidence of George Fox's own attitude towards the 'new' science is sparse. Whilst Fox was opposed to 'scholasticism', his challenge to the efficacy of the Mass in 1658 (2.4.3) suggests an understanding of, and belief in, the scientific method as it was understood by Bacon. William Penn described Fox as 'a divine and a naturalist',²⁰¹ adding that:

I have been surprised at his questions and answers in natural things; that whilst he was ignorant of useless and sophistical science, he had in him the foundation of useful and commendable knowledge, and cherished it everywhere.²⁰²

Thus Fox distinguished between 'science' as doctrine (3.4.1), and the scientific acquisition of objective knowledge about the creation. His interest in the latter seems to have been motivated largely by its practical value, and Henry Cadbury suggested that Penn's use of the term 'naturalist' could have several meanings, but that it was 'just possible' that it included 'the medical element in natural philosophy'.²⁰³

Christopher Hill claimed that Fox 'was much interested in natural science', referring to his bequest of land in Philadelphia for the purposes of a botanic garden.²⁰⁴ The nature of this and other similar projects (see below), together with Penn's own assessment, would seem to confirm the view that it was primarily the utility, and the educational value, of modern science that commended it to Fox.

¹⁹⁹ Ibid.

²⁰⁰ Ibid.

²⁰¹ William Penn, preface to Fox, *Journal*, xlvii.

²⁰² Ibid.

²⁰³ Henry J. Cadbury, ed., *George Fox's 'Book of Miracles'* (1948, repr., Philadelphia: Friends General Conference and London: Quaker Home Service 2000), 39.

²⁰⁴ Hill, *IOER*, 121.

George Keith argued that William Penn equated the Quakers' inward light with human beings' 'natural rational Faculty',²⁰⁵ and Melvin Endy remarked that the extent to which Penn did so was unusual amongst Quakers at this time.²⁰⁶ According to Endy, Penn shared with some Puritan intellectuals the view that inward certainty of both the natural and spiritual worlds 'could not be attained without a good measure of "understanding"'.²⁰⁷ 'For a Man can never be certain of that, about which he has not had the Liberty of Examining, Understanding or Judging: Confident (I confess) he may be; but that's quite another Thing than being certain'.²⁰⁸ Penn was concerned that people should think for themselves, rather than accept the outmoded views of past theological or intellectual authorities: 'Inquiry is *Human*; Blind Obedience, *Brutal*. Truth never loses by the one, but often suffers by the other'.²⁰⁹ He stressed the importance of the scientific study of nature in helping humanity achieve its true destiny:

The Creation would not be longer a Riddle to us: The *Heavens, Earth, and Waters*, with their respective, various and numerous Inhabitants: their Productions, Natures, Seasons, Sympathies and Antipathies; their Use, Benefit and Pleasure, would be better understood by us...²¹⁰

Penn described himself as 'a Greshamist throughout'²¹¹ and, as the first Quaker proposed for membership of the Royal Society (in 1681),²¹² his views on the Society make an interesting comparison with those of Pennington (3.3.2 & 3.4.1):

²⁰⁵ Keith, *Fallacies of William Penn*, 51.

²⁰⁶ Endy, *William Penn*, 240. Contrasting the 'tone' of Penn's *Fruits of Solitude* with that of *No Cross, No Crown*, Lapsansky and Verplanck remark that 'there is little in the contents [of the former] to indicate that Penn was a Friend' (Emma Jane Lapsansky and Anne A. Verplanck, *Quaker Aesthetics* (Philadelphia: University of Pennsylvania Press, 2003), 22).

²⁰⁷ Endy, *William Penn*, 240.

²⁰⁸ William Penn, 'An Address to Protestants' (1679), in *Works*, 1: 778.

²⁰⁹ Penn, 'Fruits of Solitude', 1: 828.

²¹⁰ *Ibid.*, 820-1.

²¹¹ *Ibid.* Gresham College, London was an early centre of scientific and technical learning from the death of its founder, Sir Thomas Gresham, in 1579. From the 1640s it was the usual meeting place of the forerunners of the Royal Society which itself met there from 1662 to 1710 (Penn, *Papers*, 2: 396, note 3).

²¹² Geoffrey Cantor has shown that it is unlikely that Penn took up formal membership of the Royal Society (Cantor, 'How Successful Were Quakers?', 215). Raistrick observed that during the first 40

I value my selfe much upon ye good opinion of those Ingenuous Gentlemen I know of the Royall Society, and their kind wishes for me and my poor Province: all I can say is, That I and It are votarys to the prosperity of their harmeless and usefull inquierys. It is even one Step to Heaven to returne to nature, and Though I Love that proportion should be observed in all things yett a naturall Knowledge, or ye Science of things fron [sic] sence and a careful observation and argumentation thereon, reinstates men, and gives them some possession of themselves againe; a thing they have long wanted by an ill Tradition, too closely followed and the foolish Credulity So Incident to men.²¹³

Penn's reference to the 'harmless' nature of scientific inquiry was also reflected in Robert Barclay's advocacy of such activity as an acceptable recreational pursuit. In a list of 'innocent divertisements' suitable for Quakers, he included 'to hear or read history, to speak soberly of the present or past transactions, to follow after gardening, to use geometrical and mathematical experiments, and other such things of this nature'.²¹⁴

Despite Penn's emphasis on the value of human reason, and on the study of the physical world as the way to gain knowledge of it, he, too, showed evidence of a reluctance to see science pursued independently of religion. A reading list prepared for a fellow Quaker in 1693²¹⁵ included about 90 books, amongst which 'belles lettres and abstract philosophy are conspicuously missing' but in which religion, history, law and modern science are well represented.²¹⁶ However, Dunn and Dunn remark that he 'ignores the three greatest scientific writers of his day: Galileo, Descartes and Newton'.²¹⁷ Penn was prepared to recommend those authors who pursued science explicitly in an acceptable religious context, like the chemist, Robert

years of the Royal Society, Friends, by reason of their exclusion from the universities and professions, were unlikely to be able to satisfy the qualifications for membership of the Society (Raistrick, *Quakers in Science and Industry*, 222-3).

²¹³ Penn to Aubrey, 2: 395.

²¹⁴ Barclay, *Apology*, 453.

²¹⁵ Penn, *Papers*, 3: 378-80.

²¹⁶ *Ibid.*, 378.

²¹⁷ *Ibid.* In 1714, however, John Bellers (3.5.2) referred to Isaac Newton, then President of the Royal Society, as 'that Eminent and Great Man' (Clarke ed., *John Bellers: His Life, Times and Writings* (London: Routledge & Kegan Paul, 1987), 189).

Boyle²¹⁸ (see 4.4.5) and F.M. van Helmont, or whose writing focussed on practical applications, particularly medicine, agriculture or gardening.

Observers and Experimenters: Thomas Lawson

Francis Mercury van Helmont represented a late flowering of the alchemical tradition that, along with astrology, had enjoyed significant appeal amongst religious and political radicals prior to the Restoration. Whilst he declared that knowledge of all creatures could best be gained from the direct observation of their ‘properties, manner of production, or other circumstances’,²¹⁹ the search for meaning in nature was also fundamentally dependent on divine guidance rather than human reason (3.4.1). Van Helmont’s approach to natural philosophy was framed and imbued by non-scientific assumptions about the underlying relationships and meaning in nature, such as his support for the ‘microcosm’/ ‘macrocosm’ relationship (3.4.1). This non-mechanistic intellectual framework (3.2.2), together with his superstitious belief in causative relationships in the outward world for which no scientific basis existed, limited the

²¹⁸ Geoffrey Cantor (pers. comm.) suggests that Boyle’s Christian piety may have endeared him to Penn, despite the speculative as opposed to purely observational character of his work on chemistry. Penn’s comment that it was ‘one Step to Heaven to returne to nature’ would seem to resonate with Boyle’s assertion that the study of nature was ‘the first act of religion, and equally obliging in all religions’ (Robert Boyle, *Some Physico-Theological Considerations about the Possibility of the Resurrection* (London, 1675), in *Works* II: 29/32/62-3, quoted in Harrison, *Rise of Natural Science*, 198).

²¹⁹ Helmont, *Spirit of Diseases*, 3. ‘Wherefore there can be no better way to attain the knowledge of any thing than to enquire what the efficiency of it is, what form or appearance it hath, whence it proceeded, how it is produc’d, and into what it may be resolv’d at last: For if we put these together, as so many parts that constitute the whole, we shall arrive to the knowledge of the thing we are in quest of’ (ibid.).

scientific value of his experimental work.²²⁰ His conclusions were ultimately discredited both by Quakers (3.4.1) and the wider world.²²¹

By contrast, Thomas Lawson, notwithstanding his spiritual enthusiasm as a Quaker pioneer, was the first known Friend to have systematically pursued the scientific observation of the natural world based on empirical observations and human reason as an end in itself (3.4.1).²²² His interest in botany seems to have been awakened by the publication in 1670 of John Ray's *Catalogus Angliae* – the first 'pocket' flora of England, and based on extensive first hand research by its author.²²³ For Ray, the study of nature through careful, honest observation and human reason was 'the most effective means of displaying the workings of providence'.²²⁴ It was a religious duty, and of the highest value in its own right.

As a follower of Ray, Lawson's principal interest lay not with herbal lore but with the identification and recording of the British flora.²²⁵ Lawson travelled widely

²²⁰ Coudert, *Impact of the Kabbalah*, 17. For example, the elder van Helmont stated that a witch who had killed a horse by magic could be detected by burning the horse's heart impaled upon an arrow, since the witch's spirit 'would suffer the same intolerable sense of burning'. Van Helmont claimed that 'the effect holds constantly good, and never fails to succeed upon experiment' (J.B. van Helmont, *Ternary of Paradoxes*, 36, quoted by Coudert, *Impact of the Kabbalah*, 17).

²²¹ Van Helmont's beliefs and pursuits may also have fallen victim to the new emphasis on order and stability in society fostered by the political and religious establishment after the Restoration. Hill suggested that after 1660 'everything connected with the political radicals had to be rejected, including 'enthusiasm', prophecy, astrology as a rival system of explanation to Christianity, alchemy and chemical medicine (Hill, *TWTUD*, 294-5).

²²² Whittaker, *Thomas Lawson*, 68.

²²³ *Ibid.*, 66. John Ray (1627-1705) was the foremost British naturalist of the 17th century, basing his work on his own first-hand observations of the nature, his experiments and his powers of reason. For Ray, 'reason, strictly disciplined and honestly followed, was the supreme instrument in science and religion' (Charles Raven, *John Ray: Naturalist* (Cambridge: Cambridge University Press, 1942), 454-55). Although Bacon had observed that the symbolic and allegorical meanings conventionally attributed to the creatures were 'not inherent in them, but only human inventions', it was Ray who, together with Francis Willoughby, were 'the first English naturalists to emancipate themselves explicitly from the emblematic tradition' (Thomas, *Man and the Natural World*, 67). Charles Raven claimed that Ray's most influential work, *The Wisdom of God manifested in the Works of Creation*, 'more than any other single book...initiated the true adventure of modern science', and was the 'ancestor' of Darwin's *Origin of Species* (Raven, *John Ray*, 452).

²²⁴ Webster, *Great Instauration*, 150. See also Raven, *John Ray*, 455.

²²⁵ Whittaker, *Thomas Lawson*, 68. A.G. Morton wrote that it was 'very much a sign of the times that ...[Ray] was neither a physician, nor medically trained, and did not come to study plants from the background of pharmacology, but through a more general but passionate interest in natural phenomena which seized many of the best minds of the age' (A. G. Morton, *History of Botanical Science* (London: Academic Press, 1981), 195).

in England, both in the Quaker ministry and, after 1674, for the purposes of botanizing, in which Whittaker thought it likely he received encouragement from Fox.²²⁶ Whilst Lawson became an authority on northern and mountain plants,²²⁷ he explained that his involvement in natural history came about as a result of discrimination against him as a Quaker:

Several years I have been concern'd in schooling, yet, as troubles attended me for Nonconformity, I made it my business to search most countries and corners of this land, with severall of promonteries, islands, and peninsulas thereof, in order to observe the variety of plants there described or nondescripts, as also, Monuments, Antiquities, Memorable things, whereby I came to be acquainted with most of the Lovers of Botany and of other rarities of the Royal Society and others, in this Kingdom and other places.²²⁸

Although never proposed for membership of the Royal Society himself, this reference shows that, like Penn, Lawson appears to be well disposed towards the Society and especially towards individual members who shared his interests, although not his Quakerism.²²⁹ He wrote of his pioneering ideas to document the distribution and uses of native English plants, as well as other observable and verifiable facts about the topography, economy, and history of the English counties.²³⁰ Lawson may be seen to occupy a transitional position between that of Fox and his contemporaries, and that of many 18th century Quakers. Like Fox, he dismissed the study of astronomy in an attack on astrology and Whittaker remarked that he never mentioned the work of

²²⁶ Whittaker, *Thomas Lawson*, 81. The evidence for this is unclear.

²²⁷ *Ibid.*, 138. Lawson also supplied Ray with local names of wild plants, a subject on which Ray had published his *Collection of English Words* (1673). This has been described as 'the first serious attempt to gather and preserve the folk-speech and to distinguish the local dialects of England' (Raven, *John Ray*, 169).

²²⁸ Thomas Lawson to John Rodes, 1690, in Sophie (Mrs Godfrey Locker) Lampson, ed., *A Quaker Post-Bag: Letters to Sir John Rodes of Barlborough Hall, in the County of Derby, Baronet, and to John Gratton* (London: Longman's, Green, 1910), 20.

²²⁹ *Ibid.*, 169-70. Most remarkable amongst such friends was William Nicolson, who, as Archdeacon with the diocese of Carlisle, was responsible for the local suppression of Nonconformity prior to the Act of Toleration, and was to become Bishop of Carlisle in 1703.

²³⁰ Lawson to Rodes, *Quaker Post-Bag*, 22.

Isaac Newton at Cambridge.²³¹ Indeed, Whittaker saw Lawson's polemics of 1679 and 1680 against conventional education and the clergy as having 'an out-dated feel to them' in their use of biblical texts to justify scientific enquiry, unattributed biblical quotations, and in their confrontational style. She considered that 'in his writings he remains at heart a millenarian of the 1650s'.²³² Thomas Ellwood²³³ was disinclined to recommend Lawson's diary for publication, observing that it was 'much made up of visions, with their Interpretations, which seem to me not very clear, and such... as may rather amaze than benefit a Reader'.²³⁴

Yet Lawson was innovative in his efforts to promote a practical education designed to bring material benefits to humankind and to free scientific endeavour from its occult antecedents. Most significantly, he pioneered the making of scientific observations of the world around him as a worthy objective for Quakers in its own right. But despite his passion for botany, Lawson's own published works contain little evidence of it.²³⁵ Whittaker writes that 'No image from botany shall lead the fancy astray or dupe the intellect into acquiescence: the study of plants was a plain matter of science and utility'.²³⁶

²³¹ Whittaker, *Thomas Lawson*, 127. Although Newton's law of gravity came to dominate enlightened thinking about Nature, his first great work dealing with the subject, the *Philosophiae Naturalis Principia Mathematica*, was not published until 1687. It was based on an advanced understanding of mathematics (see, for example, Roy Porter, *Enlightenment: Britain and the Creation of the Modern World* (Harmondsworth: Penguin Books, 2000), 132-137), a subject for which, despite its potential for practical application, Lawson showed little enthusiasm (Whittaker, *Thomas Lawson*, 126). In any case, Newton's work was initially known only to a few colleagues at Cambridge, its importance and implications largely unrealised until many years later (reference??: G. Cantor pers. comm)

²³² Whittaker, *Thomas Lawson*, 128.

²³³ Thomas Ellwood (1639-1713), also edited and published George Fox's *Journal* in 1694.

²³⁴ Thomas Ellwood to John Loft 1st September 1698 F.H. MSS, Box C2/13 quoted in Whittaker, *Thomas Lawson*, 196.

²³⁵ His field notebook is in the library of the Linnean Society of London.

²³⁶ Whittaker, *Thomas Lawson*, 68.

3.4.3 Education and the Natural World

Although in 1658 Fox had opposed the establishment of Durham College (University) on the grounds that it would train professional clergy,²³⁷ Charles Webster noted that early Friends soon modified their ‘extremist’ views on education.²³⁸ Indeed, Quakers became increasingly interested in the education of their children and young people, apparently driven by two particular concerns associated with the need to build a Quaker community among those who succeeded the first Friends, but who may not have shared the same intensity of personal religious experience. These were, firstly, to pass on knowledge of the experiences and insights of the first Quakers, and, secondly, to protect young people from what were regarded as worldly and degenerate influences in society and the misguided priorities of the traditional school curriculum. Quakers concerned with education were faced with the challenge of finding what has been described as ‘a proper synthesis between revelation and education’.²³⁹ Friends generally believed that human instruction was of limited value in the absence of a true knowledge and experience of God. The latter could come only through direct inward spiritual revelation, which was potentially accessible to all. According to Walter Homan, ‘the primary object [of education] was to lead children to an inward communion with God and an outward activity in the creation of a Christian social order’.²⁴⁰ Whilst religion was to underpin all education, Friends appear to have ‘played down the idea of imparting religious truth through instruction’ concentrating

²³⁷ Nickalls, *Journal*, 333.

²³⁸ Webster, *Great Instauration*, 189, 240-1.

²³⁹ Walter Joseph Homan, *Children and Quakerism* (Berkeley, CA: Gillick Press, 1939), 50.

²⁴⁰ *Ibid.*, 47.

instead on leading a Christian life and upon ‘elementary secular and vocational teaching’.²⁴¹

Despite Fox’s scepticism about the spiritual value of book-learning, as early as 1656 he had urged Quaker families to ensure that their children and servants ‘be informed in the Truth’.²⁴² Fox’s own epistemological priorities seem to have had a major influence on the development of Quaker educational curriculum, which was based more on the vernacular than on the classics.²⁴³ Ralph Randles writes that ‘George Fox’s distrust of sophistry and theologising informed all of Friends theory about education – as did his emphasis on practical subjects and those, such as botany, through which God could be apprehended in the creation’.²⁴⁴ As early Friends involved directly with education, Ellis Hookes and Christopher Taylor²⁴⁵ wrote: ‘We deny nothing for children’s learning that may be honest and useful for them to know, whether relating to divine principles or that may be outwardly serviceable for them to learn in regard to the outward creation.’²⁴⁶ Fox and Penn proposed that a school be set up to teach languages, ‘together with the nature of herbs, roots, plants and trees.’²⁴⁷ It may be this proposal that Thomas Lawson referred to in a letter of 1691:

Now some years ago, George ffox, William Pen, and others were concerned to purchase a piece of land near London for the use of a Garden School-house and a dwelling-house for the Master, in which garden, one or two or more of each sorte of our English plants were to be planted, as also many outlandish-plants. My purpose was to write a book on these in Latin, so as a boy had the

²⁴¹ Michael Mullett, ‘The Assembly of the People of God: the Social Organisation of Lancashire Friends’, in Michael Mullett, ed., *Early Lancaster Friends* (Lancaster: Centre for North–West Regional Studies, University of Lancaster, 1978), 18.

²⁴² George Fox, *A Warning to all Teachers of Children...* (London: Thomas Simmons, 1656).

²⁴³ W. A. Campbell Stewart, *Quakers and Education: As seen in their Schools in England* (London: Epworth Press, 1953), 27.

²⁴⁴ Ralph Randles, ‘Faithful Friends and well qualified’ in Mullett, *Early Lancaster Friends*, 33.

²⁴⁵ Hookes was recorder of London Yearly Meeting of the Society of Friends and Taylor the master of the first Quaker boys’ school at Waltham.

²⁴⁶ Statement attributed to Ellis Hookes and Christopher Taylor quoted in Samuel Tuke, *Five Papers on the...Education of Youth*, 8.

²⁴⁷ Minute of Six Weeks’ Meeting, 28th Nov. 1677, 12th Feb. 1678 quoted in Braithwaite, *Second Period of Quakerism*, 528. Fox has been credited with introducing the idea of the botanic garden to America: See U.P. Hedrick, *A History of Horticulture in America to 1860* (New York, 1950), 84, quoted by David Sox, *Quaker Plant Hunters* (York: Sessions Book Trust, 2004), 4.

description of these in book-lessons, and their virtues, he might see these growing in the garden, or plantation, to gaine the knowledge of them; but persecutions and troubles obstructed the prosecution hereof, which the Master of Christ's Colledge in Cambridge hearing of, told me was a noble and honourable undertaking, and would fill the Nation with philosophers.²⁴⁸

One of the few Quaker pioneers to have studied at university, Lawson's mission was to teach a curriculum based primarily on the study of the Bible and useful knowledge of the natural world.²⁴⁹ Children should be taught 'Useful and Necessary things, whereby they might be Qualified for Concerns of this Life, for the Help, Benefit and Advantage of others in their respective Generations'.²⁵⁰ As an educated man, Lawson saw knowledge of the classical languages not as an end in itself, but as an educational medium for books on natural history, agriculture, horticulture and the management of land, transport, medicine, and other mainly practical subjects.²⁵¹ William Penn, too, decried the prevailing approach to learning based on theoretical speculation and abstruse deduction, and expressed in ostentatious and obscure language. He had little sympathy for the niceties of grammar and rhetoric, and urged that his own children be taught 'useful knowledge, such as is consistent with Truth and godliness, not cherishing a vain conversation or idle mind, but ingenuity mixed with industry is good for the body and mind too'. Penn recommended 'the useful parts of mathematics', relevant to surveying, building and 'navigation', but was especially keen on imparting agricultural principles and skills. The latter 'leads to consider the works of God and nature, of things that are good, and diverts the mind from being taken up with the vain

²⁴⁸ Lawson to Rodes, in Lampson, *Quaker Post-bag*, 21.

²⁴⁹ Lawson, *Dagon's Fall*, 87. 'You teachers of Schools and Colledges... were it not more God-like, more Christian-like, to instruct Youth in the knowledge of God, whom to know is life Eternal, and in the knowledge of his works, being very good, and useful and necessary things, than in the knowledge of Heathen Arts and Sciences, brought in by the Serpent' (ibid).

²⁵⁰ Lawson, *Mite into the Treasury*, 41.

²⁵¹ Lawson, *Dagon's Fall*, 88-89. Subjects included 'the Natures of Trees, Birds, Beasts, Fish, Serpents, Insects, Earths, Metals, Salts, Stones, vulgar and precious; as also Rules for Gardening, Agriculture, Grazing of Cattel, Buildings, Navigation, Arithmatick, Geography, Chronology, sound History, Medicine, knowledge in Law, improvement of Lands, Chyrurgery, Traffick Government,

arts and inventions of a luxurious world'.²⁵² Penn also linked education and the wise use of creation, urging that if people 'were better studied and known in the creation of it' this would 'go a great way to caution and direct people in their use of the world'.²⁵³ Thus Penn's emphasis differed from that of early Quakers (and to Barclay, Pennington and others) who asserted that true knowledge of the world and how to manage it came only from God (3.3.2). Penn and Lawson wrote of the natural world more in terms of an objective reality in its own right, rather than as something whose true perception is wholly or primarily dependent upon the changed spiritual status of the human observer. They saw nature as a teacher of the wisdom of God, and that such knowledge could be imparted by practical study and by human instruction (3.4.1).

The study of creation served several purposes in what became known as the Quakers' 'guarded' education.²⁵⁴ It was justified on scriptural and theological grounds: not only was the natural world a practical demonstration of the divine spirit in action, but there were grounds for believing that Adam's knowledge of creation had been intended for posterity. Having been painstakingly regained through science, it should be passed to new generations. Study of the creation diverted youthful attention away from the distractions of 'the world' and focussed study on what was 'good': the natural world might have suffered the effects of human greed and folly, but its essential character was still untainted by human sinfulness. It provided a guide for human behaviour, not only in relation to one another but also for the management of the physical world. Finally, it was of practical value for those careers and occupations that Friends were likely to be able to follow in their adult lives. Quaker testimonies

ordering of Bees, propagation of Plants, by Roots, Seeds, Slips, Layers, Suckers, by Grafting, Inoculating, Imping, and of Geometry' (ibid.).

²⁵² Penn, *Papers*, 2: 271.

²⁵³ Penn, 'Some Fruits of Solitude', 1: 820.

prevented them from entering into the military, law, politics, the priesthood, and university teaching, and Quaker schools themselves had to endure official persecution.²⁵⁵ The practice of medicine was ‘about the only profession open to Friends’.²⁵⁶ Instead, Friends took up practical occupations concerned with agriculture and the management and development of land, industry and manufacturing, and the buying and selling of goods.²⁵⁷

3.5 LIVING IN GOD’S CREATION

This section is in two parts. The first brings together a wide variety of statements on how God was seen to use the creation as an instrument of his providence. In many cases didactic in tone, they are concerned with past and present actions on the part of the divine, with God’s continuing care for his creation, his interventions in the working of natural processes, and of the reality of such active powers being shared with the restored believer. These themes also appeared in the early years of Quakerism, and with the exception of the last, were widely shared with other, non-Quaker, Christian churches. The second part looks at the practical responses to God’s providence in creation in historic (present) time, in terms of the recognition and identification of the creation’s natural resources, and how they were to be used.

3.5.1 God at Work in the Creation

Responding to God’s Providence

²⁵⁴ Stewart, *Quakers and Education*, 220.

²⁵⁵ Braithwaite, *Second Period of Quakerism*, 532.

²⁵⁶ Homan, *Children and Quakerism*, 61.

²⁵⁷ Ibid.

Leading Quakers of the post-Restoration period continued to give explicit support to the widely held belief that the creation was the manifestation of God's providence to humankind. In the following extract from a letter to Friends in the New World, described by Anne Adams as a 'praise poem',²⁵⁸ Fox celebrated God's gifts in the natural world as the sustenance of human life:

He is the living God that clothes the earth with grass and herbs, and causes the trees to grow, and brings forth food for you, and makes the fishes of the sea to breathe and live, and makes the fowls of the air to breed, and causes the roe and the hind, and the creatures, and all the beasts of the earth to bring forth, whereby they may be food for you. . . . He is the living God, that gives unto you breath, and life, and strength, and gives unto you beasts and cattle, whereby you may be fed and clothed.²⁵⁹

William Penn, too, wrote that Christ 'taught his Disciples to believe and rely upon God's Providence, from the Care that he had over the least of his Creatures',²⁶⁰ and quotes at length from Matthew, chapter 6. He concluded that Christ 'sets Nature above Art, and Trust above Care'.²⁶¹

Whilst God's gifts in creation were a cause for celebration, Fox repeatedly reminded his followers that it was God, and not the creation, which should be the object of their worship and devotion (3.2.3). God had taken 'care of man in the beginning',²⁶² and Friends were to set their hearts and minds on God and his unchanging spiritual gifts, avoiding attachment to worldly goods and ways:

as strangers to all things visible and created, but be acquainted with the Creator, your maker, the Lord God Almighty; for outward things are not durable riches, nor durable substance, nor durable habitations, nor durable possessions, for they have wings and will fly away; and so therefore be as pilgrims and strangers to the world, and all worldly, created and visible things, and witness redemption from the earth. . .²⁶³

²⁵⁸ Anne Adams, 'Praise Poems of Early Friends', *Quaker Monthly* September 1998, 171-75.

²⁵⁹ George Fox, 'To Friends in New England, Virginia, and Barbadoes' (1672), in *Works* 8: 42.

²⁶⁰ William Penn, 'No Cross, No Crown: a Discourse Shewing the Nature and Discipline of the Holy Cross of Christ' (1682), in *Works* 1: 407.

²⁶¹ *Ibid.*

²⁶² George Fox, 'To Friends in Bristol in time of suffering' (1670), in *Works* 8: 32.

²⁶³ George Fox, 'Not to trust in uncertain riches' (1669), in *Works* 8: 18.

Penn confirmed the importance of this position, and distinguished between the apprehension of God in the created world on the one hand, and the worship of God rather than the created world on the other. Thus the true Christians ‘see and bless the hand that feeds, and clothes, and preserves them. And by beholding him in all his works, they do not adore them, but him...’²⁶⁴

Divine Intervention in the Operation of Creation

Prayer and Miracle

Whilst order in the creation was the basic condition and manifestation of God’s providence to humanity, God could also intervene in the operation of the creation in specific ways to achieve specific purposes. Joseph Pickvance considered that Fox had a well-developed sense of God’s providence to humanity, both collectively and individually, and that ‘suffering through obedience ... and judgements on persecutors stand in apposition to Fox’s confidence in God’s protection during his travels in the ministry’.²⁶⁵ Some of Fox’s accounts of events in this period give explicit support to the view that God also used the creation as an instrument of his providence, to preserve and protect Friends in danger as, for example, on a sea voyage from Jamaica to Florida in 1672:

...having had great winds and many storms that tossed us backwards and forwards; but the great God of the sea and of the land who rideth upon the wings of the wind, gave us dominion. In the storm our boltsprit broke and blew the jibsail into the sea to the great hazard of the ship, but all was well, praises be unto the Lord.²⁶⁶

²⁶⁴ Penn, ‘No Cross, No Crown’ (1682), 46.

²⁶⁵ Pickvance, *Companion*, 111.

²⁶⁶ Nickalls, *Journal*, 613-4.

Fox also believed that, through prayer, he could elicit the intervention of God in the workings of the creation, since ‘all things’ were now ‘sanctified’ to him.²⁶⁷ During a storm on the same voyage, he related that ‘I was moved to pray to the Lord, and the Lord’s power was over all and he caused the wind to cease as well as could be desired, praised be his name for ever...’²⁶⁸

Among the wider Quaker community, such evidence for divinely-inspired intervention in the operation of nature may have co-existed with traditional non-Quaker beliefs and superstitions. Whilst contempt is clearly shown by William Stout, for example, for the popular belief in the king’s powers of healing,²⁶⁹ Nicholas Morgan suggests that other Friends may have shared more traditional views about the divine powers of kingship.²⁷⁰ Moreover, the Quaker leadership was at pains to dispel the view that contemporary miracles were in any way central to, or a necessary witness to, true Christian divinity. The Quaker historian William Sewel related²⁷¹ how, when in Amsterdam in 1677, Fox and Penn²⁷² disputed with an eminent Dutch Baptist, Dr Galenus Abraham, who contended that no-one ‘could be accepted as a messenger of God, unless he confirmed his doctrine by miracles’.²⁷³ The Quakers maintained that ‘the Christian religion had been once already confirmed by miracles, and that therefore this now was needless among Christians’.²⁷⁴

²⁶⁷ Ibid., 614-5. ‘And this day being the 14th day of the 2nd month [Apr.], we are in the latitude of 36 10, blustering weather, but praise be to the Lord all things are sanctified to me, sea and land and the winds and the sea-storms, the several sorts of weather and climates as they are called, knowing the foundation of man and the foundation of God, and many travails on the sea we have had; but praised be the Lord who hath carried us through over and above all of them’ (ibid).

²⁶⁸ Ibid.

²⁶⁹ *The Autobiography of William Stout of Lancaster 1665-1752*, ed. J. D. Marshall for the William Stout Tercentenary Group (Manchester: Chetham Society, 1967), 69.

²⁷⁰ Nicholas Morgan, *Lancashire Quakers and the Establishment 1660-1730* (Halifax: Ryburn Publishing Limited, 1993), 64.

²⁷¹ William Sewel, *The History of the Rise, Increase, and Progress of the Christian People called Quakers*, 5th ed. (London: William Phillips, 1811), 2: 366-8.

²⁷² Henry Cadbury states that George Keith was also present (Henry J. Cadbury, ‘George Fox’s Later Years’, in Fox, *Journal*, 726).

²⁷³ Sewel, *History of Quakers*, 366.

²⁷⁴ Ibid.

Theodicy

Fox also saw the hand of God at work in disasters involving ‘natural’ forces that befell the wicked, even when this was on as large a scale as the Great Fire of London in 1666.²⁷⁵ Fox had received a premonition that a catastrophe of this sort would befall the city unless its inhabitants attended to the will of God, and had ‘divers times, both by word and writing...forewarned the several powers, both in Oliver’s time and after, of the day of recompense that was coming upon them’.²⁷⁶ In his *Journal* for 1660, Fox relates that ‘I had a vision long before this, for I saw the city lie in heaps and the gates down; and I saw it just as it was several years after, lying in heaps when it was burned’.²⁷⁷

Stephen Crisp claimed that he received ‘a warning from God to the people of England’ to ‘leave off their Wicked and Foolish Customs in their Harvest, before the Anger of the Lord be kindled against them, and there be no Remedy’.²⁷⁸ He wrote that, despite God having already ‘smitten them with Mildew and with Blasting’, people ‘have persisted in the Foolish Customs of their Fore-fathers’. Referring to Isaiah 9.3, he urged all husbandmen and farmers to remember that a successful harvest was a blessing from God, and that they should respond appropriately:

That in the time of Harvest, when ye are taking in the Fruit and the Encrease of your Fields, and the Issue of your Labours, that ye mind the Fear of God, that it may keep you in the remembrance of him from whence every good Gift cometh, that so it may be good to you, and ye may receive it with Humility

²⁷⁵ Nickalls, *Journal*, 503. ‘And then I saw the Lord God was true and just in his word that he had showed me before in Lancaster Gaol. The people of London were forewarned of this fire; yet few people laid it to heart but grew rather more wicked and higher in pride’ (ibid).

²⁷⁶ Ibid., 361. Braithwaite mentioned that many such warnings about the fate of London had been made by Friends, including John Raunce’s prediction in 1665 (Wake MS, FHL) of both plague and fire (Braithwaite, *Second Period of Quakerism*, 672).

²⁷⁷ Nickalls, *Journal*, 361.

²⁷⁸ Stephen Crisp, ‘A Word in due Season: or Some Harvest Meditations’ (1666), in *A Memorable Account of the Christian Experiences, Gospel Labours, Travels and Sufferings of that Ancient Servant of Christ Stephen Crisp, in His Books and Writings herein Collected* (London: T. Sowle, 1694), 147.

and Thankfulness... and let your Joy be, in that the Light hath shined upon you, and let that be the Joy of your Harvest...²⁷⁹

However, Robert Barclay had reservations about arguments for the sinfulness of humanity based upon what he saw as Calvinist notions of theodicy. He contrasted the Quaker belief in the universal saving light of Christ with the doctrine of predestination, which he attacked as contrary to Scripture and injurious to humanity's spiritual welfare. Professors of this doctrine, he wrote, 'make the outward creation of the works of Providence, the smitings of the conscience, sufficient to convince the heathen of sin, and so to condemn and judge them: but not at all to help them to salvation'.²⁸⁰

3.5.2 Ordering the Creation

Endorsement of Paul's injunction to Timothy that 'every creature of God is good, and nothing to be refused, if it be received with thanksgiving' (1 Tim 4:4) came from both Fox and Barclay, and can be assumed to be part of the common Quaker orthodoxy of the period. 'It is', wrote Barclay, 'without doubt that the creation is for the use of man'.²⁸¹ Rather more novel, but increasingly reflecting the spirit of the times, was the Baconian tenet that humanity had the intellectual capacity, as well as the moral duty, to apply the new methods of science in order to re-establish dominion over the rest of creation. Most explicitly supported by the writings of William Penn, there is also other evidence to suggest that this position became a significant part of the Quaker diaspora from the 1670s onwards. Most of the direct evidence of Quaker interest at this time is concerned with the development and application of empirical knowledge for human benefit, and not with the philosophy of science. However, in the context of

²⁷⁹ Crisp, 'A Word', 148-9.

the growing level of activity towards the understanding of the nature and operation of the physical world at this time, the Quaker contribution to scientific knowledge for its own sake appears to have been relatively small.

The Creation as a Resource

The Calling of Agriculture

Harvesting the produce of the land was seen as a noble calling with scriptural authority: it was, as Penn observed, ‘industrious, healthy, honest, and of good example, like Abraham, and the holy ancients, who pleased God and obtained a good report’.²⁸² Erin Bell describes how the use of agricultural metaphors (2.3.3) to describe spiritual convictions and responsibilities was a feature of male Friends’ journals from the last quarter of the 17th century.²⁸³ She cites that of William Edmundson who described Christ’s first disciples as ‘stewards and overseers of Christ’s vineyard, husbandry and heritage’²⁸⁴ and argues that ‘Christ the husbandman’ was a role model for male Quakers.²⁸⁵

However, as Bell observes, for Quakers, ‘husbandry was never simply a metaphor’, since ‘occupations that began with the (natural) world had least of snare and most of use’.²⁸⁶ William Penn wrote that ‘the Knowledge and Improvement’ of

²⁸⁰ Barclay, *Apology*, 103.

²⁸¹ *Ibid.*, 447.

²⁸² William Penn to Gulielma Penn and children, August 4, 1682, in Penn, *Papers*, 271. ‘Abraham, Isaac, and Jacob, were plain men, and Princes, as *Grasiers are over their families, and their flocks...* The *Prophets* were generally *poor Mechanics*; one a *Shepherd*, another a *Herdsmen*, &c...’ (Penn, *No Cross, No Crown* (1669), 22).

²⁸³ Erin Bell, ‘From Ploughing the Wilderness to Hedging the Vineyard: Meanings and Uses of Husbandry Among Quakers, c.1650-c.1860’ *Quaker Studies* 10, no.2 (March 2006): 140-44.

²⁸⁴ *A Journal of the Life, Travels, Sufferings, and Labour of Love in the Work of the Ministry, of that Worthy Elder, and Faithful Servant of Jesus Christ, William Edmundson* (London: J. Sowle, 1715), 302.

²⁸⁵ Bell, ‘Ploughing the Wilderness’, 143-4.

²⁸⁶ *Ibid.*, 143.

lands was ‘Man’s oldest Business and Trade, and the best he can be of’.²⁸⁷ Penn also extolled the virtues of greater economic activity, and was particularly interested in agricultural improvement²⁸⁸. John Bellers, in his pioneering proposal for a ‘college’ to promote useful trades and husbandry among the poor, stressed that ‘Husbandmen are as useful, and wanted as much as any Mechanicks, much Land wanting People to Manage it’.²⁸⁹ Gardening for personal ostentation was a different matter: Penn included ‘Mulbery and Spring-Gardens’ (ornamental gardens) in a long list of frivolous activities and recreations which he deemed to be ‘inconsistent with a Christian life, and very destructive of all civil society’ (4.4.2).²⁹⁰

An Abundance of Natural Resources

In his ‘General Description’ of Pennsylvania of 1683, William Penn reflected a distinctively modern view of the creation. He identified and listed its principal natural resources including the main useful tree species growing there²⁹¹, as well as a factual account of the native peoples. He cited both his own experience of the efficacy of native medicinal herbs and also the authority of ‘the Indians’ in such matters, and also drew attention to the qualities of fragrance and beauty of the wild flowers. Penn’s account reflects his respect for observed facts and personal experience (3.4.2):

²⁸⁷ Penn, ‘Fruits of Solitude’, 1: p.831

²⁸⁸ Penn, *No Cross, No Crown* (1669), 50. ‘And if the Report of the more intelligent *Husbandry* be credible, Lands are generally improveable, ten in twenty...by which a benefit should redound [sic] to the World in general...(ibid).

²⁸⁹ John Bellers, ‘Proposals for Raising a Colledge of Industry of all Useful Trades and Husbandry’ [1696], in George Clarke, ed., *John Bellers: His Life, Times and Writings* (London: Routledge & Kegan Paul, 1987), 50.

²⁹⁰ Penn, *No Cross, No Crown* (1669), 17. See also Emma Jane Lapsansky and Anne A. Verplanck, *Quaker Aesthetics* (Philadelphia: University of Pennsylvania Press, 2003), 21.

²⁹¹ ‘A Letter from William Penn, Proprietary and Governour of Pennsylvania in America, to the Committee of the Free Society of Traders of that Province, Residing in London. Containing a General Description of the said Province, it’s Soil, Air, Water, Seasons and Produce, both Natural and Artificial, and the Good Increase thereof. With an Account of the Natives, or Aborigines’ (1683), in *Works* 2: 700-01. ‘The *Trees* of most Note, are the *Black Walnut, Cedar, Cyprus, Chestnut, Poplar,*

There are divers *Plants*, that not only the *Indians* tell us, but we have had Occasion to prove by *Swellings, Burnings, Cuts, &c.* that they are of great Virtue, suddenly Curing the Patient: And for *Smell*, I have observed several, especially one, the *Wild Myrtle*; the other I know not what to call, but are most Fragrant...The *Woods* are adorned with *Lovely Flowers*, for *Colour, Greatness, Figure and Variety*...²⁹²

Showing perspicacity ahead of his time for issues relating to potential crop species, Penn also distinguished between what he referred to as ‘natural’ (native) and ‘artificial’ (non-native or introduced) plant species. He was undecided as to which was likely to be more successful, but tended to favour the former, since ‘not only a Thing groweth Best, where it naturally grows; but will hardly be equalled by another *Species* of the same Kind, that doth not naturally grow there’.²⁹³ He added that he hoped to experiment with both native and introduced species.

Medicine: Charles Marshall and John Bellers

The practice of medicine was one of the few professions open to Quakers.²⁹⁴ Charles Marshall exemplified the Quaker involvement in medicine based on chemical cures derived from natural products, an occupation that he took up some time before 1670. Geoffrey Cantor suggests that Marshall was less innovative than he tried to appear and that the ‘iatrochemical’ approach he espoused was in fact widespread by this time.²⁹⁵ Nevertheless, Marshall’s own emphases are instructive: he asserted that his medicines had ‘by manifold experience...daily proved to be effectually helpful to many Families’.²⁹⁶ In contrast to the ‘fine and plausible discourse’ of medical

Gumwood, Hickery, Sassafrax, Ash, Beech and Oak of divers Sorts...of *All* of which, there is Plenty for the Use of Man...(ibid.).

²⁹² Ibid., 700-1.

²⁹³ Ibid., 701.

²⁹⁴ Homan, *Children and Quakerism*, 61.

²⁹⁵ Geoffrey Cantor, notes on Charles Marshall, (extract from working paper, 2002). See also R.G. Frank, *Harvey and the Oxford Physiologists* (Berkeley, 1980), 48-51.

²⁹⁶ Charles Marshall, *A Plain and Candid Relation of the Nature, Use and Dose of Several Approved Medicines* (London, 1670), 3.

scholars, Marshall aimed ‘to tread in the ancient path of the simplicity of Nature’.²⁹⁷ He declared that his medicines, ‘although powerful in operation’, were ‘so truly natural...that not the least harm or ill symptoms attends them’.²⁹⁸ Marshall declared that the efficacy of his preparations testified to the ‘Providence and Blessing of God’.²⁹⁹ In a printed broadsheet of 1681 promoting his products, and endorsed by William Penn, other Friends concurred:

The Consideration of the Natural, as well as the Spiritual Benefits that God in his Wisdom and Goodness, through the variety of gifts he has afforded amongst his People, whereby have made mutual Helps and Comforts one unto another... [move us to recommend] some Medicines prepared by our Friend Charles Marshall, that we by long experience have known to be safe and harmless, and through the blessing of God made effectual for our own and others Relief...³⁰⁰

John Bellers took a broader view of medicine, believing that both ‘Galenists and Chymists’³⁰¹ had a contribution to make to its advancement. Credited as the first proposer of a ‘National Health Service’, on moral and economic grounds, he advocated that plants and other natural products should be scientifically evaluated for their medicinal value.³⁰² Bellers declared that ‘Every good Medicine must be a Specifick for some Disease or other’, and urged that all proprietary medicines, too, should be rigorously tested by competent bodies.³⁰³ He also recommended that the Royal Society should be involved in a systematic programme to investigate and record such materials.³⁰⁴

²⁹⁷ Ibid., 5.

²⁹⁸ Ibid., 3.

²⁹⁹ Charles Marshall, *A Plain and Candid Account of the Natures, Uses and Doses of certain Experienced Medicines* (London: T. Sowle, c.1691).

³⁰⁰ ‘Testimonial to Friends’ quoted by Cantor, Charles Marshall.

³⁰¹ John Bellers, *An Essay Towards the Improvement of Physick in Twelve Proposals...* (London: J. Sowle, 1714), in Clarke, *John Bellers*, 186-8. This was addressed to Parliament, to the South Sea Company and ‘the civic dignitaries of London’ (Clarke, *John Bellers*, 174).

³⁰² Clarke, *John Bellers*, 174-5.

³⁰³ Bellers, *Essay on Physick*, 195.

³⁰⁴ Ibid., 189.

Management and Care of the Creation

Use and Ownership of Resources

There is little evidence to suggest that many Quakers shared the highly idealistic and apparently strongly anti-propiertorial views of F. M. van Helmont, who wrote that ‘he that arrogates... whatsoever God hath created... to himself... separates himself from God’.³⁰⁵ However, there was general agreement that whilst the creation was there to be utilised by humanity, this should be exercised with moderation, avoiding extravagance and ostentation. Barclay advised that:

when men are not content to make a true use of creation... and do not satisfy themselves with what need & conveniency calls for, but add thereunto things merely superfluous, such as is the use of ribbands and lace... which are the fruits of the fallen, lustful and corrupt nature, and not of the new creation, as all will acknowledge.³⁰⁶

For Fox and Penn, the wise and frugal use of the products of creation was central to the testimony of the simple life: ‘those who can take the primitive state, and God’s Creation for their Model, may learn with a little to be contented...’.³⁰⁷ Even if this were not the case, Penn argued, there was no justification for idle pleasures and unnecessary consumption of resources whilst there was want and suffering in the world, since ‘God hath made the Sons of Men but *Stewards* to each other’s Exigencies and Relief’.³⁰⁸

...let it be sufficient for us to say, *That when people have first learned to Fear, Worship, and Obey their Creator, to pay their numerous vicious Debts, to alleviate and abate their oppressed Tenants; but above all outward Regards,*

³⁰⁵ Van Helmont, ‘Preface’ p.11. ‘For whatsoever God hath created, he hath created free, and at liberty by One, and in One; and he that arrogates that thing to himself, makes that very thing it self, his own, separates himself from God; and doth in himself, enter into the way that leadeth towards utter Darkness...’ (ibid).

³⁰⁶ Barclay, *Apology*, 447.

³⁰⁷ Penn, *No Cross, No Crown* (1669), 50.

³⁰⁸ Penn, ‘No Cross, No Crown’ (1682), 1:372.

*when the Pale Faces are more commiserated... when the famished Poor, the distressed Widow, and helpless Orphan, (God's Works, and your Fellow Creatures) are provided for; then I say, (if then) it will be Time enough for you to plead the Indifferency of your Pleasures.*³⁰⁹

Penn was trenchant in his analysis of the economic relations between the poor who labour on the land primarily for the outward benefit of the rich, opposing any suggestion that such a situation is the result of anything other than human greed:

But that the *Sweat and tedious Labour* of the *Husband-Men*, early and late, cold and hot, wet and dry, should be converted into the Pleasure, Ease, and Pastime of a small Number of Men; that the *Cart*, the *Plough*, the *Thresh*, should be in that continual Severity laid upon Nineteen Parts of the Land, to feed the inordinate Lusts and delicious Appetites of the Twentieth, is so far from the Appointment of the Great Governor of the world... that to imagine such horrible Injustice as the Effects of his Determinations, and not the Intemperance of Men, were Wretched and Blasphemous.³¹⁰

This contrasted with Robert Barclay's view that people's demands upon the products of creation should be commensurate with their station in life, with 'the condition of the person, and the country, he lives in'.³¹¹ Unlike earlier Quakers, Barclay held an unambiguously conservative view of the morality of unequal utilisation of the resources of creation by different strata in society:

...we say not that no man may use the creation more or less than another. For we know that, as it hath pleased God to dispense it diversely, giving to some more, to some less, so they may use it accordingly...As for instance, who by reason of his estate and education hath been used to eat flesh and drink wine, and to be clothed with the finest wool, if his estate bear it, and he use it neither in superfluity nor immoderately, he may do it, and perhaps, if he should apply himself to feed or be clothed as are the peasants, it might prejudice the health of his body and nothing advance his soul.³¹²

Possibly in his efforts to present Quakerism as a reasonable faith that did not present a threat to the established powers, he assured readers of his *Apology* that it was not the purpose of Quakerism to upset the essentials of the existing social order. He denied that 'any necessity of levelling will follow' or 'that all men must have things in

³⁰⁹ Ibid.

³¹⁰ Ibid.

³¹¹ Barclay, *Apology*, 447.

common'.³¹³ Indeed, the 'natural relations' that existed between 'prince and people, master and servants, parents and children' were 'rather better established than any ways hurt' by Quaker faith or practice.³¹⁴ As a Friend with a landed rural estate, Barclay did not share Fox's opposition to hunting (2.5.3). According to Verily Anderson, hunting on Barclay's estate near Aberdeen 'was looked upon as a necessity, both for filling the larder and training young horses, which Robert was known to have enjoyed; he also went shooting up on the hill with his father'.³¹⁵

Stewardship of Creation

In a Christian context, the principle of stewardship is based on the belief that 'everything comes from God as a gift and is to be administered faithfully on his behalf'.³¹⁶ Recent authors do not agree about 17th century Quakers' attitudes to this idea. Virginia Schurman has argued that Fox and other early Quakers believed that 'God gave humans the role of stewards of the creation to maintain its goodness and harmony'.³¹⁷ She draws this conclusion on the basis of their belief that 'the world

³¹² Ibid., 433.

³¹³ Ibid.

³¹⁴ Ibid.

³¹⁵ Verily Anderson, *Friends and Relations: Three centuries of Quaker Families* (London: Hodder & Stoughton, 1980), 110.

³¹⁶ David J. Atkinson and David H. Field, *New Dictionary of Christian Ethics and Pastoral Theology* (Leicester: Inter-Varsity Press, 1995), 814. John Black cited Genesis 2:15 ('And the Lord God took the man, and put him into the Garden of Eden to dress it and to keep it') as evidence that the idea of human stewardship of the creation on behalf of God was an integral part of the Judeo-Christian tradition (John Black, *The Dominion of Man* (Edinburgh: Edinburgh University Press, 1970, 46-9). Although 'the need to formulate it in precise terms seems to have been infrequently felt', Black claimed that 'the clearest statement known' of this position appeared in a work of 1677 by Matthew Hale, intended to promote the value of natural theology over revealed theology (ibid., 56). Hale stated that 'the End of Man's Creation' 'was that he should be 'steward' of the 'lower World'. This essentially concerned good husbandry, man's purpose being 'to preserve the face of the Earth in beauty, usefulness, and fruitfulness' (Matthew Hale, *The Primitive Origination of Mankind* (London: Shrovsbery, 1677), quoted in ibid., 56-7).

³¹⁷ Virginia Schurman, 'A Quaker Theology of the Stewardship of Creation', *Quaker Religious Thought* 24, no.4 (December 1990): 27.

belongs to God',³¹⁸ referring to Fox's frequent quotation of Psalm 24:1: 'The earth is the Lord's, and the fulness thereof; the world, and they that dwell therein'. However, Dean Friday suggested that 'the Lucan use of stewardship'³¹⁹ in the context of the creation was 'a concept foreign both to Scripture and to Fox'.³²⁰ David Brooks-Saxl, advocating that the early Quaker experience can be explained in terms of gnostic dualism (2.3.2), argues that Friends perceived the real 'home' of humanity to be the spiritual world. Rather than stewards of the physical world, men and women were temporary 'visitors' on earth: they were guests in an alien environment.³²¹

Fox's early religious convictions clearly embodied a moral responsibility for the proper use of creation, which was formalised to become part of Friends' testimony against material waste and extravagance (2.5.3). His belief in the dominion of humanity was tempered by a duty to manage the creation responsibly, according to God's will. Like several of his contemporaries, Fox indicated that the origin of his concern with the physical creation lay in direct revelation, stating that 'the Lord showed me' that 'the creatures' should be used 'to the glory of him that hath created them'.³²² Thus, those who followed the inward light of Christ would behave towards the creation with due care and compassion, reflecting the divine wisdom in which the creation had been made and by which it continued to be sustained (3.3.2). Schurman attributes to Fox the belief that '[Adam and Eve] were to share together in the oversight of God's creation'.³²³

³¹⁸ Ibid.

³¹⁹ Luke 16: 1-4.

³²⁰ Dean Friday, Response to Schurman, 'Quaker Theology of Creation', 43.

³²¹ David Brooks-Saxl, 'Gnostic Dualism as a Means of Explaining the Quaker Experience', in Tony Adams, ed., *Dualism: Immanence and Transcendence in Quaker Theology*, Proceedings of the Quaker Theology Seminar 1998/9 (Birmingham: Quaker Theology Seminar and Woodbrooke College, 1999), 55-65.

³²² Nickalls, *Journal*, 2.

³²³ Schurman, 'Quaker Theology of Creation', 31.

Yet no explicit statement about humanity as stewards of the outward creation *on behalf of God* has been found in Fox's writing. In practice, Fox justified his opposition to field sports on the grounds that it was worldly, self-indulgent and, above all, anti-apostolic. He asked:

Where did the christians [sic] in the apostles' days make and use matches at football, and wrestling, and appoint horse-races, and hunting for pleasure, and such like, and so glory in their own strength, and abuse the creatures? are not these things contrary to the practice of the holy men, who rejoiced and gloried in the Lord?³²⁴

Fox's central point was that men and women should act in accordance with God's will, which was made clear to those who heeded the inward light. In 1671, he exhorted 'Friends everywhere' to care for 'creatures' responsibly, since to do otherwise was incompatible with God's will for creation:

This I charge you and warn you all, in the presence of the living God, that you suffer no creature to perish for want of the creatures, and that none be lost through slothfulness, laziness and filthiness; and let not these things be, which are for condemnation with the light that leads to the wisdom, with which the created must be ordered.³²⁵

However, Fox does appear to have believed in the stewardship of creation *on behalf of humanity*. This he developed from his belief in God's providence to humanity, introducing a moral imperative to utilise the products of creation with due concern for the needs of others, present and future:

What wages doth the Lord desire of you for his earth that he giveth to you teachers, and great men, and to all the sons of men, and all creatures, but that you give him the praises, and honour, and the thanks, and the glory; and not that you should spend the creatures upon your lusts, but to do good with them; you that have much, to them that have little; and so to honour God with your substance; for nothing brought you into the world, nor nothing you shall take out of the world, but leave all creatures behind you as you found them, which God hath given to serve all nations, and generations; and so that you have food and raiment, therewith be content...³²⁶

³²⁴ George Fox, 'Some Queries to all the Teachers and Professors of Christianity to answer' (1666), in *Works* 4: 316. Fox condemned 'bear-baitings, bull-baitings, cock-fightings, nine pins and bowls, and cards and dice, and such like sports and games', that 'stir up wanton-ness in people' (ibid).

³²⁵ George Fox, 'To go among Friends everywhere' (1671), in *Works* 8: 34.

³²⁶ George Fox, 'To All Sorts of People in Christendom' (c.1666-68), in *Works* 4: 321.

The above passage appears in a tract by Fox from the period 1666-1668, which is otherwise concerned to make a plea for religious liberty and tolerance, and an end to religious wars, violence and persecution. This juxtaposition is considered significant since it expounds a view of creation that represents a move away from exclusive reliance on directly God-centred arguments, to a concern for respect for others' experience of the divine and of their rights to enjoy the products of the divine creation. Thus people were accountable to God for the way in which they used and managed the creation, specifically in terms of the impacts this could have on the rest of humanity in space and time. In this sense, it can be argued that Fox's moral view of creation had, by the late 1660s at least, developed to the point where it may be described as a distinctive stewardship ethic.³²⁷ It may be seen also as a contribution to the Quaker testimonies to liberty of conscience and peaceful co-existence.

The general pattern of William Penn's approach to the theology and morality of the use of creation is rather similar to Fox's. The wise and frugal use of the products of creation was for Penn basic to the testimony of the simple life: 'those who can take the primitive state, and God's Creation for their Model, may learn with a little to be contented'.³²⁸ Penn's rhetorical question, 'how could men find the conscience to abuse it [the creation], whilst they should see the Great Creator look them in the face, in all and every part thereof?' suggests that, for him too, a sense of stewardship had its origins in, or was validated by, spiritual experience (see also 3.3.1). His keen interest in the productive use of the land for food or other useful materials implies a sense of stewardship in which agriculture played a central part. Like Fox, however, a clear statement from Penn that humanity was the steward of

³²⁷ Schurman, 'Quaker Theology of Creation', 27-41.

³²⁸ Penn, *No Cross, No Crown* (1669), 50.

creation on behalf of God has not been found. His approach was also based on spiritual enlightenment: those who followed the light of Christ should care for the creation because it was God's handiwork. For Penn, however, the creation itself taught people how to use and manage it.

Protection and Planting of Trees

Evidence of concern for the stewardship of natural resources for the benefit of posterity comes from some revisions Penn made to the policy for renting, selling and distributing land in Pennsylvania. This includes the condition 'that in Clearing the Ground, Care be Taken to Leave One Acree [sic] of Trees for every Five Acres Cleared, especially to Preserve Oak & Mulberries for Silk & Shipping'.³²⁹ Leslie Spraker comments that this was 'a far-sighted conservation measure' at a time when "'Penn's Woods" must have seemed interminable'.³³⁰ Penn appears to have had a particular concern for trees, motivated in part by economic and practical considerations, and possibly by proprietorial instincts. In 1687 he urged the 'Commissioners of Propriety' in Pennsylvania to take 'Especially Care' to ensure that timber belonging to his family was 'Carefully preserved'.³³¹ He also demanded that those who were responsible for felling the 'Great Oake' should be pursued with 'the utmost rigour'.³³²

Although the planting of trees for economic and aesthetic purposes had been widely practiced since the later 16th century, the publication of John Evelyn's *Sylva* in

³²⁹ William Penn, 'Certain Conditions or Concessions agreed upon by William Penn Proprietary & Governor of the Province of Pensilvania, & those who are the adventur[ers] and purchasers in the same Province The 11 of July 1681', in *Papers*, 2: 100.

³³⁰ Leslie Spraker, *Tulip Trees and Quaker Gentlemen: 19th-century Horticulture at Longwood Gardens* (Philadelphia: Longwood Gardens, 1975), 16.

³³¹ William Penn to The Commissioners of Propriety, 1 February, 1687 in *Papers*, 3: 142.

³³² *Ibid.*

1664³³³ helped to establish tree planting as a national passion among the landowning and educated classes.³³⁴ Thomas Lawson and other Friends shared Penn's interest. This included the care of existing valuable trees, and also the propagation and planting of trees. Such activities epitomised an awareness of the stewardship of creation for posterity, since the principal human beneficiaries of tree planting were future rather than present generations. Lawson proposed to Sir John Rodes that they work together on the practical business of establishing a tree nursery: 'where seeds being sown, and young plants set to grow till fit to be removed to other grounds – a work in no ways dishonourable, but very useful and profitable'.³³⁵ For Penn, trees and green open space were integral parts of civilised living, and in this context too, Penn may have been influenced by Evelyn, to whom Thomas credits the concept of the 'garden city'.³³⁶ In his provisions for the early development of what was to become Philadelphia, he stipulated that adequate space be allowed between houses 'for Gardens or Orchards or feilds [sic]', in order to create 'a greene Country Towne, which will never be burnt, and allways be wholesome'.³³⁷

3.6 CONCLUSION

This section identifies three key characteristics of Restoration Quakers' engagement with the created world. Firstly, contemporary writing was typically the outcome of reasoned thought and argument, rather than accounts of personal experiences of divine revelation. Secondly, it is notable for its diversity of statements, including evidence of open disagreement. The material is transitional in the sense that it

³³³ John Evelyn, *Sylva, or a Discourse of Forest-Trees and the Propagation of Timber* (London, 1664).

³³⁴ Thomas, *Man and the Natural World*, 192-241, esp. 198-223). Thomas claims that trees were 'not merely domesticated but gradually achieved an almost pet-like status' (ibid., 212).

³³⁵ Thomas Lawson to John Rodes in Lampson, *Quaker Post-bag*, 22.

³³⁶ Thomas, *Man and the Natural World*, 206 Evelyn,

contains foundations for new ways of thinking about the creation and the place of empirical experience, and at the same time generally continues to emphasise the role of the inward light in understanding the creation. Thirdly, it argues that the emergence of particular and practical concerns with the natural world reflected a general shift in perception towards the continuing reality of life in the ‘meantime’. In particular, this is illustrated by a developing sense of stewardship towards the living creation.

3.6.1 Intellectualisation

Evidence from this period is characterised by the intellectualisation of ideas and experiences, variously involving the recording of observed facts about the physical world, reasoned argument, and metaphysical speculation, as well as reference to scholarship from the non-Quaker world, both old and new. Douglas Gwyn has described the re-orientation of Restoration Quakers under the influence of Barclay and Penn in terms of the differentiation of the particular and the universal, reflecting changing perceptions of the world in the wider intellectual community.³³⁸ Instead of the first Friends’ sense of the universal and the particular ‘fused in a historic moment’, the particular became ‘rationalised, even empirical’.³³⁹ According to Gwyn, the universal became ‘vaguely speculative’: having originated in Friends as a universal sense of revelation leading to ‘sociospiritual transformation’, it ‘drifts into metaphysical concepts concerning nature, reason, and humanity as abstractions’.³⁴⁰ Thus philosophical ideas tended to take the place of descriptions of spiritual experience, and specific instances of personal accounts of the God-centred dimension

³³⁷ Penn, *Papers*, 2: 118/121.

³³⁸ Gwyn, *Covenant Crucified*, 321.

³³⁹ *Ibid.*

of the creation dialectic at work are hard to find. Whilst Penn and Lawson, in particular, saw an awareness of the created world to be an integral part of the spiritual life, Thomas Story was unusual amongst second-wave Quakers in describing any creation-related experience as part of his spiritual convincement as a Quaker. Instead of being a sign of spiritual transformation, knowledge of the creation became more the subject of empirical exploration, whether for recreational, religious, or practical purposes. It was also the subject of metaphysical discourse.

This process of change was both supported and balanced by the continuing underlying belief in the creation as God's work, and that order in the creation was reflective of divine order. There was an idealised condition for creation and its relationship to humanity – an order that God had intended, and both a fit subject for scientific study and understanding and the aim of practical endeavours to mend that relationship. Thus the study of the particular in creation was justified for some Friends by the universality of the divine influence throughout the created world.

3.6.2 Empiricism and the Inward Light

Contrasting responses to the pursuit of science illustrates the second key characteristic of this material - the diverse and divergent individual views it contains. There were tensions over the relationship between spirit and matter, on which positions ranged from the dualism of Barclay, in which the physical world was effectively shorn of much of its meaningfulness, to the vitalism of the Helmontians. Whilst Fox and Barclay's opposition to van Helmont's metaphysical speculations is the most obvious example of disagreement, there were other more significant ways in which views diverged or emphases differed. Despite the trend towards intellectualisation, Friends

³⁴⁰ Ibid.

were not agreed about the value of human reason, or of empiricism as a way of understanding the world around them, as contrasting responses to the Royal Society illustrate. Views on the epistemological status of the natural world varied widely: to Barclay, physical objects were merely external stimuli to divinely-planted ideas; to Lawson and Penn, the physical world was the ‘book of creation’, a storehouse of divinely-inspired wisdom; to followers of the kabbala, it was the ‘gateway’ to God.

Nevertheless, heterodox ideas were taking root amongst influential Quakers. Helmontian metaphysics resonated neither with ‘enlightenment’ ideas about nature, nor with the Quakers’ regard for truth revealed through personal experience. However, a combination of enlightenment philosophy and the Quakers’ regard for the supremacy of truth and for human welfare ensured that foundations for empirical approaches to the creation were established amongst Quakers. Whilst Fox was emphatic about the need to distinguish between the Creator and his creation and the supremacy of the former, they were ‘Friends of Truth’, and truth, as Penn and Lawson argued, could be found in the created world as well as through inward revelation. Being created by God, the physical world contained truths that were seen as independent of human beings and human reason, including grand theories, religious, philosophical or scientific. Moreover, those truths could be revealed by diligent, honest observation of the created world, rather than by speculation or religious experience. One of the key consequences of the tendency to separate the particular from the universal was the relaxation and movement in the original ‘creation-dialectic’ established by the first Quakers. Although God continued to be the ultimate source of truth, the created world – as the work of God - was also accepted as a source of truth provided that certain conditions were met. Quaker support for natural theology depends on how that term is understood, but there is evidence here of

significant sympathy with its aims, despite the potential for tension with fundamental Quaker beliefs about revelation.

However, Quakers generally continued to believe that the true understanding of the created world and its relationship to humanity was crucially dependent on the guidance of the divine inward light. Although Penn's position on this point is unclear (3.4.2), witnesses as diverse as Barclay, Penington, Lawson, van Helmont, and Thomas Story (chapter 4), made a clear distinction between the natural powers of human observation and reason and the workings of the divine spirit. All agreed that divine guidance was necessary for the true understanding of the physical world. Much the same was probably true of natural theology. Whilst Barclay admitted that the created world did provide evidence to human reason of the existence of God, any real understanding of divine truths came only through the guiding influence of the inward light of God, the same God that had created the outward world. In spite of a relaxation in the exclusivity of the authority of immediate revelation to embrace some degree of empirical experience, and a new emphasis on the epistemological value of the created world, Quaker orthodoxy severely restricted the scope and status of the latter as an independent source of truth. Moreover, little or no evidence has come to light to suggest that contemporary Quakers perceived any epistemological connection between their belief in the inward light or the personal experience of spiritual transformation, and early support amongst Quakers for empiricism.

3.6.3 Living in the 'Meantime': Management of the Creation

Quakers seem to have been reluctant to fully articulate the doctrine of the stewardship of creation as set out by Matthew Hale (3.3.1). Although Penn and Fox saw in nature models for human behaviour (3.3.1), Quakers might be expected to have been uneasy

about the arguments used by natural theologians like Hale, as they served to diminish the role of direct revelation. Friends' insistence on frugality and simplicity was concerned primarily with right relations with God rather than with the physical creation. Indeed, Fox's emphasis on spirituality and piety is not intrinsically incompatible with Brooks-Saxl's conception of humankind as 'guests' on earth whose focus is on spiritual, not material, realities. Penn's view of the provisional nature of the present created world also seems to fit with this conception, and might be seen as raising doubts about the radical importance of humans as stewards of creation.

Quaker concern for the care of the creation was born of spiritual enlightenment through direct revelation rather than contractual obligation that the term 'steward' implies.³⁴¹ Fox's earliest expressions of concern in this context were God-centred in that he saw people's treatment of domestic animals as an indicator of the state of their relationship to God, and Penn seems to have applied this to the creation as a whole. Anne Adams argues that early Quakers believed that human beings were more than 'simply stewards'; humans were 'part of creation under God' and 'everything we use of creation must be to his glory'.³⁴² Those who followed the inward light of Christ were obedient to God's will for the creation as a whole, treating it with the same wisdom in which it was created by God. Schurman also refers to 'the whole community of creation' of which humankind, nature and the earth are each a part. Thus, when 'we remain guided by Christ, the Word of Wisdom, the creation will be restored to its original goodness and harmony'.³⁴³ Dean Freiday wrote of Fox's belief in creation as a continuing process on the part of God.³⁴⁴ Mel Keiser sees the contemporary Quaker view of this process as potentially participatory: humanity's

³⁴¹ Keiser, *Inward Light*, 13.

³⁴² Adams, 'Early Friends and Creation', 150.

³⁴³ Schurman, 'Quaker Theology of Stewardship', 39.

³⁴⁴ Freiday, Response, 44.

destiny was a spiritual one, but one in which people could share God's creative activity.³⁴⁵

Attitudes towards the care of creation, and the important place of knowledge about the physical world in the emerging Quaker educational curriculum (3.4.3), confirm the positive attitude of Restoration Quakers towards the created world. By the late 1660s, Fox was explicitly concerned with posterity on earth – the meantime – a future in which people would be anticipated to continue to require and enjoy the fruits of God's providence in terms of the physical products of creation. Friends' perception of the creation in terms of particular species or resources, as well as their practical interest in trees, are both indicative of a fresh engagement with the ongoing task of caring for the creation for the benefit of future generations of humankind. For Quakers, this meant enlightened dominion over creation: the care of particular elements of the creation focused on 'creatures' with which contemporary humankind was seen to have some kind of direct relationship in terms of fulfilling basic human needs. Indeed, the practice and progress of agriculture epitomised the enlightened approach to the care of creation.

Factors, both within and outside the Quaker movement, may have driven or constrained this transition. The first Quakers' belief that Christ's Second Coming – and the 'new creation' of heaven and earth - was imminent, or else actually being realised, had made exploration of the present outward creation unimportant or irrelevant. Intellectual interest in the created world appears to grow after the waning of millennial expectations. Whilst the present created order might be seen as 'groaning under the burden' of human disobedience, it was still essentially the work of the Creator, and was probably going to survive for the foreseeable future.

³⁴⁵ Keiser, *Inward Light*, 13.

Moreover, change for the better in the short-term might have to rely more on human agency than had been envisaged. The development of a concept of stewardship by Fox and Penn can be seen as indicative of the changes taking place not only in Friends' views of creation, but also in their wider view of themselves and their place in the world. Fox's later statements and those of Penn focussed on the care of the creation represent a specific example of adaptation away from waning expectations of the Second Coming towards acceptance of a continuation of historic time, the 'meantime'. The recognition of rights and responsibilities by human beings in relation to the rest of creation is also consonant with the concept of a covenantal relationship with God giving way to a contractual relationship with his creation (2.5.2).

3.7 SUMMARY

This chapter has presented evidence of a range of new, often highly individualistic, Quaker responses to the created world, based much more on reasoned argument (and speculation) from well-educated Quakers than was the case in chapter 2. It was illustrated how the creation played an important part in the educational ideas of leading Friends. The first clear evidence of support for natural theology and natural science in its modern sense among Friends appeared in this period, but powerful contemporary opposition was also expressed to the study of the physical world divorced from true spiritual understanding. Belief in divine power to direct and intervene in the operation of creation existed alongside a new perception of the physical world as a resource for humanity, and a growing awareness of the practical issues and opportunities that presented.

The chapter concluded by characterising the period in three ways. Firstly, Quaker discourse on the creation became more intellectual; more influenced by outside thinking, and less by spiritual transformation. Secondly, it saw a significant increase accorded by some Friends to the epistemological value of the created world, although this remained largely contingent on the operation of the divine inward light. Thirdly, the evidence reflects a wider change in contemporary perceptions away from millennial expectations, towards life in the ‘meantime’ in which the utilisation of the creation at home and abroad became a matter of more practical as well as spiritual concern.

The next chapter explores how these changes, and the contrasting legacies of the period in relation to the authority of empiricism and the place of nature in the spiritual life, developed into a more settled pattern of responses to the natural world, as well as the tensions that ensued, amongst 18th century Quakers.

QUIETISM AND RATIONALISM: 18TH CENTURY QUAKERS 1716-1830

4.1 INTRODUCTION

4.1.1 Synopsis

This chapter explores Quaker responses to the natural world, with particular regard to the competing claims of Quaker orthodoxy in the form of Quietism on the one hand, and the growing influences of rational and romantic ideals from the world outside on the other. It argues that significant, and previously largely unexplored, differences came to exist between Quakers in terms of how they experienced and understood the relationship between scientific and religious knowledge, and explores how such differences and tensions were managed in practice.

Whilst earlier views on God's continuing relationship with his creation were re-iterated, writing on the nature and value of creation was increasingly concerned with the scientific nature of the physical world. Contributions from the first half of the period, suggest an emerging awareness of large-scale changes in the distant past to the nature and appearance of the physical world. Later material reflects Quaker interest in the classification of what was increasingly recognised to be a surprisingly diverse and ordered natural world, and also in the nature of contemporary natural processes. It is demonstrated that the creation dialectic was characterised primarily by the development of natural theology amongst Quakers, especially in relation to the experience of beauty and order in the created world. It is argued that, by the later years of this period, some leading Quakers supported natural theology based on human observation and reason, in which there is little or no evidence of a role for the

inward light. At the same time, there is evidence for the persistence of Foxian elements of the God-centred dimension of the dialectic.

For some Quakers, science was justified by theology since it led to a detailed appreciation of the divine wisdom and purpose. Scientific knowledge was also regarded as ‘truth’, in the sense that the findings of honest objective observation were untainted by human sin. Friends were drawn especially to the study of meteorology and natural history, and some were instrumental in using observed facts to answer key scientific questions. It is shown, however, that caution over the virtues of science also persisted amongst Quakers, including views on its limitations as a path to knowledge in comparison with divine wisdom, and of the primacy of the bible over the claims of scientific knowledge, particularly the findings of geology.

Quakers were noted for their interest in the application of scientific findings to the practice of medicine, industry and the management of land, especially for the benefit of the sick and poor. A few Friends also showed some awareness of the significance of biological diversity in nature, and its potential depletion as a result of human activities. Friends from diverse backgrounds also recognised nature as a spiritual and emotional resource for the human soul, expressing sympathy and a sense of connection with the living world. The treatment of animals continued to be a concern: indeed virtually the only reference to the natural world in any corporate Quaker document of the period relates to the avoidance of hunting and cruelty to animals.

In conclusion, it is argued that 18th century Quaker responses to the natural world are characterised by:

- ***From private to public concern***: in the first half of the period, it is argued that the natural world was largely a private and individual concern amongst Quakers.

With the growth in Quaker involvement in science and industry, there was more public sharing of ideas, although only in relation to the treatment of animals did this figure in the corporate life of Friends. However, the natural world came to have a significant role in the wider Quaker culture of the 19th century.

- ***The growth of theological diversity***: the competing claims of orthodox Quaker doctrine and rationalism, also reflecting the legacies of Barclay and Penn respectively, led to the development and co-existence of a diversity of views amongst 18th century Friends on the relationship between theology and the natural world. There was a significant increase in Friends' use of natural theology.
- ***The changing balance between immediate revelation and empiricism***: whilst the belief may have continued that the inward light was the guide to human behaviour, it is argued that 18th century Quakers increasingly recognised that science was a product of observation by the natural human senses and human reason. Whilst at least a few Friends continued to believe the creation was revealed directly by God, and reservations about the place of science and reason in Quaker life continued, for others, the experience of empirical study became the way to God's revelation.

4.1.2 Background and Previous Scholarship

In terms of their attitudes towards the natural world, 18th century Quakers would seem to present something of a contradiction. On the one hand, this was the age when Quakers embraced many of the tenets of continental Quietism, with its emphasis on faithful and silent waiting for God's guidance, and often characterised by withdrawal from 'the world'. On the other, many individual Friends engaged enthusiastically with the outward world in science, its applications to medicine, agriculture and

manufacturing industry, and in popular education. Previous scholars have recognized this disparity, although the ways in which it has been characterized have varied. Arthur Raistrick identified a ‘unity of belief and worship between the two groups who, by the latter part of the 18th century, ‘followed two separate ways of secular expression’.¹ Although both groups were alive to issues of ‘social justice and malaise’, Raistrick saw Quietism as a retreat from the affairs of the world. In contrast, he likened the pioneering spirit of Quakers in science and industry to that of the Seekers, - ‘combined with the zeal of the ‘valiant sixty’ to take the new gospel forward to all who would listen or read - translated into the world of scientific discovery and the intellect.’² Hugh Barbour and William Frost recognize Quietism and rationalism as ‘two distinct emphases on beliefs’³: they describe the latter as ‘a compromise position’ that combined reason and revelation, Scripture and nature, and refused to choose between them’.⁴

Quietism

Rufus Jones described the essential qualities of Quietism as ‘an intense and glowing faith in the direct invasion of God into the sphere of human personality...bound up with a fundamental conception of man’s total depravity and spiritual bankruptcy’.⁵ Having identified Barclay’s *Apology* as one of the progenitors of this view, Jones emphasised the sharp separation that was perceived between the natural realm – ‘godless and ruined’ – and the spiritual realm ‘where God is throned in power and

¹ Arthur Raistrick, *Quakers in Science and Industry: Being an Account of the Quaker Contributions to Science and Industry During the 17th and 18th Centuries* (London: Bannisdale Press, 1950): 345.

² *Ibid.*, 346.

³ Hugh Barbour and J. William Frost, *The Quakers* (Richmond, IN: Friends United Press, 1988), 97-101.

⁴ *Ibid.*, 99.

⁵ Rufus M. Jones, *The Later Periods of Quakerism*, (London: Macmillan, 1921), 1:35.

splendour'.⁶ Only by emptying the mind of human desires and thoughts, and purifying the soul to become 'a living centre of receptivity'⁷ could inward revelation be granted to men and women, and the 'chasm...spanned between these two divided, sundered realms'.⁸ Understanding of the world 'as potentially God's kingdom' would allow humanity to transcend dualities between inward and outward realities and change.⁹

Referring to the experience of personal spiritual transformation as 'realised eschatology', Kathryn Damiano claims that it was from this alternative, greater reality that Friends 'found meaning and order in the world'.¹⁰

Jones claimed that, for the Quietist, the 'highest spiritual state' was 'uncontaminated by any definite mental content'.¹¹ Whilst reason was necessary in everyday life, as people 'opened' to the will of Christ, the intellect submitted to the heart, 'yielding a knowledge so delicate that it cannot be bound by any terms and that thus is seen by the human intellect as dark and confused'.¹² Damiano agrees that 18th century Quakers were 'wary of human capabilities that were not submitted to the guidance of Christ':¹³ only out of this true spiritual experience could outward thoughts, desires and actions be rightly directed. In order to bring God's order and true justice into the world, Friends believed it was necessary to be separated from it,¹⁴ and the term 'the hedge' has been used to describe this separation from the world and its ways, which applied also to the upbringing of children. Thus enabled to follow

⁶ Ibid., 1: 35.

⁷ Ibid., 1: 36.

⁸ Ibid., 1: 35.

⁹ Kathryn Damiano, 'On Earth as it is in Heaven; Eighteenth Century Quakerism as Realised Eschatology' (PhD diss., Union of Experimental Colleges and Universities, Cincinnati, Ohio, 1988), 207.

¹⁰ Ibid., 116.

¹¹ Jones, *Later Periods of Quakerism*, 1: 37.

¹² Mary E. Giles, *The Feminist Mystic* (New York: Crossroad, 1982), 48.

¹³ Damiano, 'Eighteenth Century Quakerism', 120.

¹⁴ Damiano, 'Eighteenth Century Quakerism', 206.

Christ's guidance in everyday life, Damiano argues that 'Friends were called to be God's instruments in the world',¹⁵ and that, ultimately, 'Divine reality would be manifested on earth'.¹⁶ Unlike Raistrick, Jones also held that a Quietist Friend could become, 'without any violation of his principle, a person of extraordinary activity'.¹⁷

Nevertheless, Thomas Clarkson, the only contemporary observer so far identified to make direct comment on the subject in general, was largely negative in his assessment of the effect of the dominant Quietist ethos on Quaker involvement with scientific matters. Writing in 1806, he considered that it was widely believed by non-Quakers that 'the Society [of Friends] has never furnished a philosopher, or produced any material discovery', and that, in reality, Quakers were, except for the poorest, more ignorant of literature and science than their non-Quaker counterparts in society¹⁸ (see also 5.1.6). Clarkson attributed this situation to deficiencies in Quaker education, and to less well-educated Quakers who, in their belief that the pursuit of true knowledge was independent of human learning, too often failed to recognize that the latter 'was necessary at all'.¹⁹

Rationalist and Evangelical Influences

Clarkson's described his Quaker contemporaries (above and 5.1.6) as 'a peculiar people remarkably unaffected by the whirling political, social, and intellectual currents of a tempestuous time',²⁰ a description that Thomas Kennedy criticises as 'incomplete and misleading'. Both Kennedy and John Punshon insist that, by the end

¹⁵ Ibid., 207.

¹⁶ Ibid., 116.

¹⁷ Jones, *Later Periods of Quakerism*, 1: 36.

¹⁸ Clarkson, *Portraiture of Quakerism*, 3: 230-1.

¹⁹ Ibid., 3: 323-3.

²⁰ Thomas C. Kennedy, *British Quakerism 1860-1920: The Transformation of a Religious Community* (Oxford: Oxford University Press, 2001), 18.

of the 18th century, there were ‘serious tensions’ between Friends who were drawn towards ‘the opposing attractions of Enlightenment rationalism and the Evangelical Revival’.²¹

Deism was a position favoured by many 18th century intellectuals in which God was quite ‘other’ than the cosmos: having created the latter, ‘God remains aloof from its operation and lets it go its own way’.²² Punshon argues that despite the anti-mystical and intellectual emphasis of deism (which was directly contrary to quietism), the ‘deist world view certainly had an effect on some Friends, usually one suspects, the more intellectual members of the prosperous and well-connected branches of the Society’.²³ Deism demanded ‘honesty and personal responsibility...[and] a reliance on reason’²⁴ that encouraged a questioning attitude towards traditional views of God and Jesus. Whilst elements of scepticism and possibly deism were famously expressed by the Irish Friend, Abraham Shackleton (1752-1818),²⁵ such views were probably representative of few Quakers at the time (4.3.1).

If rationalism is seen as a response by some Friends to the intellectual inadequacies of Quietism, from the 1820s onwards evangelical Christianity was embraced by Quakers as a dramatic renewal of what had become for many Friends a spiritually arid religious environment. Although evangelical ideas, widespread after the Methodist revival of the mid 18th century,²⁶ had influenced individual Quakers earlier on, Edward Grubb saw the Society of Friends in Britain embracing an emphasis on doctrine and the primary authority of scripture only after 1828/9,²⁷ and

²¹ Ibid.

²² Punshon, *Portrait in Grey*, 160.

²³ Ibid., 161.

²⁴ Ibid.

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²⁷ Edward Grubb, ‘The Evangelical Movement and Its Impact on the Society of Friends’, *Friends Quarterly Examiner* (Jan. 1924): 11.

not until the 1870s did evangelicalism reach the height of its influence in Britain.²⁸ Based on the conviction of personal sin and the recognition of Christ's redemptive power, evangelicalism was 'an intense religion of personal commitment', in which good works were seen as sure evidence of God's grace operating in the individual.²⁹ Its effects also resembled those of rationalism in its diminution of the role of mystical experience, the stimulation of increased contact with the world outside the Society of Friends, and in its proselytising zeal.

Social and Geographical Mobility

Internal and external constraints on the occupations available to Quakers continued, but major changes in the patterns of occupation have been observed between the 17th and 18th centuries. William Beck and Frederick Ball compared occupations of London Quakers from around 1680 with those from around 1780.³⁰ This revealed a modest increase in the professional group, a large increase in merchants, dealers and manufacturers, and a large decrease in the number of employed in 'the humbler class of industrial pursuits'.³¹ Arthur Raistrick described the Society of Friends having moved 'from being predominantly craftsman-artisan in the seventeenth century, to middle-class traders in the late eighteenth century'.³² Most of the first Quakers were connected to the land: by the late 18th century Friends were more numerous in London and other urban centres, with the means (and at least a limited amount of time) to pursue science and natural history as leisure pursuits. According to Richard Vann,

²⁸ Punshon, *Portrait in Grey*, 165.

²⁹ *Ibid.*

³⁰ William Beck and T. Frederick Ball, *The London Friends Meetings: Showing the Rise of the Society of Friends in London; its Progress, and the Development of its Discipline; with Accounts of the Various Meeting-houses and Burial-grounds, their History and General Associations* (London: F. Bowyer Kitto, 1869), 90

³¹ *Ibid.*

Quakerism became, ‘in both senses of the word, a somewhat more bourgeois religion’.³³ Vann described 18th century Quakers becoming ‘more concentrated with a smaller geographical and social range’, observing that although there was

a general tendency for eighteenth century Englishmen to move into the towns...the urban concentration of Friends was much in excess of that in the general population....It was difficult to live in accordance with a Quaker conscience without the support of some fairly sizeable community – especially when there were children of marriageable age who had to find Quaker spouses. Also the painful Quaker testimony against tithes was a further deterrent to embracing Quakerism, or remaining faithful to it, for those who lived on the land.³⁴

By the first half of the 18th century, Quakers were well-established in industry, trade and finance, in which many were conspicuously successful. They included ‘outstanding members of the medical profession and even appearing on the lists of the Fellows and Council of the Royal Society’.³⁵ Several authors have documented the involvement of 18th century Friends in the exploration and utilization of the natural world. Older work includes George Newman’s review of Quakers in medicine,³⁶ and in 1950, Arthur Raistrick published the results of his research on Quakers in the natural sciences, medicine, technology and industry before 1800. Edward Milligan has recently compiled a detailed biographical dictionary of Friends in commerce and industry after 1775.³⁷

The period reflected the continuing importance of transatlantic links and the involvement of Quakers in the exploration of America. This was the age of the

³² Raistrick, *Quakers in Science and Industry*, 32.

³³ Richard Vann, *The Social Development of English Quakerism, 1655-1755* (Cambridge, MA: Harvard University Press, 1969), 164. See also Nicholas Morgan, *Lancashire Quakers and the Establishment 1660-1730* (Halifax: Ryburn, 1993), 18-19.

³⁴ Vann, *Social Development*, 164.

³⁵ *Ibid.*, 12.

³⁶ George Newman, ‘The Application of Quaker Principles in Medical Practice,’ *Friends Quarterly Examiner* (1930): 57-70.

³⁷ Edward Milligan, *Biographical Dictionary of British Quakers in Commerce and Industry 1775-1920* (York: Sessions Book Trust, 2007).

‘Quaker botanists’³⁸ featured in the ‘Quaker Tapestry’³⁹: 7 out of 11 of the ‘Botanists, Plant-hunters and Gardeners’ featured in it belong to this period.⁴⁰ Recent publications include a history of three leading 18th century Quaker plant-hunters by David Sox,⁴¹ and an account of Quaker plant hunters and gardeners linked to the Quaker Tapestry display by Ann Nichols.⁴² Papers by Alan Armstrong⁴³ and Stephanie Volmer⁴⁴ give useful insights into the significance of the scientific correspondence between Quaker naturalists Peter Collinson and John Bartram.⁴⁵

Quakers and the Natural World: Disparate Assessments (see also 5.1.5)

Despite the level of practical involvement by individual Quakers in science and its applications, negative assessments of 18th century Quakers’ intellectual and spiritual engagement with the natural world have been re-iterated periodically up to the present time. This period of British Quaker history is unrepresented in a 1996 anthology of Quaker writing on ‘that of God’ in the creation,⁴⁶ on the grounds that ‘throughout

³⁸ Francis W. Pennell, ‘Quaker Botanists’, *Bulletin of the Friends Historical Association* 37, no.1 (1948): 3-13, 63-82.

³⁹ The Quaker Tapestry at Kendal is a modern celebration of three hundred years’ experience and the spiritual insights of the Religious Society of Friends, in the form of 75 stitched panels.

⁴⁰ John Ormerod Greenwood, *The Quaker Tapestry: A celebration of insights* (London: Impact Books, 1990), 143-6.

⁴¹ David Sox, *Quaker Plant Hunters* (York: Sessions Book Trust, 2004).

⁴² Ann Nichols, *The Golden Age of Quaker Botanists* (Kendal: The Quaker Tapestry at Kendal, 2006).

⁴³ Alan W. Armstrong, ‘John Bartram and Peter Collinson: A Correspondence of Science and Fellowship’ in Nancy E. Hoffman and John C. Van Horne, eds., *America’s Curious Botanist: A Tercentennial Reappraisal of John Bartram 1699-1777* (Philadelphia, PA: American Philosophical Society, 2004), 23-42.

⁴⁴ Stephanie Volmer, ‘“Taste,” “Curiosity,” and the Letters of John Bartram and Peter Collinson’ in Hoffman and Van Horne, *America’s Curious Botanist*, 67-76.

⁴⁵ Louise Tritton has identified four basic approaches to nature in the writing of American Quakers, three of which relate to this period, as follows: nature ‘as a scientific/rational landscape’; as an aesthetic/romantic landscape’; and as ‘a moral/ethical landscape’. Tritton explains that the various writings of individual authors were not necessarily confined to one of these categories. (Louise Meschter Tritton, ‘Quakers and Nature: then and now. Perspectives on nature from John Bartram to Friends Committee on Unity with Nature’, unpublished (?) paper to conference to celebrate the 300th anniversary of the birth of John Bartram, Philadelphia, February 1999).

⁴⁶ Anne Adams and Jean Hardy, ‘Introduction’, in Anne Adams, ed., *The Creation Was Open To Me: An Anthology of Friends writings on that of God in all Creation* (Wilmslow: Quaker Green Concern, 1997): x.

most of the eighteenth and nineteenth centuries there is a heavy silence about the earth and its non-human creatures in Quaker writing'.⁴⁷ Conversely, most recent authors have made positive assessments of Quakers' contribution to science. Raistrick concluded that Friends had made 'a very material...contribution to science and medicine', although this was 'not so obvious' as their contribution to the development of industry and banking.⁴⁸ The (largely unsubstantiated) claim that Quakers were disproportionately active in scientific pursuits has been made several times: for example, by Joseph Green, writing in 1917,⁴⁹ and more recently the historian John Gascoigne has asserted that 'a disproportionate number of British naturalists' were Quaker.⁵⁰ Geoffrey Cantor has demonstrated that earlier claims about the relative number of Quakers elected to fellowship of the Royal Society are not true of the 18th century.⁵¹ Possible reasons for these conflicting assessments are discussed in chapter 5.

By far the most comprehensive and balanced discussion of the relationship between Quaker religious tenets and attitudes to science in this period is from Geoffrey Cantor.⁵² Cantor demonstrates that Quakers' emphasis on the observer's experience rather than the power of human reason was a major influence on their views of science, and the practical ways in which they became involved in it. He suggests that the natural world had a particular aesthetic appeal to some 18th century

⁴⁷ Ibid.

⁴⁸ Raistrick, *Quakers in Science and Industry*, 347.

⁴⁹ Joseph J. Green, 'Stephen Robson, of Darlington, Quaker Botanist and Saint...' *Friends Quarterly Examiner* no.51 (Jan. 1917): 14.

⁵⁰ John Gascoigne, *Joseph Banks and the English Enlightenment: Useful Knowledge and Polite Culture* (Cambridge: Cambridge University Press, 1994), 77.

⁵¹ Geoffrey Cantor, 'Quakers in the Royal Society, 1660-1750', *Notes and Records of the Royal Society of London* 51 (1997): 175-93.

⁵² Geoffrey Cantor, *Quakers, Jews, and Science: Religious Responses to Modernity and the Sciences in Britain, 1650-1900* (Oxford: Oxford University Press, 2005).

Quakers, thus connecting nature to its creator,⁵³ and also serving as a ‘bridge’ between science and Quaker beliefs.⁵⁴ Cantor has also argued that Quakers developed a distinctive version of the argument from design for the existence and nature of God,⁵⁵ to which further reference is made in 4.3.3.

4.1.3 Sources and Nature of Evidence

There is no fresh equivalent from this period of either Barclay’s *Apology*, or Penn’s *Fruits of Solitude*, both of which were reprinted many times and remained more or less influential in Quaker circles until the late 19th century. Writing of 18th century Quaker naturalists, a recent author asserts that ‘we know the period best from its letters’.⁵⁶ Published selections of key correspondence from leading Friends include Armstrong on Peter Collinson;⁵⁷ Corner and Booth on John Fothergill;⁵⁸ and Armistead on Thomas Story and James Logan.⁵⁹ Use has also been made of a few unpublished letters. Relevant material appears in published biographical studies of Story,⁶⁰ Collinson,⁶¹ John Bartram,⁶² William Curtis⁶³, Priscilla Wakefield,⁶⁴

⁵³ Geoffrey Cantor, ‘Aesthetics in Science, as Practised by Quakers in the Eighteenth and Nineteenth Centuries’, *Quaker Studies* 4 (1999): 1-20.

⁵⁴ John Brooke and Geoffrey Cantor, *Reconstructing Nature: The Engagement of Science and Religion* (Edinburgh: T&T Clark, 1998), 302-306.

⁵⁵ Geoffrey Cantor, ‘Real Disabilities? Quaker Schools as ‘Nurseries’ of Science’, in Paul Wood, ed., *Science and Dissent in England, 1688-1945* (Aldershot: Ashgate, 2004), 156.

⁵⁶ Armstrong, ‘Bartram and Collinson’, 23.

⁵⁷ Alan W. Armstrong, ed., ‘Forget not Mee & My Garden...’. *Selected Letters, 1725-1768 of Peter Collinson, F.R.S.* (Philadelphia: American Philosophical Society, 2002).

⁵⁸ Betsy C. Corner and Christopher C. Booth, eds., *Chain of Friendship: Selected Letters of Dr John Fothergill of London, 1735-1788* (Cambridge, MA: Harvard University Press, 1971).

⁵⁹ Wilson Armistead, *Memoirs of James Logan...including several of his Letters and those of his Correspondents...* (London: Charles Gilpin, 1851).

⁶⁰ Emily E. Moore, *Travelling with Thomas Story: The Life and Travels of an Eighteenth-century Quaker* (Letchworth: Letchworth Printers, 1947).

⁶¹ Norman G. Brett-James, *The Life of Peter Collinson F.R.S, F.S.A.* (London: Edgar G. Dunstan, [1926?]).

⁶² Edmund Berkeley and Dorothy Smith Berkeley, *The Life and Travels of John Bartram* (Gainesville, FL: University Presses of Florida, 1982).

⁶³ William Hugh Curtis, *William Curtis 1746-1799* (Winchester: Warren & Son, 1941).

⁶⁴ Owen Goldin and Patricia Kilroe, *Human Life and the Natural World: Readings in the History of Western Philosophy* (Peterborough, Ontario: Broadview Press, 1997), 173-4.

William Allen⁶⁵, Luke Howard,⁶⁶ and John Dalton, for example. Although spiritual journals and memorials of Friends usually contain relatively little on this subject, those of John Ritty, William Allen and Elizabeth Fry provide insights into relevant personal struggles or early influences that are relevant here. Published works are relatively few but those of Thomas Hancock, and especially, educational books by William Phillips and Priscilla Wakefield, are valuable sources. From the 1790s onwards, published poetry by Friends, much of it on perceptions of nature, has proved a useful but hitherto neglected source of evidence. Thomas Clarkson's *Portraiture of Quakerism* of 1806,⁶⁷ described as 'the best and most complete account of the character and practices of the Society of Friends in the 18th century',⁶⁸ provides virtually the only contemporary overview of aspects of the subject. Whilst it may have been out-of-date or unbalanced in its view of 18th century Quakers' intellectual achievements, it provides a valuable counterpoint to the material from individuals that comprise most of the available evidence for the period.

4.2 THE NATURE AND STATUS OF CREATION

Friends' statements on the nature of creation reflect a shift away from a metaphysical speculation, to an increasing interest in the physical world as revealed by scientific observation and exploration. The first part of this section provides evidence for the long-term Quaker belief in God's continuing presence in the physical creation. The

⁶⁵ Margaret Nicholle, *William Allen: Quaker Friend of Lindfield 1770-1843* (Lindfield, UK: Margaret Nicolle, 2001).

⁶⁶ Richard Hamblin, *The Invention of Clouds: How an Amateur Meteorologist Forged the Language of the Skies* (London: Picador, 2001).

⁶⁷ Thomas Clarkson, *A Portraiture of Quakerism, taken from a view of the Moral Education, Discipline, Peculiar Customs, Religious Principles, Political and Civil Economy, and Character, of the Society of Friends*, 3 vols. (London: Longman, Hurst, Rees, and Orme, 1806).

⁶⁸ Howard H. Brinton, 'Quakers and Animals' in Anna Brinton, ed., *Then and Now Quaker Essays: Historical and Contemporary by friends of Henry Joel Cadbury* (Philadelphia: University of Pennsylvania, 1960), 188.

second part explores Quaker views on the scientific nature of creation, particularly in relation to the search for order in nature, including Quaker responses to Linnaeus, and the contributions of Luke Howard and John Dalton, respectively, to the understanding of weather, and the chemical nature of matter.

4.2.1 God's Continuing Creation

There is little evidence of the influence of deism on Quaker views of the creation, including those who were interested in science and others of a rationalist inclination. Whilst some Friends embraced the discovery of the laws of nature (4.3.1), this did not preclude a general belief both in the continuing providence of God to his creation, and in the ability of God to intervene in human affairs and in the operation of natural processes (4.5.5). Friends, in general, from within and outside the scientific community, were agreed in their belief in the present and continuing divine upholding of the creation (see also 4.3.1). William Allen spoke of God 'constantly diffusing good'⁶⁹, and 'that the sustaining hand of God is still necessary, and the present order and harmony...is wholly dependent upon his will; its duration is one of the unsearchable measures of his providence'.⁷⁰ The physician, Thomas Hancock, was certain that 'none of the acts of any living organised being can be explained...without some inherent vital energy, communicated by the Creator'.⁷¹ Even if one agreed 'with Dr. Priestley', that such acts were 'wholly to be explained on mechanical principles...a divine Intelligence [was still necessary] whether we suppose that it acts in the first instance on *mechanical* or on *vital* powers'. Hancock asserted that it had

⁶⁹ William Allen, *Life of William Allen, with Selections from His Correspondence* (London: Charles Gilpin, 1846), 1: 72.

⁷⁰ *Ibid.*, 68.

⁷¹ Thomas Hancock, *Essay on Instinct, and its Physical and Moral Relations* (London: William Phillips, 1824), 48.

been ‘the general opinion from Cicero and Virgil to Newton and Pope’ that the divine power ‘pervades every action in the universe’:⁷² his belief in the immanence of God is confirmed by his quotation of Cowper, ‘so apposite to my purpose’:

The Lord of all, himself through all diffus’d,
Sustains, and is the life of all that lives...⁷³

The Quaker poet, John Fry, emphasized the inward nature of God’s continuing act of creation, through which the ‘new Creation’ would be ‘wrought in the souls of sinful men’.⁷⁴ The poet Bernard Barton described how it was material nature’s fate not just to change, but ultimately to be supplanted by God’s spiritual realm. Lamenting that the ‘hand of the spoiler’ had fallen upon a cherished beauty spot, he reflected that ‘all we see in this beauteous creation’ was ‘doom’d to dissolve, like some bright exhalation’.⁷⁵ All outward beauty must ultimately ‘meet the last hour of convulsive commotion, which, sooner or later, will uncreate earth’.⁷⁶ Ultimately, though, all things would be united in God:

For the bright chain of being, though widely extended,
Unites all its parts in one beautiful whole;
In which Grandeur and Grace are enchantingly blended,
Of which GOD is the Centre, the Light, and the Soul!⁷⁷

4.2.2 A Diverse and Ordered Creation

Both Thomas Story and John Bartram speculated about the physical nature of the earth’s solid rocks (4.4.3), but it was Quakers’ later involvement in the search for order in the creation that made a more lasting contribution to scientific understanding.

⁷² Ibid., 148.

⁷³ Cowper, Task, Book 6 quoted by Hancock, *Essay on Instinct*, 549.

⁷⁴ John Fry ‘On the Creation’ in John Fry, *Select Poems, containing Religious Epistles, &c occasionally written on various Subjects, Recommended to the Perusal of serious Readers, especially the Youth* (London: Mary Hinde, 1774), 38.

⁷⁵ Bernard Barton, ‘Valley of Fern’, in Bernard Barton, *Poems* (London: Harvey & Darton, 1820), 15/17.

The diversity of the created world in terms of land and sea, landforms and landscape, rocks, and especially of animal and plant life was a source of wonder and also a challenge to inquiring minds of the period. The sheer magnitude of this diversity was still becoming clear and was regularly highlighted by new discoveries communicated by explorers to ever more distant and remote parts of the world, endeavours in which Quakers were involved, both directly and indirectly. Sydney Parkinson commented on how ‘amazingly diversified are the works of the Deity within the narrow limits of this globe we inhabit, which, compared with the vast aggregate of systems that compose the universe, appears but a dark speck in the creation!’.⁷⁸ Peter Collinson saw the diversity of living species in the world to be an intrinsic part of God’s intentions for the creation, a foundational view for later concerns about biological diversity (see 4.5.2). In a letter of c.1742 (appendix 5), he suggested why common weeds of fields should produce such copious quantities of seed:

if the Bountiful Provider had not given the common Vegetables of the field (that are of such Use and which Dayly exposed to so many accidents & Hazards) an Abundant Increase, their species might risque being near Lost and the Great and Wise Ends of Providence frustrated.⁷⁹

Collinson shared an interest with his American friend, John Bartram, in the sudden appearances of certain insects, birds and other animals in great numbers. Bartram suggested that the periodic abundance of bears and passenger pigeons near Philadelphia might be due to a scarcity of acorns in their normal habitats caused by a population ‘explosion’ of leaf-eating caterpillars that defoliated oak trees. He referred to:

the wonderfull order and Balance that is maintain’d between ye vegetable and Animal Oeconomy, that the Animal should not be too numerous to be

⁷⁶ Ibid., 17.

⁷⁷ Ibid., 12.

⁷⁸ Sydney Parkinson, *A Journal of a Voyage to the South Seas, in his Majesty’s Ship, The Endeavour...* (London: Stanfield Parkinson, 1773), 11.

⁷⁹ Peter Collinson to Joseph Hobson [c. 1742], in Armstrong, *Letters of Peter Collinson*, 95.

supported by the Vegetable, nor the Vegetable Productions be lost for want of gathering by the animal.⁸⁰

These early ideas on what would now be termed population ecology were seen as evidence of the divine mind at work. Collinson responded that he had heard ‘frequent accounts of the prodigious Flocks of pigeons by thy Remarks on the wonderful provision made by Our allwise Creator for the support of the Creation is well worth Notice’. He congratulated Bartram that the ‘balance kept between the vegetable & Animal productions is really a fine Thought & what I never met with before’.⁸¹

Quaker Reactions to Linnaeus’ System

Naming, describing and classifying natural objects were of central importance to 18th century science for three main reasons. First, they provided a rational demonstration of the order inherent in God’s creation; second, they systematically documented the diversity in the natural world; and third, they enabled the reliable identification of useful and potentially useful natural products. The acknowledged leader in the classification of the living world was the Swede, Carl Linnaeus, who argued that ‘objects are distinguished and known by classifying them methodically and giving them appropriate names’.⁸²

⁸⁰ John Bartram to Peter Collinson, 26 April, 1737, in Edmund Berkeley and Dorothy Smith Berkeley, *The Life and Travels of John Bartram...* (Tallahassie, FL: University Presses of Florida, 1982), 43. Bartram continues, ‘Secondly the surprising Instinct these Creatures are endowed with, that leave their natural Habitations to travel such a long way after their Food, and return back again to breed. Thirdly it persuades me to think that there must be very great Forests and a Fertile Country to the Westward, that can maintain and support so many Millions of Pigeons (besides other Animals...) (ibid.).’

⁸¹ Peter Collinson to John Bartram, London, December 10, 1737, in Armstrong, *Letters of Peter Collinson*, 58.

⁸² Paul Lawrence Farber, *Finding Order in Nature: the Naturalist Tradition from Linnaeus to E.O. Wilson* (Baltimore and London: John Hopkins University Press, 2000), 8/9. Linnaeus’ so-called sexual system of plant classification was a ‘brilliantly simple’ (ibid., 9) hierarchical system that grouped plants into 24 classes according to the number and position of the stamens (male parts of the flower). Linnaeus also devised a binomial system for the accurate naming of particular species of plants and subsequently other living creatures, involving a generic and a specific name, rendered into Latin, for each species. His classification was superseded in the 19th century, but his binomial naming system remains in use.

Early Quaker reactions to Linnaeus's 'sexual system' were mixed. Despite his good opinion of Linnaeus,⁸³ Peter Collinson had reservations about both his system and his novel approach to nomenclature:

The Systema Naturae is a curious performance for a young man, but His coining a set of new names for plants tends but to Embarress & Perplex the study of Botany as to his system on which they are founded, Botanists are not agree [sic] about it. Very few like it.⁸⁴

Writing to Linnaeus in 1754, Collinson expressed concern about the loss of well-known names of long-standing, and feared that the study of botany would become the preserve of a professional elite:

We that admire you are much concern'd that you should perplex the Delightfull Science of Botany with Changing Names that have ben [sic] well received and adding New Names quite unknown to us. Thus Botany, which was a pleasant Study, and attainable by Most Men, is now become by alterations & New Names a Study of a Mans Life, & none now but real Professors can pretend to attain it.⁸⁵

Both Collinson and Stephen Robson preferred the earlier classification of John Ray, which Robson considered approached 'nearest to the natural method of Arrangement, so much desired in this Branch of Natural History'.⁸⁶ It was generally believed that living species were fixed as God had created them, and the physician, James Cowles Prichard, highlighted what was seen as a fundamental difference between the concept of the species, and Linnaeus's higher groupings. Prichard argued that as God had 'ordained that each [species] should multiply according to its kind...none of them ever transgressing their own limits, or approximating in any great degree to others',⁸⁷ the definition of the species must therefore be 'constant and uniform' and 'must coincide with Nature'. By contrast, Linnaeus's 'classes and orders' were arbitrarily

⁸³ Collinson describes Linnaeus as a 'man of great knowledge and of a very obliging disposition' (Peter Collinson to Dr Key 1735 quoted by Brett-James, *Peter Collinson*, 187).

⁸⁴ Collinson to John Bartram 1737 quoted in part in Armstrong, *Letters of Peter Collinson*, 177f, and Brett-James, *Peter Collinson*, 187.

defined, and could be ‘changed or modified ad infinitum according to the wishes of the constructor’.⁸⁸

Despite these concerns, Collinson and other Friends were among the earliest naturalists to give public and practical support to Linnaeus’ work.⁸⁹ Quaker nurseryman, James Lee’s *Introduction to Botany* of 1760⁹⁰ was the first work in English to set out Linnaeus’ sexual system and nomenclature.⁹¹ Leading Quaker physicians, John Fothergill and John Coakley Lettsom, who were keen to establish and expand a reliable *Materia Medica*, recognized its practical virtues. Fothergill stressed the importance of systematic natural history and reliable identification in order to ‘remove ambiguity, and prevent all possible mistake’: it was, he declared, ‘from this part of science, [that] a perfect knowledge of the *Materia Medica*, has hitherto, and must still derive its greatest improvements’.⁹² He referred to Linnaeus as his ‘most esteemed Friend, than whom none has been more deservedly praised and who is held in the highest honour by all’.⁹³ No evidence has been found of Quaker support for the wider public ‘sense of outrage’ over the sexual connotations of Linnaeus’:⁹⁴ Priscilla Wakefield’s *Introduction to Botany* (1796) was a popular

⁸⁵ Collinson to Linnaeus, April 20, 1754, in Armstrong, *Letters of Peter Collinson*, 177. Collinson’s view was shared by non-Quaker commentators (Thomas, *Man and the Natural World*, 86).

⁸⁶ Stephen Robson, *British Flora* (?1776), Prospectus, quoted in Green, ‘Stephen Robson’, 27. It was not until the 1820s that Linnaeus’ system was discarded in favour of a natural classification ‘based on the system of Ray that had lain dormant for fifty years’ (John Gilmour and Max Walters, *Wild Flowers* 5th ed. (London: Collins, 1973), 20).

⁸⁷ James Cowles Prichard, *Researches into the Physical History of Mankind* (London: John and Arthur Ash, 1813), 7.

⁸⁸ *Ibid.*

⁸⁹ Brett-James, *Peter Collinson*, 187; Armistead, *James Logan*, 157f. In 1777, William Curtis produced a garden for teaching purposes in which plants were arranged according to Linnaeus’ system. The system continued to be promoted by later Quaker authors and poets of the early 19th century.

⁹⁰ James Lee, *Introduction to botany....Extracted from the works of Dr. Linnaeus* (London, 1760).

⁹¹ Henrey, *Botanical Literature*, 2: 355. Henrey described Lee’s book as ‘a free translation’ of Linnaeus’ *Philosophia botanica* (*ibid.*).

⁹² John Elliot, ed., *A Complete Collection of the Medical and Philosophical Works of John Fothergill: with an Account of his Life and Occasional Notes by John Elliot M.D.* (London: John Walker, 1781), xv).

⁹³ John Fothergill to Carolus Linnaeus, April 4, 1774, in Corner and Booth, *Chain of Friendship*, 410.

⁹⁴ See, for example, Patricia Fara, *Sex, Botany & Empire: The Story of Carl Linnaeus and Joseph Banks* (Cambridge: Icon Books, 2003), 8-12. The cover to Fara’s book quotes an 18th century edition

exposition of the system, aimed particularly at the young, and the first introductory book on botany written by a woman.⁹⁵

Not all Friends were agreed about the relative importance of taxonomy in plant science. Despite his evident interest in wild flowers, and the arrangement of his early herbarium specimens ‘in strict Linnean sequence’,⁹⁶ John Dalton saw a need to go beyond the ‘elementary observation [of plants]...to study the science behind them’.⁹⁷ Dalton argued that as comparatively few native British plants were medicinally important, more could be gained for the advancement of medicine through the experimental study of the nature and composition of plants, than from the taxonomic study of the British flora as a whole.⁹⁸

Luke Howard’s ‘Modifications of Clouds’

The most important original contribution to the classification of the natural world made by a Quaker in this period was the work of chemist Luke Howard (1772-1864) on the naming of clouds. Howard was fascinated with meteorology as a youth, an interest that was quickened by the persistent fogs that were widespread in Europe and Asia during the summer of 1783.⁹⁹ He was also much influenced by his friend John

of *Encyclopaedia Britannica*: ‘A man would not naturally expect to meet with disgusting strokes of obscenity in a system of botany, but...obscenity is the very basis of the Linnaean system’. The sexual connections were famously (and, at first, anonymously) celebrated in verse by Erasmus Darwin (*The Botanic Garden: A Poem, in Two Parts*, part 2 *The Loves of the Plants* (London: J. Johnson, 1789), and many subsequent editions).

⁹⁵ Owen Goldin and Patricia Kilroe eds., *Human Life and the Natural World: Readings in the History of Western Philosophy* (Peterborough, Ontario: Broadview Press, 1997), 173.

⁹⁶ Leo Grindon, ‘Dalton as a Botanist’, *Local Notes and Queries, Manchester Guardian*, January 25, 1875.

⁹⁷ Frank Greenaway, *John Dalton and the Atom* (London: Heinemann, 1966), 68.

⁹⁸ John Dalton to George Bewley 25 April 1790 quoted by Greenaway *John Dalton* p.67. Dalton wrote that ‘I would observe that as few of our English Herbs are efficacious Articles in the Materia Medica, ...being able to distinguish & class them properly does not seem to me of so much Service, as an Investigation of their Organisation and Oeconomy, from which a skilful Person may be able to make judicious Inferences after a proper comparison with the Structure and Oeconomy of Animals’ (ibid.).

⁹⁹ Hamblyn, *Invention of Clouds*, 42-50.

Dalton's *Meteorological Essays* of 1793.¹⁰⁰ Contrary to the general opinion that clouds were random formations incapable of classification, Howard argued that clouds have 'many individual shapes but few basic forms'.¹⁰¹ In a lecture given in 1802, he identified three basic forms or 'simple modifications'; 'cumulus', 'cirrus' and 'stratus', and four additional forms that were various combinations of these three.¹⁰² He asserted that the 'principal modifications are commonly as distinguishable from each other as a tree from a hill, or the latter from a lake'.¹⁰³ The importance of Howard's work lay in his recognition of a small number of readily identifiable 'families' of clouds, and also that the aggregate of minute drops of water 'which has been formed in one modification, upon a change in the attendant circumstances, may pass into another'.¹⁰⁴ According to Richard Hamblyn, 'As a Quaker, Luke Howard shared Linnaeus's profoundly religious sense that taxonomy was intended as "a respectful ordering of God's Creation"'.¹⁰⁵ Thus, although the classification was inspired by the Linnaean approach, by accommodating the intrinsic mutability of clouds, 'it allowed aerial nature to retain the whole of its ancient and sensual appeal in the face of an empirical taxonomy'.¹⁰⁶

Howard's ideas were to prove an inspiration not only to science but also the arts, including such influential figures as Johann Wolfgang von Goethe, 'Europe's greatest intellectual icon' (who set Howard's names and descriptions to verse),¹⁰⁷ and

¹⁰⁰ Ibid., 118-9

¹⁰¹ Ibid., 120

¹⁰² Luke Howard, *On the Modifications of Clouds, and on the Principles of their Production, Suspension, and Destruction...* (London: J. Taylor, 1804), 4.

¹⁰³ Ibid., 4. Howard described clouds as the 'visible indications of the operation of ... [physical] causes, as is the countenance of the state of a person's mind or body' (ibid., 3). He explained that by systematizing the forms of clouds and the relationships between them, direct observations of clouds could be lifted from the province of folk-lore to that of meteorological science. His classification was the key to understanding the physical principles of cloud formation (ibid., 3-4).

¹⁰⁴ Ibid., 4.

¹⁰⁵ Hamblyn, *Invention of Clouds*, 138-9.

¹⁰⁶ Ibid., 139.

¹⁰⁷ Ibid., 206.

the artist John Constable.¹⁰⁸ Hamblyn writes that ‘Howard’s ideas had become Goethe’s touchstone for the understanding and representation of clouds, not merely in terms of ...accuracy, but in terms of...spirit’.¹⁰⁹

A Quantifiable Creation: Dalton’s Atomic Theory

John Dalton has been described as the ‘Father of Modern Chemistry’¹¹⁰ and his life and scientific work have been extensively documented.¹¹¹ Quaker scholar and historian Rufus Jones claimed that Dalton ‘made the greatest contribution to science that has perhaps ever been made by a Quaker’.¹¹² This was his discovery, firstly, of the relative and unalterable weights of the ultimate particles (atoms) of different kinds of matter: thus atoms of the same chemical element were similar and equal in weight whilst atoms of different elements had different weights. Secondly, atoms of different elements combined with one another in simple and fixed numerical proportions – 1:1; 1:2; 2:1; 2:3; etc.¹¹³ Thus every ultimate particle of water, for example, was chemically identical. The idea that matter consisted of atoms separated from one another by void space, and in a state of constant motion, dated back to classical times, but was based on speculative reasoning.¹¹⁴ The concept was supported by many leading 17th century thinkers including, amongst others, Francis Bacon, Descartes, Robert Boyle and Isaac Newton, but it was Dalton’s role ‘to quicken the dead dogma

¹⁰⁸ Ibid., 204-230.

¹⁰⁹ Ibid., 222. ‘This was what John Ruskin was later to call ‘the Truth of Clouds’, by which he meant a kind of renewed spiritual covenant between mankind, the natural world and the realm of the divine’ (ibid.).

¹¹⁰ F. Fairbrother, J.B. Birks, Wolfe Mays and P.G. Morgan, ‘The history of science in Manchester’ in Charles F. Carter, ed., *Manchester and its region* (Manchester: Manchester University Press, 1962), 191.

¹¹¹ See bibliography in Diana Leitch and Alfred Williamson, *The Dalton Tradition* (Manchester: John Rylands University Library of Manchester, 1991).

¹¹² Jones, *Later Periods of Quakerism*, 763.

¹¹³ J.W. Mellor, *Modern Inorganic Chemistry* (London: Longmans, Green and Co., 1918), 36.

¹¹⁴ Ibid., 35.

into a living hypothesis'¹¹⁵ based on scientific observation and experiment. The genius of Dalton's theory was to bring chemistry 'within the scope of numerical calculation'.¹¹⁶

4.3 THE CREATION DIALECTIC

This section is in three parts. The first demonstrates a wide variety of expressions of natural theology, as well as opposition to natural theology, found among 18th century Friends. The second shows continuity in elements of the God-centred dimension of the dialectic, on the place of the divine inward light in 'natural' theology, and knowledge of the creation as contingent upon spiritual experience. The third part examines Geoffrey Cantor's claim that Quakers developed a distinctive kind of natural theology based on experience rather than reason in the light of these findings.

4.3.1 Creation-centred Perceptions

Examples of support for natural theology based on spiritual experience, on arguments from design in nature, on the capacity of human reason, and on nature as a model for humanity, are discussed. Friends varied and changing responses to aesthetic beauty in nature illustrate the complexity of the creation-centred dimension of the dialectic, and of the Quaker relationship with natural theology. Evidence is presented of Friends for whom natural theology appears to have been the principal form of revelation, and also of Quaker doubts about the claims of natural theology.

¹¹⁵ Ibid., 36.

¹¹⁶ Jones, *Later Periods of Quakerism*, 2:765. Although Dalton's atomic theory did not, of itself, provide a standard by which the actual atomic weights of the different elements could be fixed, its simplicity and scientific potential made it one of the most influential of all scientific discoveries (Greenaway, *John Dalton*, 5).

Natural Theology in the 18th Century

In his classic study of the 18th century, Basil Willey described the period as ‘the Golden Age of natural theology and deistical free-thinking’.¹¹⁷ He argued that ‘the light sprung by faith had become so dimmed by controversy that Nature now seemed to supply the true divine sunshine’,¹¹⁸ and ‘even the orthodox ... felt that faith must be grounded firmly upon Nature before one had recourse to super-nature’.¹¹⁹ He quoted from John Locke, ‘The works of Nature everywhere sufficiently evidence a Deity’, to make the point that at the start of the 18th century, this idea ‘was very generally accepted as self-evident’.¹²⁰

In the 17th and 18th centuries, various authors developed natural theology based on the ‘consideration of created things’ (see 3.3.1) into the ‘argument from design’, which drew on the empirical observation of both human beings and the natural world to show evidence of design and purpose throughout the creation.¹²¹ Particularly important contributions were John Ray’s *Wisdom of God* (1691),¹²² William Derham’s *Physico-Theology* (1713),¹²³ and William Paley’s *Natural Theology* (1802).¹²⁴ John Ray was primarily a naturalist of puritan sympathies who severed his formal connections with the established church and academic life (3.4.2). His *Wisdom of God* was based on first-hand observation of the form and structure of

¹¹⁷ Basil Willey, *The Eighteenth-Century Background: Studies on the Idea of Nature in the Thought of the Period* (Harmondsworth: Penguin Books, 1972), 10.

¹¹⁸ *Ibid.*, 16.

¹¹⁹ *Ibid.*, 11.

¹²⁰ *Ibid.*, 32.

¹²¹ Peter Harrison, *The Bible, Protestantism and the Rise of Natural Science* (Cambridge: Cambridge University Press, 1998), 169-76.

¹²² John Ray, *The Wisdom of God Manifested in the Works of Creation* (London: Samuel Smith, 1691).

¹²³ William Derham, *Physico-Theology: or a Demonstration of the Being and Attributes of God, from His Works of Creation* (London: W. Innys, 1713).

natural objects, and of natural processes, whose physical and biological significance Ray set out to interpret. The book was essentially a celebration of divine wisdom as manifested in the meticulous observation of the natural world, and was hugely influential not only for natural theology but also for natural history for generations afterwards.¹²⁵ William Derham and William Paley were both ordained ministers of the church: drawing partly on the pioneering scientific work of Ray, they developed the genre of ‘physico-theology’ as a ‘detailed elaboration of the design argument for God’s existence’,¹²⁶ partly in an effort to combat the perceived threat from atheism. The belief that all natural things had a rational and divinely-ordained purpose encouraged the search for practical applications as well as evidence for design.¹²⁷ William Paley’s *Natural Theology* cited numerous examples from anatomy, physiology and natural philosophy to argue that ‘every part of every organism had been meticulously designed for its function’¹²⁸ and therefore, for the overwhelming probability of the existence of God, the wise, all-powerful and benevolent designer of the universe. Paley’s book stands out from the others for its sheer literary quality, its lucid prose and the skill with which he sought to engage his readers. Paley aimed his arguments at ‘a conservative, polite and economically comfortable audience’,¹²⁹ principally to counter atheistic thinking; he set out to appeal to the imagination and the emotions as well as to reason. M.D. Eddy describes Paley’s arguments as rhetoric, ‘re-envisioned within a pseudo-logical framework that was clothed with

¹²⁴ William Paley, *Natural Theology: Or, Evidence of the Existence and Attributes of the Deity Collected from the Appearance of Nature* (Oxford: J. Vincent, 1802).

¹²⁵ Charles E. Raven, *John Ray Naturalist* (Cambridge: Cambridge University Press, 1942), 432-3.

¹²⁶ Harrison, *Rise of Natural Science*, 171.

¹²⁷ *Ibid.*

¹²⁸ John Hedley Brooke, *Science and Religion Some Historical Perspectives* (Cambridge: Cambridge University Press, 1991), 192.

¹²⁹ M.D. Eddy, ‘The Rhetoric and Science of William Paley’s *Natural Theology*’, in *Literature & Theology* 18, no. 1 (March 2004): 1.

Newtonian empiricism'.¹³⁰ Thus 'feelings of goodness...were aroused by using non-sentimental descriptions of empirical data and feelings of hate [towards atheists]...by referring to illogical reasoning and unsubstantiated data'.¹³¹

Although spanning more than a century, these three works shared several features in common. They presented a similar inductive argument that rested, in Eddy's words, on 'a string of analogically based premises followed by a teleological conclusion'.¹³² The authors explicitly appealed to their readers' reason, emphasizing that the force of their evidence was overwhelming, even to the uneducated. Each author denied the mechanistic philosophy of Descartes, asserting the continuing and present involvement of God in his creation. All three writers were relatively well-informed scientifically and these books were significant sources of scientific knowledge in their own right. Brooke and Cantor also argue that 'it is important to recognize the aesthetic grounding of the design argument'.¹³³ Brooke has suggested significant 'social and mediating functions' for natural theology at this time, and in particular as a mediator between different religious traditions.¹³⁴ He argued that design arguments 'were well equipped to fulfill this...role precisely because they were doctrinally so imprecise'.¹³⁵ Thus the affirmation of design in nature was compatible with a wide range of otherwise conflicting deistic and theistic positions.¹³⁶ Roy Porter has also emphasized the wide appeal of the design argument with its very

¹³⁰ Ibid., 4.

¹³¹ Ibid.

¹³² Eddy, 'Rhetoric and Science', 7.

¹³³ Brooke and Cantor, *Nature Reconstructed*, 185.

¹³⁴ John Hedley Brooke, 'The Natural Theology of the Geologists: Some Theological Strata', in L.J. Jordanova and Roy S. Porter, *Images of the Earth: Essays in the History of the Environmental Sciences* (Chalfont St. Giles: British Society for the History of Science, 1979), 39.

¹³⁵ Ibid., 42.

¹³⁶ Ibid., 39.

positive message that the earth ‘was made for man who, guided by the laws of God and Nature, was to lead a virtuous, industrious and happy life.’¹³⁷

The following sections explore various expressions of natural theology by 18th century Quakers. A discussion of the development of Quaker natural theology in the 18th century follows in 4.6.2.

The Beauty of the Natural World

Quakers of various theological and epistemological persuasions were sensitive to the spiritual power of the natural world, in ways that were more or less independent of human reason. Friends variously described their experiences in terms of unity with the creation, the contrast between humanity and nature, and a sense of intense gratitude for what they perceived to be God’s providence to his creation. One of the leading British Quakers of the first half of the 18th century, Thomas Story (c.1670–1742),¹³⁸ expressed his feelings of unity with nature in shared praise of the divine reflected in the creation:

Come sing with me, O ye Vallies, and Flowers of the Plain, let us clap our Hands with Joy; for the King of the East hath visited us, and smiled on our Beauty; for he sees his holy Name on every Flower, and glorious Image on every lovely Plain.¹³⁹

Accounts of such experiences from Quietists tended to avoid entering into particularities of the nature of the relationship between their experience of nature and the awareness of the divine. After the onset of calm after a storm at sea, Thomas

¹³⁷ Porter, *Enlightenment*, 105.

¹³⁸ Thomas Story has been described as ‘perhaps, next to his friend William Penn, the leading Friend of his generation [Penn died in 1718]; at least he shared this rank with George Whitehead who died in 1723 at the age of 87’ (Rufus Jones, ‘Introduction’ in Emily Moore, *Thomas Story*, xix).

¹³⁹ Thomas Story ‘To the Saints in Zion, A Song of Praise’ in *A Journal of the Life of Thomas Story...* (Newcastle upon Tyne: Isaac Thompson, 1747), 18. This ‘praise poem’ was written in 1689, before Story became a Quaker, and was revived and published in 1740 (Joseph Smith, *Catalogue of Friends Books...* (London: Joseph Smith, 1867), 2: 638).

Shillitoe (1754-1836) wrote that ‘to a mind capable of meditating on the wonderful works of an Almighty Power...the great serenity that covered the wide expanse of ocean before us...cannot but occasion feelings of awful wonder and astonishment’.¹⁴⁰ It appears that, as in Story’s case, his ‘feelings’ were a spontaneous response to his experience.

Other Friends were noted for their intense appreciation of picturesque scenery and natural beauty. Richard Reynolds’ ‘enjoyment and admiration of the beauties of nature ...was extreme’, leading to ‘elevated thought and serious reflection’.¹⁴¹ Jonathon Hutchinson, despite being attracted as a young man ‘to the pursuit of abstract and metaphysical inquiries’,¹⁴² also came to enjoy nature ‘in no ordinary degree’. His spiritual insights were highly regarded by Quaker contemporaries: it was said that ‘the beauties of nature were to him clothed in almost double brightness. No man better understood the meaning of the poet’s words, “My Father made them all”’.¹⁴³ Whilst Hutchinson referred to ‘the noble faculty of human reason’,¹⁴⁴ and was well-educated,¹⁴⁵ it was the experience of natural beauty, even in ‘a shell, a stone or a seemingly insignificant plant’¹⁴⁶ that led him to see God ‘as an infinite and incomprehensible unity’.¹⁴⁷ Abraham Shackleton also combined a high regard for

¹⁴⁰ *Journal of the Life, Labours, and Travels of Thomas Shillitoe, in the Service of the Gospel of Jesus Christ* (London: Harvey and Darton, 1839), 2:147.

¹⁴¹ *Letters of Richard Reynolds: With a Memoir of His Life by His Granddaughter, Hannah Mary Rathbone...* (London: Charles Gilpin, 1852), 37-8.

¹⁴² *Extracts from the Letters of Jonathan Hutchinson, with some Brief Notices of his Life and Character* (London: Harvey and Darton, 1841), 1.

¹⁴³ Joseph John Gurney, ‘A Tribute to the Memory of Jonathan Hutchinson’, in Hutchinson, *Letters*, xxiii.

¹⁴⁴ Hutchinson, *Letters*, xv.

¹⁴⁵ Gurney, ‘Jonathan Hutchinson,’ xxii.

¹⁴⁶ Hutchinson, *Letters*, ix.

¹⁴⁷ *Ibid.*, xi.

human reason (see below), with the belief that nature could also be experienced in a way that was ‘beyond the reach of reason’s eye’.¹⁴⁸

Friends frequently framed their appreciation of the abundance, usefulness, splendour or beauty of the natural world in terms of divine providence to humanity. For Peter Collinson, the contemplation of nature characteristically induced spontaneous feelings of joy and adoration at the recognition of a natural order in the created world that manifested God’s providence to humankind. In a letter to Thomas Story of 1729, Collinson wrote that, when examining plants that he had been instrumental in introducing into English gardens from America, ‘my Soul is fill[ed] with Adoration to our Great Creator for his Goodness[,] Mercy & Blessings to Mankind’.¹⁴⁹ Geoffrey Cantor sees Collinson here ‘expressing the immediacy of religious experience as exemplified in the doctrine of the ‘inner light’’.¹⁵⁰ Collinson was sometimes more explicit in the way he recognized visual beauty in his reactions to the natural world. In a letter of 1753 he imagined a scene in North America in which the hummingbird ‘glows with Brilliant Fire’ and butterflies’ wings shine ‘with all the colours of the Bow’, together with ‘Flocks of Beautiful Birds... Lovely Flowers, stately Trees’. The beauty of a scene he never personally encountered led him to give thanks for God’s providence to humanity:

...what a Glorious scene Opens to Imploye all our senses in contemplating these Wonders which well Inflame the Head with a Pious Ardour to Adore the Beneficent Hand that made all these Things for the Entertainment, Comfort & Preservation of Mankind.¹⁵¹

¹⁴⁸ Abraham Shackleton, ‘Ode to Cambray’, in Shackleton, *The Court of Apollo, with Other Pieces of Originl Poetry; also Some Specimens of Translation, from the Minor Greek Poets* (Cork: W. West, 1815), 45.

¹⁴⁹ Collinson to Thomas Story, 4th day, 6th mo., 1729, MS vol. 337 fol. 33, Friends House Library. Brett-James states that ‘Almost the only person to whom Collinson wrote on religious matters was Thomas Storey’ [sic] (Brett-James, *Peter Collinson*, 73).

¹⁵⁰ Cantor, ‘Aesthetics in Science,’ 7.

¹⁵¹ Collinson to Henry Hollyday, January 18, 1753, in Armstrong, *Letters of Peter Collinson*, 165.

Thomas Shillitoe interpreted his experience of God's providence in nature rather differently. He, too, saw the providence of God in the creation but, unlike Collinson, his experience served to emphasize the contrast between the perfection of the natural world and the suffering of fallen humanity. Despite his lifelong 'fear of being tainted by outward things',¹⁵² Shillitoe was moved to reflect upon the outstanding natural beauty of the scene at Christiana (Oslo), and on the many birds sharing 'in the full enjoyment of those blessings their beneficent creator has bestowed upon them'. However, he 'could not suppress the painful idea that man, poor man, only fell short in this full enjoyment designed for him, by his great Creator here below...'.¹⁵³

Outward Beauty, Aesthetics and Spirituality

Geoffrey Cantor cites Collinson in support of his argument that aesthetic judgements 'provide the link' for Quakers between observational science and the deity.¹⁵⁴ Cantor also refers to the meteorologist, Luke Howard, supporting 'the classic congruence between beauty and truth':¹⁵⁵ 'Beauty, then, is in that which is great, in that which is true – in that which God, when he had formed it, pronounced good and blessed it!'.¹⁵⁶ Whilst science was one means of seeking truth in the physical world, truth was also manifested and revealed directly to humankind through the aesthetic of beauty.¹⁵⁷ However, as Judith Jennings remarks, 'eighteenth-century Quakers' attitudes toward visual culture encompassed rich complexities'.¹⁵⁸ Quaker attitudes to natural theology

¹⁵² Jones, *Later Periods of Quakerism*, 1: 72.

¹⁵³ Shillitoe, *Journal*, 1: 326.

¹⁵⁴ Cantor, 'Aesthetics in Science', 8.

¹⁵⁵ *Ibid.*, 7.

¹⁵⁶ Luke Howard, 'On beauty, in the Creation, and in the mind', *The Yorkshireman* (1835), 79-80, quoted by Cantor, 'Aesthetics in Science', 7.

¹⁵⁷ Cantor, 'Aesthetics in Science', 7.

¹⁵⁸ Judith Jennings, *Gender, Religion, and Radicalism in the Long Eighteenth Century* (Aldershot: Ashgate Publishing, 2006), 109.

based on the beauty of nature were complicated by two factors: traditional (and changing) Quaker attitudes to outward beauty in general: and differences in the ways in which individual Friends perceived and experienced links between aesthetics and spirituality.

A tradition had long existed within the Quaker community of ambivalence towards visual beauty.¹⁵⁹ Beauty contrived by human effort in art or dress was regarded as ostentation and a distraction from Christian values and pursuits. Natural beauty was to be preferred: Abraham Shackleton urged that ‘Dame Nature’s various rich attire...more than your own you should admire’.¹⁶⁰ Gardens, in particular flower and ornamental gardens, were an interesting case, comprising more or less natural objects arranged largely to satisfy human desires. In 1705, Irish Friends were warned that ‘there may be a great superfluity and too great nicety in gardens’.¹⁶¹ Friends were urged to plant their gardens ‘in a lowly mind and keep to plain-ness 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 [seeking] to please a curious mind’.¹⁶² Blanche Henrey suggested that the view that gardens should be useful and not for show continued to influence some Friends many years later (see also 3.5.2 and 4.4.2).¹⁶³ However, Geoffrey Cantor reports that he has not found any subsequent warnings of this kind;¹⁶⁴ indeed, several 18th century Quakers established well-known private gardens with notable collections of exotic plants (4.4.2). In 1824,

¹⁵⁹ John Punshon, *Portrait in Grey*, 130-2.

¹⁶⁰ Abraham Shackleton, ‘The Garden’, in Abraham Shackleton, *The Court of Apollo, with other Pieces* (Cork: W. West, 1815), 60.

¹⁶¹ William C. Braithwaite, *The Second Period of Quakerism* (London: Macmillan, 1921), 510.

¹⁶² *Ibid.* In a footnote Braithwaite adds that: ‘Upon this, Munster Friends reported that certain Friends had agreed to have their gardens altered in the season of the year’ (*ibid.*).

¹⁶³ Blanche Henrey, *British Botanical and Horticultural Literature before 1800* (London: Oxford University Press, 1975), 2: 311.

¹⁶⁴ Cantor, ‘Aesthetics in Science,’ 10. See also Keith Thomas, *Man and the Natural World: Changing Attitudes in England 1500-1800* (London: Allen Lane, 1983), 237.

Joseph John Gurney refuted the notion, expressed by ‘a noted infidel writer’, that there was ‘no Quakerism in the works of nature’.¹⁶⁵ Gurney asserted that

the great Creator...has scattered his ornaments in rich profusion over the face of nature: nor is there any thing, save redeeming mercy, more calculated to excite in the christian [sic] the feeling of humble adoration, than the harmony and beauty of created things’.¹⁶⁶

Other Friends appreciated the aesthetic appeal of flowers for example, but, unlike Collinson, there is no evidence to suggest that this led spontaneously to a spiritual experience or religious response. Quaker physician and botanist, John Fothergill, described himself as ‘burning with a love of plant life’,¹⁶⁷ but, writing to an American correspondent in 1774, he explained this in terms of sensual gratification, rather than religious experience:

I call myself a sensual botanist. Plants remarkable for their form, foliage, fragrance, elegant flowers, utility, are my objects.... Ferns...I love. They are all elegant. From such a collection more pleasure must arise than from any thing we can send except our bulbs.¹⁶⁸

For Fothergill, it was only right to remember and give thanks to the Creator of such beauty. However, his message was didactic rather than experiential, as he enjoined his fellow physician/botanist John Coakley Lettsom to ‘*be thankful* [my italics] to the Author for decorating this globe with numberless beauties’.¹⁶⁹ Similarly, Fothergill reminded the young William Bartram, following his instructions for the safe packing of plant specimens, that ‘in the midst of all this attention, *forget not* [my italics] the one thing needful. In studying nature *forget not* its author’.¹⁷⁰ Although Cantor remarks that ‘Fothergill moves directly from botany to God’,¹⁷¹ there is little here to

¹⁶⁵ Joseph John Gurney, *Observations on the Religious Peculiarities of the Society of Friends* (London, J. and A. Arch, 1824), 341.

¹⁶⁶ *Ibid.*

¹⁶⁷ Fothergill to Carolus [Carl] Linnaeus, April 4, 1774, in Corner and Booth, *Chain of Friendship*, 409.

¹⁶⁸ Fothergill to Dr. Lionel Chalmers, January 1, 1774, in Corner and Booth, *Chain of Friendship*, 382.

¹⁶⁹ Fothergill to Dr. John Coakley Lettsom, August 11, 1770, in Corner and Booth, *Chain of Friendship*, 324.

¹⁷⁰ Fothergill to William Bartram, 22 October, 1772, in Corner and Booth, *Chain of Friendship*, 393.

¹⁷¹ Cantor, ‘Aesthetics in Science,’ 6.

indicate that Fothergill saw the appreciation of natural beauty as a form of religious experience in itself. For Fothergill, one had a duty to make the intellectual link between botany and God, which should not be neglected. As a Quietist, the study of creation did not automatically lead to an appreciation of the Creator: true spiritual or religious knowledge was to be found inwardly, not through outward objects.

Thomas Wilkinson (1751-1836), the 'esteemed friend' of Wordsworth¹⁷², expressed a similar view. Remembered for 'his untaught, intuitive, aesthetic appreciation of man and nature',¹⁷³ Wilkinson suggested that 'Piety, perhaps, will not be hurt at the delineations of Nature' which were 'innocent objects in themselves, and...the productions of a Divine hand'.¹⁷⁴ He counseled believers to reflect that the 'great designs [of nature] were conceived in Heaven', since it was 'unbecoming a highly gifted being like man to look with an eye of indifference on the wonderful works of creation, their variety, and their beauty'.¹⁷⁵

Human Reason

The significance of reason was a controversial subject for Friends, but several expressions of support for natural theology based on the capacities of human reason date from around 1815. Citing Newton's discoveries in astronomy, William Phillips declared that the fact that 'man should have been able to penetrate thus far into the works of Omnipotence', was sufficient evidence to 'make him understand that comprehensive gifts of intellect have been bestowed upon him'.¹⁷⁶ Abraham Shackleton also celebrated the potential of human reason and its divine significance,

¹⁷² Mary Carr, *Thomas Wilkinson: A Friend of Wordsworth* (London: Headley Brothers, 1905), 65-79.

¹⁷³ Doris N. Dalglish, *People Called Quakers* (London: Oxford University Press, 1938), 119.

¹⁷⁴ *Ibid.*

¹⁷⁵ Thomas Wilkinson, *Tour to the British Mountains...* (London: Taylor and Hessey, 1824), vi.

contrasting human beings with the brute creation.¹⁷⁷ It was human reason that would lead human beings closer to the divine:

When God the double gift devis'd
The food and physic of the grove,
He will'd that man be exercis'd
To understand, admire and love.

That while the brute no higher joy
Than sated senses understood,
His nobler reason man employ
To look thro' nature up to God.¹⁷⁸

In 'the half-angelic man',¹⁷⁹ Shackleton saw the union of 'thinking spirit' with 'dull gross matter', and the earth 'at last in heaven ...lost...in one blest union'¹⁸⁰. William Allen saw human reason as the strongest form of evidence from the created world for the work of the divine hand. Whilst all 'the objects of nature' bore 'the stamp and impression of deity' such evidence was surpassed by:

that stupendous exertion of Omnipotence, the creation of *mind*, of beings capable of knowing, loving, and adoring their Creator, and who, having passed through the various stages of this probationary state, may enjoy the smiles of his countenance for ever.¹⁸¹

However, Friends were not agreed about the significance and status of human reason. Shillitoe was more impressed with the degraded moral state of humanity than with the powers of reason. Thomas Hancock argued that examples of both instinctive and reasoned behaviour could be recognized in the actions of humans and animals, and contrasted the 'consummate wisdom' behind animal instinct with the 'variable and uncertain operations of human Reason'.¹⁸² Priscilla Wakefield argued that there

¹⁷⁶ William Phillips, *Eight Familiar Lectures on Astronomy*, 2nd ed. (London: William Phillips, 1820), 33.

¹⁷⁷ Abraham Shackleton, 'Creation', in Shackleton, *Court of Apollo*, 3-4.

¹⁷⁸ Abraham Shackleton, 'The Garden', in Shackleton, *Court of Apollo*, 64.

¹⁷⁹ Shackleton, 'Creation', 4.

¹⁸⁰ *Ibid.*, 3-4.

¹⁸¹ William Allen, *Life*, 1: 249

¹⁸² Hancock, *Essay on Instinct*, 8.

was no clear boundary between a rational action and an instinctive response,¹⁸³ and that ‘innumerable gradations of intelligence’, as of other attributes, could be found in the animal world,¹⁸⁴ although she agreed that human reason made possible ‘the capacity of knowing and acknowledging our Creator’.¹⁸⁵ Such a view tended to undermine the belief in a fundamental discontinuity between human beings and other animals, and this passage with its evolutionary implications has been described as a ‘key text in the history of western philosophy’.¹⁸⁶

Order in the Natural World

There were attributes of the creation that Friends believed could only be explained in terms of a divine Creator. These included the complex and highly-organized modes of operation of natural processes and the relationships between living creatures, and the high degree to which the great diversity of living creatures appeared to be adapted to their place in creation. The examples given here also indicate that natural theology based on the scientific understanding of the natural world was shared by Quakers holding different views of the role and value of human reason.

Quakers in the 17th century had recognized order and harmony in God’s creation, but described this in theological terms, supported by scriptural rather than scientific evidence. Observational and experimental science was now confirming that unity and order were key characteristics of God’s creation. The natural world operated according to laws imposed upon it by a benevolent and all-wise God.

¹⁸³ Goldin and Kilroe, *Human Life and the Natural World*, 173-4.

¹⁸⁴ Priscilla Wakefield, *Instinct Displayed in a Collection of Well-Authenticated Facts, Exemplifying the Extraordinary Sagacity of Various Species of the Animal Creation*, 4th ed. (London: Harvey & Darton, 1821), preface.

¹⁸⁵ Ibid.

¹⁸⁶ Goldin and Kilroe, *Human Life and the Natural World*, ix.

Writing to Linnaeus in 1767, Peter Collinson delighted in the arrival of spring and the succession of spring flowers:

I am Here Retired to a Delightfull little Villa to Contemplate & admire with my Dear Linnaeus the Unalterable Laws of Vegetation. How Ravishing to See the Swelling Buds Disclose the Tender Leaves.

....

How Delightfull to see the Order of Nature, O How obedient the vegetable Tribes are to their Great Law Giver. He has given this Race of Flowers a Constitution & Fibres to resist the Cold. They Bloom in Frost & Snow like the Good Men of Sweden.

These flowers have Some Time made their Exit, & now, March 7th, a Tenderer Tribe Succeeds. Such my Dear Friend is the Order of Nature.¹⁸⁷

The appeal that Collinson described would seem to be two-fold: the orderly sequence of spring flowers was aesthetically appealing to him, and his understanding of their particular adaptations provided intellectual satisfaction. For Collinson, these responses combined to reflect the fitness of creation in terms of particular species, and as a whole, and directed his thoughts to its all-wise Creator. Belief in the divinely ordained adaptation of the creatures to their station in life underpinned one of Collinson's arguments against the popular idea that swallows hibernated under water¹⁸⁸ (4.4.2). If this was so, Collinson argued, 'the great wisdom of the Almighty Creator would, undoubtedly, be seen in some particular contrivance' to be found in the bird's anatomy. Cantor sees Collinson's account of this¹⁸⁹ illustrating 'his extension of natural theology into a more rationalistic mode for public consumption'.¹⁹⁰

Interestingly, William Allen described the way in which science revealed the organization of creation, and the laws that God had established for its operation, as

¹⁸⁷ Collinson to Linnaeus, March 16, 1767, in Armstrong, *Letters of Peter Collinson*, 271-2.

¹⁸⁸ Peter Collinson, 'A letter to the Honourable J.Th. Klein, concerning the migration of swallows', *Philosophical Transactions* 51 (1759): 459-64.

¹⁸⁹ *Ibid.*, 460.

¹⁹⁰ Cantor, 'Quakers in the Royal Society', 189.

‘divine revelation’.¹⁹¹ Allen was a partner in Robert Owen’s initiative to establish a model settlement at New Lanark in Scotland, but enjoyed a difficult relationship with its humanist founder, Robert Owen. In an attempt to discover ‘whether any attempt is making there to weaken the faith of the people in divine revelation’ Allen visited New Lanark in 1818.¹⁹² In an address to several hundred people, including Owen, Allen used natural theology to make common cause with his fellow Christian partners in the venture, and implicitly to counter the views of Owen.¹⁹³ Allen described how:

Some of us have...have been permitted to obtain a glimpse of those simple yet sublime and beautiful laws by which the universe is governed, and by which that harmony and order, so essential to the preservation of the whole, are invariably maintained. The smallest insect which the microscope can discover, so beautifully organized in all its parts, so complete for the purpose for which it was created, proclaims Omnipotence as loudly as those vast bodies which revolve around the sun at different distances, and with different degrees of velocity.¹⁹⁴

Although he did not share Allen’s enthusiasm for empiricism and human reason, Thomas Hancock agreed with this conclusion. Quoting the philosopher, John Locke, Hancock argued that ‘the consideration of nature and the order of things visible in the world...like a great book’, provided a much more convincing argument for the existence of God than ‘more refined reasonings and the subtleties of metaphysics’.¹⁹⁵ ‘We seem justified’ he wrote:

in ascribing the phenomena of the vegetable kingdom, so perfect, so diversified, so adapted to their ends, - the continuance of the several species, the delight and support of animated nature, and the beauty and harmony of the creation – to a vivifying principle, whose internal working is inexplicable, and can only be referred to an all-wise efficient Power.¹⁹⁶

¹⁹¹ Allen, *Life*, 1: 350.

¹⁹² *Ibid.*

¹⁹³ Allen stated that it was generally accepted that Robert Owen was ‘the determined enemy of all revealed religion’ (*ibid.*, 244). However, Allen’s use of natural theology seems to have generally suited his audience. He claimed that even Owen ‘did not make the least objection to what I said’ (*ibid.*, 350), although Allen later severed his formal connections with New Lanark.

¹⁹⁴ *Ibid.*, 350.

¹⁹⁵ Thomas Hancock, ed., *Discourses: translated from Nicole’s Essays, by John Locke, with Important Variations from the Original French* (London: Harvey & Darton, 1828), 2. Hancock did not share Locke’s view of the capacity of human reason.

¹⁹⁶ Hancock, *Essay on Instinct*, 164-5.

In her popular *Introduction to Botany*,¹⁹⁷ Priscilla Wakefield stated that her purpose was to educate young people by ‘introducing suitable ideas of the attributes of the Divine Being through the study of botany.’¹⁹⁸ She argued that the natural world was ‘well calculated to engage the attention of the youthful mind, and forms, with a proper guide, the first lesson in natural religion; imprinting, in indelible characters, the existence of a Supreme First Cause.’¹⁹⁹ As the ‘traces of infinite Wisdom and intelligence’ could be seen ‘in the structure of every leaf and blossom’,²⁰⁰ Wakefield emphasized disciplined and detailed systematic observation of animal and plant structures rather than a purely subjective aesthetic reaction to them.

These examples show Quaker support for natural theology based on various combinations of rational and experiential responses to the natural world, including the experience of the scientific exploration of nature. By the end of the 18th century, well-respected Quakers were enthusiastic supporters of natural theology as it was generally understood at the time. In a lecture to the Royal Institution in 1804, William Allen concluded that:

in all the great powers of nature, we observe such marks of contrivance, such adaptation of cause to effect, and the whole executed by means so sublimely simple, that we cannot avoid concluding with Archdeacon Paley, such designs must have had a designer, and that designer must be God.²⁰¹

This view may have widespread by the end of the period. John Bevans, in his *Brief View* of Quaker doctrine, stated that there were two kinds of proof of God’s existence:

¹⁹⁷ Priscilla Wakefield, *An Introduction to Botany, in a Series of Familiar Letters, with Illustrative Engravings*, 10th ed. (London: Harvey and Darton, 1831).

¹⁹⁸ *Ibid.*, iii.

¹⁹⁹ Priscilla Wakefield, *An Introduction to Entomology, or the Classification of Insects in a Series of Familiar Letters with Illustrative Engravings* (London: Darton, Harvey & Darton, 1815), iv.

²⁰⁰ Wakefield, *Introduction to Botany*, 42-3.

²⁰¹ William Allen, *Life*, 1: 72-3.

‘the works of creation and the revelation of God to man through his Holy Spirit’.²⁰²

Since the creation offered ‘innumerable’ examples of ‘design that far exceed the ability of man, we reasonably attribute them to a superior power’.²⁰³

Nature as a Model for Humanity

Some Friends continued to regard nature as an exemplar of God’s will for humanity, as 17th century Friends had done (2.3.3 & 3.3.1). John Rutty allowed for natural theology in this sense when, on an occasion during worship in 1755, he ‘was favoured with a precious illumination, viz. That the outward creation is but an image of the inward’.²⁰⁴ Thus, ‘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, for the conservation of their species’.²⁰⁵

John Thorp used of the idea of the vast and harmonious diversity within nature to illustrate the diversity of possible contributions to Christian ministry that Friends could make. Although some were given greater spiritual gifts than others, all made a valuable contribution to the whole:

It should ever be remembered... that ‘there are diversities of gifts, but the same Spirit; and differences of administrations, but the same Lord;’ and that this diversity is...almost infinitely great.... There is a vast variety in the flowers of the field; how abundantly does the carnation or the rose excel the daisy; and yet every one of these possesses a distinct beauty, and unites in the general incense, or the display of their Creator’s power.... Let not then the smallest gifts ever be despised, or their cultivation and improvement neglected.²⁰⁶

²⁰² John Bevans, *A Brief View of the Doctrines of the Christian Religion as Professed by the Society of Friends, in the Form of Question and Answer, for the Instruction of Youth* (London: William Phillips, 1810), 3.

²⁰³ Ibid.

²⁰⁴ John Rutty, *A Spiritual Diary and Soliloquies*, 2nd ed’n, (London: James Phillips, 1776), 75.

²⁰⁵ Ibid., 380.

²⁰⁶ John Thorp to Richard Shackleton, 3rd Mo. 18, 1791, in *Letters of the Late John Thorp, of Manchester, a Minister of the Gospel in the Society of Friends; to which is prefixed a Memoir of the Life of the Writer* (Liverpool: James and Jonathan Smith, 1820), 89-90.

The commonplace productions of wild nature could provide other spiritual insights. Caroline Fry likened common wild flowers, whose qualities were neglected but available to all, to the abundant love of Christ:

And as yonder fair flower, unvalued, unclam'd,
Thus freely in paths unforbidden has grown,
So free is thy mercy, so priceless thy love,
Whoever will take thee, may call thee his own.²⁰⁷

Nature as the Primary Source of Revelation

Although the natural world seems to have been acceptable as a subsidiary or complementary source of revelation, for most 18th century Quakers it was not a substitute for the immediate revelation of the living Christ. However, for a few Friends, natural theology appears to have been the primary source of knowledge of the divine. Brett-James suggested that Peter Collinson's religious views 'must have coincided with' those of his friend in Philadelphia, John Bartram.²⁰⁸ For Bartram, nature seems to have been the principal, if not the exclusive, source of what he recognized as divine revelation; he is said to have declared: 'It is through the telescope I see God in his glory'.²⁰⁹ The couplet from Alexander Pope over the greenhouse in Bartram's garden confirmed his theology:

Slave to no sect, who takes no private road
But looks through nature up to Nature's God.²¹⁰

Pope's words seem also to have been cherished by both Abraham Shackleton (see above) and Elizabeth Gurney (later Fry) (1780-1845), although she was led primarily into areas of social reform rather than natural history or science (see below).

²⁰⁷ Caroline Fry, 'The Wild Flower', in *Serious Poetry*, 2nd ed., (London: Ogle, Duncan, 1823), 46-7.

²⁰⁸ Brett-James, *Peter Collinson*, 68.

²⁰⁹ Ernest Earnest, *John and William Bartram, Botanists and Explorers* (Philadelphia: 1940), 64.

²¹⁰ Brett-James, *Peter Collinson*, 68; from Alexander Pope, *An Essay on Man*, Epistle iv.

Nevertheless, the way she described (aged 17) the dominant role of nature in her religious experience, resembled Bartram's position:

I like to think of everything, to look at mankind; I love to "look through Nature up to Nature's God". I have no more religion than that, and in the little I have I am not in the least devotional, but when I admire the beauties of nature, I cannot help thinking of the source from whence such beauties flow.

Reservations about Natural Theology

Reservations about the validity or importance of theology based on human reason appear to have persisted throughout the period. Despite his keen interest in both the spiritual qualities and the scientific exploration of nature, Thomas Story stated that in his public ministry he was 'frequently concerned to distinguish between a Natural and Spiritual State'.²¹¹ He described the 'natural' state as follows:

In the former, Man has the Use of his Reason and Understanding in Natural Things, receiving all his Ideas thereof from without by his Senses within him, and making a Judgement according to the Degree of the Ability of his natural Faculties, deducing Consequences from Premises...by which he may rationally conclude, the Existence of the Almighty, from his Work of the Creation, cognizable, in some measure, by the Senses; but cannot form any proper Idea of the Enjoyment of God, from the Works of Creation, in that State of Mind wherein a Man is divested of his present Corporeity.²¹²

Much later on, other Quakers remained sceptical about the claims of natural theology. Eighteenth century Quietists followed their predecessors in emphasizing the superiority of immediate revelation over religion revealed either by Scripture or by nature. Friends described feelings of awe or reverence when experiencing the natural world, but appear to have been reluctant to see such experiences as a way to true communion with the divine. Joseph Gurney Bevan probably spoke for many

²¹¹ Story, *Journal*, 685.

²¹² Story, *Journal*, 686.

Quietists when he wrote that ‘A mind that does not stop at the Creation, without being led by it to the Creator, often finds cause of reverence in his works’.²¹³

4.3.2 God-centred Perspectives

Thomas Clarkson and, more recently, Kathryn Damiano, identified the re-enchantment of the creation as one of the effects of the personal spiritual transformation that lay at the heart of Quietism. According to Clarkson, the true nature, meaning and harmony of man and the creation would be revealed to those ‘restored to the divine image’, just as George Fox had experienced. He stated that ‘the Society [of Friends] believe’ that, like the fallen Adam, ‘every apostate or wicked man...sees through a vitiated medium’, seeing ‘nothing of the harmony of the creation’.²¹⁴ Clarkson characterized the spiritual origins of the contemporary Quaker approach to the created world in terms that seem closely related to Fox’s account of his revelation a century and a half earlier, although he departed from Fox in his reference to the concept of degrees of enlightenment. He also saw the spiritual experience of the restored believer as the origin for Quakers’ benevolence towards domestic animals (see 4.5.2):

But in proportion as he is restored to the divine image, or becomes as Adam was before he fell, or in proportion as he exchanges earthly for spiritual views, he sees all things through a clearer medium. It is then, the Quakers believe, that the creation is opened to him, and that he finds the Creator has made nothing in vain. It is then that he knows the natures of things, that he estimates their uses and their ends, and that he will never stretch these beyond their proper bounds.²¹⁵

²¹³ *Extracts from the Letters and other Writings of the late Joseph Gurney Bevan...* (London: William Phillips, 1821), 94.

²¹⁴ Clarkson, *Portraiture*, 1: 146-7.

²¹⁵ *Ibid.*, 147.

Whilst Fox was particularly drawn to that part of the creation that possessed healing powers, Clarkson went on to focus his attention on Quaker attitudes to animals

(4.5.3):

Beholding animals in this sublime light, he will appreciate their strengths, their capacities, and their feelings; and he will never use them but for the purposes intended by Providence. It is then that the creation will delight him.²¹⁶

Following the inward guidance of Christ in their lives, Kathryn Damiano sees 18th century Quakers led to experience ‘a sense of connectedness with all of creation’ and human beings becoming ‘whole only as others become whole’.²¹⁷ This section presents some contemporary evidence for aspects of this process at work, and in relation to the role of the inward light in natural theology.

Spiritual Experience and the Creation

There is some evidence from the period to support these claims, where Friends left personal testimony to the primary importance of spiritual awakening, rather than human reason, in bringing about new perception and understanding of the created world. Elizabeth Webb, ‘an acknowledged minister among the people called Quakers’,²¹⁸ described her difficult spiritual awakening as a teenager and how ultimately she was brought to the knowledge of God. In a letter probably written around 1712, she recalled:

...after I had made public confession to the goodness of God [at about the age of 19], my soul was as if it had been in another world, it was so enlightened and enlivened by the divine love, that I was in love with the whole creation of God, and I saw everything to be good in its place; and I was shewed things ought to be kept in their proper places, the swine ought not to come into the

²¹⁶ Ibid.

²¹⁷ Ibid., 120. Thus, the American Quaker, John Woolman’s call for justice for oppressed people ‘was not one of rights but a sense of connectedness with all creation’ (ibid., 204).

²¹⁸ Elizabeth Webb, *A Letter from Elizabeth Webb to Anthony William Boehm; containing some account of her Religious experiences, with his Answer* (Philadelphia, 1781), iv.

garden, nor the clean beasts ought not to be taken into the bed-chamber. And as it was in the outward, so it ought to be in the inward and new creation; so every thing began to preach to me, the very fragrant herbs, and beautiful innocent flowers had a speaking voice in them to my soul, and things seemed to have another relish with them than before...²¹⁹

Here Webb described an experience that recapitulated those of some of the early Quakers in terms of the accord and the unity it reflects between inward and outward realities, in contrast to the position later adopted by Barclay (3.2.3). Even some of the phrases and imagery are reminiscent of those of the first Quakers. The ‘new creation’ was Nayler’s phrase (2.2.3), and Webb used it in a similar sense. Whilst Fox declared that ‘all the creation gave another smell unto me’ (2.3.2), Webb wrote that ‘things seemed to have another relish with them than before’. She was more explicit than either Fox or Nayler in attempting to describe her experience of the herbs and flowers communicating God’s message to her.

Although Thomas Story was keenly interested in matters of the outward creation and showed independence of mind in his understanding of it (4.4.3), he, too, attributed his understanding of creation to divine grace rather than scientific study. He related how, as a young man, he came to desire ‘to know nothing but the Lord’ who ‘was pleased to open my understanding, by degrees, into all the needful mysteries of his kingdom’.²²⁰ Story believed that it was God who ‘taught, instructed and inform’d my mind’, being opened to ‘the Animals, Reptiles, and Vegetables of the Earth and Sea’, their Ranks and Subserviencies to one another, and all of them to the Children of Men’.²²¹ In the same way, he was made aware how the ‘Sun, Moon and Stars...and that boundless Space which they move and roll in ... [were] all govern’d by the steady Laws, which the Almighty Word and Fiat that gave them

²¹⁹ Ibid., 31.

²²⁰ John Kendall, ed. *The Life of Thomas Story, carefully abridged: in which the Principal Occurrences and the most interesting remarks and observations are retained* (London: James Phillips, 1786), 18.

²²¹ Story, *Journal*, 15.

Being...placed them under'.²²² In a letter to James Logan (4.4.2), Story explained that this understanding was primarily a result of the inward work of God, rather than of systematic study and human reason (4.4.5):

I am no enemy of learning though I have but little of it; that field affording great variety for contemplation, and much delight to the mind therein. But, as I have read chiefly in those small glimpses of the Divine Being, I have been mercifully favoured with, in the face of the Son of God, and His attributes, divine, moral, and personal, He hath not left me quite ignorant of the knowledge of His works, which are indeed stupendous and amazing, even the least of them, rightly viewed.²²³

Later in the century, Catherine Phillips (1726-1794), who travelled widely as a Quaker minister, expressed doubts about the value of 'human knowledge and acquirement' particularly in young people in whom it can take the place of humility.²²⁴ She, too, admitted that she had 'read very little on natural philosophy' herself, but drew attention to her own experience of the primacy of divine revelation over purely human understanding as a means of truly comprehending the nature of the outward creation as a whole:

I have admired how by one gleam of heavenly light the understanding is opened into natural things; so as in degree to behold, as at one view, the general oeconomy of the divine Former of all things, as it is displayed in the outward creation.²²⁵

Howard Brinton records that Catherine Phillips 'had such an insight into the nature of medicinal herbs that she was "tempted to practice physick"'.²²⁶ Like Fox, however, she was led on to higher things: 'however lawful it may be...to look into the works of

²²² Ibid.

²²³ Emily Moore, *Travelling with Thomas Story*, 105 (no further reference given). William Alexander added that Story did not despise human learning, 'for, as subservient to Truth, it may be and is really useful' (William Alexander, *The Life of Thomas Story, abridged by John Kendall, revised and considerably enlarged from the folio edition written by himself* (York: William Alexander & Co., 1831), 57).

²²⁴ *Memoirs of the Life of Catherine Phillips: to which are added some of her Epistles* (London: James Phillips and Son, 1797), 9.

²²⁵ Ibid., 9-10.

²²⁶ Howard H. Brinton, *Ethical Mysticism in the Society of Friends* Pendle Hill Pamphlet no. 156 (Lebanon, PA: Pendle Hill, 1967), 13.

nature...my attention was now powerfully attracted to higher subjects....'.²²⁷ In a letter to her mother in 1753, she summarized the basis of the relationship she believed ought to prevail between God, humanity and the rest of creation (see also pp.xxx):

In short, religion places man in the sphere the wise Author of nature designed him; directing his affections to ascend towards the Creator, and to descend towards the creation. If the ascent be but sufficient, the descent will be just.... Therefore, let not the faculties of his adopted children be so improperly occupied in exploring them as to prevent their advances in their various stations in his militant church...²²⁸

Thus Phillips urged that human efforts should focus on knowing God, rather than the creation, and the knowledge of creation and how to use it in accordance with its Creator's intentions would follow as a consequence. She gave no indication that she believed that the converse was true.

The Role of the Inward Light

Some examples have been found of support for natural theology where reference was more or less explicitly made to the divine inward light, or to the conjunction of the human senses with divinely inspired inward revelation. The poet, Bernard Barton, explored how the natural world might lead the observer to God. He believed that it was part of God's ongoing creation (see 4.2.2) that human beings should make the connection between the 'heart's better feelings' and 'nature's fair face'.²²⁹ Barton suggested that human responses resulting from intimate contact with the transient world of nature, when 'combined with those inward and holy revealings' of a more immediate kind,

May still be immortal, and destin'd to lead us,
Hereafter, to that which shall not pass away...²³⁰

²²⁷ Phillips, *Memoirs*, 8.

²²⁸ *Ibid.*, 9-10.

²²⁹ Barton, *Poems*, 18.

²³⁰ *Ibid.*

Thus, nature could assist humanity in its journey towards the spiritual, immortal realm in which all things were united in God (see 4.2.1). Abraham Shackleton, also through the medium of poetry, may have been making a similar point when he described the process of natural theology as ‘*heavenly taught* [my italics], enraptur’d look...[on] truths divine in Nature’s book.’²³¹ John Rutty’s views of the place of human reason, and of the scope of natural theology, were markedly different to those of Shackleton. Nevertheless, Rutty provides a further example of the continuing role of the inward light in ‘natural’ theology, when he attributed his understanding that the outward creation was ‘but an image of the inward’, not to the study of the natural world, but to immediate revelation (4.3.1).

4.3.3 Quaker Natural Theology (see also 5.1.6)

Geoffrey Cantor has argued that Quakers in this period ‘developed a distinctive version of the design argument that emphasized the observer’s experience of the natural world...rather than the power of reason’²³², often involving aesthetic responses.²³³ Material presented in 4.3.1 and 4.3.2 generally supports this proposition. Theology based on the experience of beauty and order in the natural world was the most consistent and probably most typical kind of expression of natural theology throughout the period, and was supported by Quakers of different theological persuasions. Arguments from the design of the created world, as promoted by Paley, had strong advocates amongst Quakers, although the appreciation of intellectual order by Friends tended to be part of their experience of beauty in the created world. In this respect Quakers were not unusual; indeed, as Brooke and

²³¹ Shackleton, *Court of Apollo*, 45.

Cantor stress, the proponents of the argument from design deliberately set out to appeal to experience as well as reason.²³⁴ Whilst a few Friends argued for a divine creator on the basis of the unique qualities and capacities of human reason, most Quakers appear to have taken a more cautious or negative view of reason.

Cantor also suggests that Quaker natural theology was based on the operation of the divine inward light,²³⁵ and cites as evidence Collinson's reactions upon receiving exotic plants from America, in terms of his sense of the reality of God's providence.²³⁶ During the present study, however, no instance has been found of Collinson making any explicit reference to the inward light: the same is true of Fothergill, and also of some of the strongest Quaker supporters of natural theology, such as Allen and Wakefield (4.3.1). Indeed, examples of Quaker support for natural theology generally lack any reference to the inward light, or any other expression of the need for a supernatural agency in moving from the natural world to God. Except for the evidence in poetry by Barton and Shackleton, and possibly evidence from Rutty (4.3.2), no further examples have been found. There could be several reasons for this absence. The belief in the role of the inward light may have been taken for granted as part of the Quaker tradition, or it may be that it was not considered an appropriate subject for letters to scientific friends or correspondents. However, the possibility remains that many Friends did not perceive their experience to be mediated in this way. For Allen or Wakefield, natural theology appears to have been the product of a conjunction of the human senses, human reason and the natural world. It might be expected that Quietist Friends, with their emphasis on the submission of human thought and action to divine guidance, would have left evidence to support

²³² Cantor, 'Real Disabilities?', 156.

²³³ Cantor, *Quakers, Jews, and Science*, 235-6

²³⁴ Brooke and Cantor, *Reconstructing Nature*, 185.

²³⁵ Cantor, *Quakers, Jews, and Science*, 233-42.

Cantor's argument; however, except for Ruttly's experience in 1755 (4.3.2), there appears to have been little enthusiasm from Quietists for natural theology. Whilst Ruttly's inner conflict between the attractions of natural history and the duties of religion may have been an extreme case (4.4.5), Fothergill and Shillitoe also appear to have perceived scientific exploration and spiritual religion as largely separate domains of which the latter took precedence. Thomas Shillitoe did not elaborate on whether he believed it to be natural reason or the inward light that influenced the capability of the mind to appreciate the natural world as the work of God. Whilst Shillitoe was ambiguous, many expressions of support for natural theology (4.6.2), particularly from the late 18th century onwards, appear to be based on the human senses and human reason.

4.4 EPISTEMOLOGY OF THE CREATION

This section aims not to provide a summary of Quaker contributions to science, but to illustrate some of the different ways in which Quakers approached issues related to the quest for scientific truths. It explores Quaker support for science, followed by an evaluation of the kinds of activities that attracted Quakers, including scientific exploration and recording, experimentation and inductive reasoning. Varying responses to the problems raised by the infant science of geology are discussed. It considers Friends' role in the propagation of scientific knowledge and methods in terms of writing for a popular audience, and networking within the scientific community. The section concludes with views on the limits to scientific knowledge and the relative importance of spiritual and scientific knowledge.

²³⁶ Ibid., 235-6.

4.4.1 The Case for Science

18th century Quakers were attracted to science for reasons of religious belief and the advancement of human welfare, as well as intellectual curiosity. John Punshon observed that whilst the role of the intellect in elucidating spiritual (or physical) truths was a subject upon which 18th century Quakers did not agree, some Friends were clearly affected by various aspects of ‘Enlightenment’ thinking, if not by the deistic ideas that preceded it.²³⁷

Science Justified by Theology

Friends supported science on the grounds that the practical application of scientific knowledge was of material benefit to humanity, including the sick and the poor (see also 4.5.1). The ironmaster, Richard Reynolds, wrote of his ‘favourable opinion...of the advantages of science, whether considered as conducing to the good of the community, or the enjoyments of the individual’.²³⁸ Abraham Shackleton took this argument further, asserting that science was ‘power’, and could ‘control the fates’,²³⁹ thereby leading to the restoration of humanity’s true destiny of dominion over the creation.

Science was also justified in terms of natural theology, since the knowledge of the creation gained by scientific methods was a key element in the quest for understanding of the divine. Geoffrey Cantor observes that, for Luke Howard, ‘the study of meteorology enabled him to appreciate in detail how God had designed the

²³⁷ Punshon, *Portrait in Grey*, 159-62.

²³⁸ Reynolds, *Memoir*, 93.

²³⁹ Shackleton, ‘The Garden’, in *Court of Apollo*, 64.

physical world'.²⁴⁰ Other Friends were motivated to explore distant lands to discover and examine God's creatures in their natural setting. The artist and naturalist Sydney Parkinson relates how he and others were led:

to quit our native land, to investigate the heavenly bodies minutely in distant regions, as well as to trace the signatures of the Supreme Power and Intelligence throughout several species of animals, and different genera of plants in the vegetable system...²⁴¹

Peter Collinson, however, appears to have been unusual in his explicit justification of science as a form of religious response or worship. Collinson saw the scientific study of his collections of plants, animals and geological specimens from America as an act of thanksgiving for God's providence to humanity, as he explained to an American friend in 1742:

the uses I make of them is to admire them for the sake of the Great & all Wise Creator of them to Enlarge my Ideas of his Almighty power & Goodness to Mankind. In Makeing So many things for his profit & his pleasure I reason on their Natures & properties. So far as I am or Can be Informed I compare them to ours. In short I Esteeme the regard I pay to them as a piece of adoration Due to the Great Author of them.²⁴²

Scientific Knowledge as Truth

Despite continuing Quietist reservations about intellectual curiosity (4.4.5), the pursuit of scientific truths - knowledge about the natural world based upon direct observation, experiment and rational thinking - was increasingly seen by Friends as an acceptable occupation. Many intellectual Friends, along with like-minded non-Quakers, were eager to establish rationally verifiable facts about the created world, and to elucidate some of the mysteries of nature that had perplexed people for generations. The young Quaker Sydney Parkinson was hired as artist on James

²⁴⁰ Cantor, 'Aesthetics in Science', 6.

²⁴¹ Sydney Parkinson, *Journal*, 4/11

²⁴² Collinson to Cadwallader Colden, March 7, 1742, in Armstrong, *Letters of Peter Collinson*, 96.

Cook's expedition to the Southern Hemisphere in 1768. Parkinson's brother referred to Sydney's 'sincere regard for truth, his ardent thirst after knowledge', and 'his indefatigable industry to obtain it'.²⁴³ Like Thomas Lawson, Parkinson provided scriptural precedent for his 'curiosity', describing it as 'perhaps, equal to Solomon's', adding, more modestly, that it was 'accompanied with less wisdom than was possessed by the Royal Philosopher'.²⁴⁴ The scientific way was 'pure', uncorrupted by human weakness or narrow-minded tradition. The virtues of science, and of botany in particular, were celebrated in early 19th century Quaker poetry. Sarah Hoare, whose poem, 'The Pleasures of Botanical Pursuits', appeared in some of the later editions of Priscilla Wakefield's *Introduction to Botany*, described science as 'pure wisdom's beam' whose 'charms have ne'er deceived, but are 'safely trusted and believ'd'.²⁴⁵ William and Mary Howitt's 'Ode to Botany' was eloquent on the virtues of that 'Happy Science' that opened up the glories of creation, dispelled the false learning of old, and was an effective antidote to human pain and despair.²⁴⁶

For many Friends who extolled the value of scientific truths, the natural world held aesthetic as well as intellectual appeal, both of which were part of a greater unity (4.3.1). Sydney Parkinson, for example, was at once sensitive both to visual beauty and to scientific curiosity when he wrote on arriving at Rio de Janeiro that

...my eyes were feasted with the pleasing prospects that opened to my view on every hand. I soon discovered a hedge in which were many very curious plants in bloom, and all of them quite new to me....²⁴⁷

Scientific facts were prized: in general, speculative ideas were not. In 1762, Peter Collinson gently chided John Bartram for his 'Hypothetical Systems on the

²⁴³ Stanfield Parkinson, 'Preface' to Sydney Parkinson, *Journal*, vi.

²⁴⁴ Sydney Parkinson, *Journal*, 11.

²⁴⁵ Sarah Hoare, 'The Pleasures of Botanical Pursuits', in Wakefield, *Introduction to Botany*, (8th and 9th editions).

²⁴⁶ William and Mary Howitt, *The Desolation of Eyam* (London: Wightman and Cramp, 1827), 256-63.

²⁴⁷ Sydney Parkinson, *Journal*, 4.

Phenomena in Nature’, which he dismissed as ‘all Conjecture’.²⁴⁸ Collinson insisted that what he wished to see was ‘thy Diary which Consists of facts that cannot fail to give Sensible pleasure by Instilling some knowledge into the Mind & Inlargeing my Ideas of the Inconceivable power & Wisdom of the Great Creator.’²⁴⁹ Thomas Hancock repeated this advice some 60 years later, urging those engaged in scientific enquiry to stick to ‘the plain and simple path of observation’:

...it must be considered highly incumbent upon all, who prosecute physical or moral inquiries, to direct them in the plain and simple path of observation, which may lead to profitable results; and equally incumbent to avoid the giddy heights of speculation, where the mind is too much disposed to look down upon the laborious inquirer, and to indulge in vain conceits of superior intelligence.²⁵⁰

4.4.2 Favoured Scientific Activities

Throughout this period, Quakers showed a marked tendency to concentrate on particular kinds of scientific activity that were seen as congenial to Quaker theology and views of the world, and could also be pursued outside the confines of the English universities.²⁵¹ Geoffrey Cantor has demonstrated that 18th and 19th century Quakers were attracted mainly to the observational sciences (as opposed to mathematics or physics), especially botany and meteorology, and to natural history generally.²⁵² Quaker contributions to natural history and meteorology, gardens and collections, botanical art, evidence-based arguments and experiments, and the peculiar case of John Dalton are discussed below.

²⁴⁸ Collinson to John Bartram, April 1, 1762, in Armstrong, *Letters of Peter Collinson*, 234.

²⁴⁹ Ibid.

²⁵⁰ Hancock, *Essay on Instinct*, 4-5.

²⁵¹ Quakers were denied access to Oxford and Cambridge Universities until 1871 (Jones, *Later Periods of Quakerism*, 702).

²⁵² Cantor, *Quakers, Jews, and Science*, 237.

Natural History and Meteorology

Natural history, as an attempt to bring order to the overwhelming variation found in nature by the rational and systematic study of natural objects and systems, originated in the 18th century.²⁵³ As early as 1747, it was claimed that works on natural history ‘sell the best of any books in England’,²⁵⁴ and by the 1760s, it had become a fashionable thing to do.²⁵⁵ It was an active, out-of-doors pursuit involving detailed, first-hand observation of the character and operation of the natural world, in particular, noting and identifying the different kinds of plants, animals and rocks that were encountered. Priscilla Wakefield argued that only by the systematic and ‘more minute observation’ of natural objects could ‘real knowledge’ be attained.²⁵⁶ Indeed, many Quakers developed their observational skills to exceptional levels: Peter Collinson complimented his friend John Bartram that ‘nothing escapes thy Notice’.²⁵⁷ Wakefield insisted that a planned and methodical approach was equally important; ‘nothing can be done well without order and method’.²⁵⁸ John Dalton was typical of many late 18th century Friends in combining a fondness for country rambles with his curiosity and powers of observation. Climbing up to some rocks to see whether they were natural or artificial, he and his friends discovered ‘a profusion’ of wild flowers that they had not seen before, activities that ‘took up so much of our time and attention’.²⁵⁹ Equally important was the accurate recording of those observations by way of methodical written records made at the time of the observations, and detailed descriptions of the findings in terms of words or pictures. Elihu Robinson has been

²⁵³ Farber, *Order in Nature*, 1-2.

²⁵⁴ Peter Collinson to Linnaeus, 1747, in James Edward Smith, ed., *A Selection of the Correspondence of Linnaeus*, (London, 1821), 18-19.

²⁵⁵ David Elliston Allen, *The Naturalist in Britain* (London: Allen Lane, 1976), 42-45.

²⁵⁶ Wakefield, *Introduction to Entomology*, iv.

²⁵⁷ Collinson to John Bartram, December 10, 1737, in Armstrong, *Letters of Peter Collinson*, 57.

²⁵⁸ Wakefield, *Mental Improvement*, 62.

described as ‘probably the first of Cumberland’s meteorologists’: he kept regular records of rainfall, temperature, and barometric pressure, as well as ‘noting the seasons and crops, and many natural phenomena’.²⁶⁰ Inspired by the blind Quaker naturalist John Gough of Kendal,²⁶¹ John Dalton amassed a series of more than 200,000 meteorological records over a period of more than 50 years.²⁶² Shortly before his death in 1844, Dalton’s scientific friends and colleagues expressed their admiration of ‘the zeal and perseverance’ with which he had pursued these studies.²⁶³ Other observations from nature were faithfully recorded, and the notebook kept by Joseph Ransom of Hitchin was a typical product of this kind of activity.²⁶⁴ Various aspects of botany, including the recording and study of wild plants seem to have been particularly attractive to many Friends: it was particularly suited to those whose professional or business interests precluded lengthy or even regular brief periods of leisure.²⁶⁵ Others followed botany as a profession, such as William Curtis²⁶⁶ (below), described as ‘one of the leaders of field botany in the early Linnean period’.²⁶⁷ Stephen Green referred to ‘over 50 Friends...who were more or less distinguished botanists’,²⁶⁸ most of whom were active during this period.²⁶⁹ Following Lawson’s

²⁵⁹ John Dalton to Elihu Robinson Manchester, 1st month, 27th, 1798 quoted by Henry Lonsdale, *The Worthies of Cumberland John Dalton F.R.S.* (London: George Routledge and Sons, 1874), 149.

²⁶⁰ Lonsdale, *John Dalton*, 35.

²⁶¹ Coleridge’s children were taught by John Gough, and Wordsworth celebrated his achievements: ‘By science led, his genius mounted to the plains of heaven’ William Wordsworth ‘Excursion’ quoted by Hamblyn, *Invention of Clouds*, 148.

²⁶² Death notice for ‘Dr. Dalton’ in *The Manchester Guardian* July 31, 1844, reproduced in part in *The Guardian Weekly* 27.07.07, 22.

²⁶³ *Ibid.*

²⁶⁴ Val Campion, ed., *Joseph Ransom’s Naturalist’s Notebook 1804-1816* (Hitchin: Hitchin Historical Society, 2004).

²⁶⁵ Collinson’s plea that he was ‘vastly Hurried in Business and no Leisure’ is typical of comments to this effect in his many letters to scientific friends and correspondents (Armstrong, *Letters of Peter Collinson*, xxvii).

²⁶⁶ William Curtis, the son of a Quaker tanner, embarked on a career in botany, becoming Demonstrator of Botany at the Chelsea Physic Garden in 1772, and subsequently establishing his own botanic garden in London (Ray Desmond, *A Celebration of Flowers: Two Hundred Years of Curtis’s Botanical Magazine*, (Twickenham, UK: Royal Botanic Gardens Kew & Collingridge, 1987), 9-28).

²⁶⁷ Gilmour and Walters, *Wild Flowers*, 18.

²⁶⁸ Joseph J. Green, ‘Stephen Robson, of Darlington, Quaker Botanist and Saint’ *Friends Quarterly Examiner* no.201 (1917): 14.

example (3.4.2), Friends continued to pioneer botanical recording in the provinces; local research has revealed the prominence of Quakers in botany in north west England, where most of the 18th and early 19th century records of wild plants were made by Quakers, their families, friends and business associates.²⁷⁰

Gardens and Collections

Several wealthy Friends, including Peter Collinson, John Fothergill, and John Coakley Lettsom established large private gardens with exceptional collections of exotic or potentially useful plants. Collinson claimed of his London garden that ‘Very few Gardens, if any, excels Mine at Mill Hill for the Rare Exotiks which are my Delight’.²⁷¹ One of his many American correspondents believed it to be the ‘most compleat Garden of American Plants that is in Great Britain’.²⁷² Sir Joseph Banks, president of the Royal Society, stated that Fothergill’s garden in Essex was rivalled only by Kew for the variety of plants it contained, and that in his opinion, ‘no other garden in Europe’, royal or otherwise, ‘had nearly so many scarce and valuable plants’.²⁷³ It was ‘very justly reckoned one of the first botanic gardens in Europe. Every plant likely to be of use in physic, or manufactures, was procured at any expence [sic] and cultivated with the greatest attention’.²⁷⁴ In 1779, William Curtis opened a botanic garden in London, financed by public subscription, whose emphasis was on the cultivation and propagation of useful plants. His *Catalogue* of 1783 refers to ‘British, medicinal, culinary, and agricultural plants’,²⁷⁵ and, reflecting his personal

²⁶⁹ James Britten and G.S. Boolger, *A Biographical Index to British and Irish Botanists* (London: West, Newman, 1843) quoted by Green, ‘Stephen Robson’, 14.

²⁷⁰ Eric Greenwood, ‘The Life and Times of some Early Lancashire Botanists’, unpublished typescript, (2006), 2. See also Malcolm Edmunds, Tim Mitcham, Geoff Morries, eds., *Wildlife of Lancashire* (Lancaster: Carnegie Publishing, 2004), 18.

interest in the agricultural improvement of pastures, a section was devoted entirely to potentially useful kinds of grasses (4.5.2).

Like other naturalists of the time, such Friends amassed extensive collections of natural objects for educational and scientific purposes. As a young man, John Dalton made a herbarium of around 1000 different species of dried wild flowers, mostly collected by himself and apparently intended for the Keswick Museum.²⁷⁶ A commentator described William Phillips' collection of geological specimens as 'the richest I have seen',²⁷⁷ whilst John Fothergill had 'correspondents in every part of the world, who were continually furnishing him with new specimens of plants, shells and insects'.²⁷⁸ Fothergill justified his collecting in scientific terms. He collected 'fossils' not because he wished to acquire 'a great number of odd things', but in order to try to explain their natures and origins in a way that was 'more consistent with the nature of things than I have yet met with from others'²⁷⁹ (4.4.3).

Collecting natural objects was a popular pastime for many Friends who found delight and interest in the natural world. Rachel Barclay (nee Lloyd), for example, had an extensive herbarium of English plants, arranged 'in systematic order'.

²⁷¹ Armstrong, *Letters of Peter Collinson*, xxvii.

²⁷² Ibid.

²⁷³ 'Sir Joseph Banks's Note' in Dr Thompson's *Memoirs of Dr. Fothergill*, 37, quoted by John Coakley Lettson, *Memoirs of John Fothergill, M.D. &c* 4th ed. (London: C. Dilly, 1786), 41.

²⁷⁴ John Elliott, ed., *A Complete Collection of the Medical and Philosophical Works of John Fothergill M.D. F.R.S.... with An Account of His Life; and Occasional Notes by John Elliott M.D.* (London: John Walker, 1781), xiii-xiv.

²⁷⁵ William Curtis, *A catalogue of the British, medicinal, culinary, and agricultural plants, cultivated in the London botanic garden*, 1783.

²⁷⁶ Grindon, 'Dalton as a Botanist'. The herbarium, amounting to 'ten volumes small folio size' (ibid) was destroyed by fire following an air-raid on Manchester in 1940.

²⁷⁷ Griscom's 'Year in Europe' 1: 97, quoted by London Friends' Institute, *Bibliographical Catalogue*, 524.

²⁷⁸ Elliot p.xiv

²⁷⁹ Fothergill to John Bartram, February 22, 1743/4, in Corner and Booth, *Chain of Friendship*, 84. Fothergill sought to have 'so many productions of different kinds, natures, compositions, figures, and so forth, as when laid together may assist me in forming some general idea of the production of several of their kinds of substances, more consistent with the nature of things than I have yet met with from others. This...is a structure which can only be executed from a multitude of materials, which time perhaps may supply me with, and the kindness of my friends' (ibid.).

Although this seems primarily to have been a leisure pursuit for a member of a well-to-do Quaker family, she was described as ‘conversant in the useful parts of mathematicks, natural philosophy, and astronomy’.²⁸⁰ Elizabeth Fry (1780-1845) made no claims to scientific understanding, but collected shells and other ‘natural curiosities’ for most of her life, from which ‘in the midst even of deep trouble, and ...weighty engagements’, she derived ‘advantage, refreshment and pleasure’.²⁸¹

Botanical Art

Although Friends had long-standing reservations about the visual arts as ostentatious and irrelevant to the Christian life, it was accepted that one way to record the productions of nature was to draw and paint them. This was pursued very much in the tradition of botanical illustration, to produce painstakingly accurate representations of plants or animals as they occurred in nature without adornment or artistic fancy (4.3.2). The writer Richard Mabey comments on the originality of Parkinson’s landscape paintings: at a time when landscape painting ‘was dominated by neo-Classical and Picturesque stylization’, Parkinson’s work was much more naturalistic, ‘a response which flowed easily from his work as a botanical illustrator.’²⁸²

Parkinson also taught Ann Lee, the ‘precociously talented’ thirteen-year-old daughter of James Lee of Hammersmith.²⁸³ Ann became an accomplished botanical artist, and was later employed by John Fothergill to draw exotic plants from his garden.²⁸⁴

²⁸⁰ Rachel Barclay, *Poems Intended to Promote Piety and Virtue in the Minds of Young People* (London: Phillips, 1797), iii-iv. Sylvia Stevens has researched the case of Daniel Boulter (1740-1802), Quaker shopkeeper of Great Yarmouth, whose connections enabled him to amass sufficient ‘natural curiosities’ to open a commercial museum as a source of income (*Friends Historical Society Newsletter* no.41 (Spring 2008), 5).

²⁸¹ *Memoir of the Life of Elizabeth Fry, With Extracts from her Journal and Letters* (London: Charles Gilpin, 1847), 11.

²⁸² *Ibid.*, 64.

²⁸³ *Ibid.*, 53-4/66.

²⁸⁴ David Sox, *Quaker Plant Hunters* (York: Sessions Book Trust, 2004), 80.

Outstanding botanical artists of the period, including Georg Dionysius Ehret,²⁸⁵ also painted many of their subjects from Collinson's and Fothergill's gardens.

A feature of *The Botanical Magazine*, founded by William Curtis in 1787, was its scrupulously accurate hand-coloured illustrations. Curtis explained that he produced *The Botanical Magazine* following 'repeated solicitations' from subscribers to his botanic garden for some means by which they could 'acquire a systematic knowledge of the foreign plants growing in their gardens [and]...the best information respecting their culture'.²⁸⁶ Despite its success, Curtis was apparently dissatisfied with it, possibly because it satisfied the wants of pleasure gardeners rather than the needs of botanical science or the development of useful products (4.5.1).²⁸⁷

Botanical art that strayed from the purely representational risked censure from other Friends (4.3.1). Mary Knowles (1733-1807), whose pictures have been described as transforming plants into 'objects of contemplation and instruction',²⁸⁸ admitted that her art did not always meet the approval of 'Strict Friends', even amongst those who assiduously cultivated their flower gardens.²⁸⁹

Experiments and Inductive Reasoning

Whilst Quakers tended to be wary of 'grand theories' put forward by others to explain observations of the natural world, this did not necessarily prevent them from drawing conclusions based on their observations of nature, and in some cases on experimentation. Indeed, it has been claimed that it was the Quakers' 'scientific

²⁸⁵ Henrey, *Botanical Literature*, 2: 62.

²⁸⁶ Ibid.

²⁸⁷ Henrey, *Botanical Literature*, 2: 310. It was claimed that no publication had 'more diffused a taste for unsophisticated nature and science' (Bib. Cat. p.159), although with its focus on 'showy popular garden plants', it was originally aimed at 'popular gardeners rather botanists'; during Curtis's lifetime it 'had comparatively little scientific value' (J. Edward Lousley, 'William Curtis (1746-1799)', *The London Naturalist* (1945), 8).

study of Nature which developed their inductive faculty'.²⁹⁰ Quakers' involvement with experimentation, although rather limited in pure science (4.5.1), demonstrates two potentially conflicting characteristics: their facility for networking within the scientific community, and their emphasis on personal experience.

Evidence-based Arguments

Peter Collinson, of whom it has been said that he 'was always delighted to make a contribution toward the settlement of any scientific question',²⁹¹ set out, using evidence from his own and others' first-hand observations, to refute the widely believed idea that swallows hibernated under water in the winter.²⁹² His argument had three strands: first, despite the fact that large flocks of swallows annually congregated in reedbeds and elsewhere shortly before they disappeared, no-one 'has ever found in the Winter Months a Swallow under water in a Torpid Living State';²⁹³ second, that the notion was 'contrary to Nature and Reason' since the Swallow had no 'Vessells, or Organs, near the Heart, to supply a sufficient means for respiration' and thus no means of surviving, under water;²⁹⁴ and third, reliable reports existed of swallows, identical to those in Britain and Europe, settling on ships at sea, as far afield as the Senegal coast, a land where no nest building had ever been reported.²⁹⁵

²⁸⁸ Jennings, *Gender, Religion, and Radicalism*, 108.

²⁸⁹ *Ibid.*, 135.

²⁹⁰ George Newman, 'The Applications of Quaker Principles in Medical Practice', *Friends Quarterly Examiner* (1930), 60-1 (author's italics).

²⁹¹ Berkeley and Berkeley, *Life of John Bartram*, 39.

²⁹² Although the idea of bird migration had been described many years earlier (Peter Bircham, *A History of Ornithology*, (London: Collins, 2007), 79-80, 124), the notion that swallows hibernated in winter was still generally believed in the 18th century, even by Linnaeus, and also by Gilbert White (*ibid.*, 110-1), the 'father of British ornithological ecology' (*ibid.*, 100). Peter Bircham cites an anonymous work of 1780 as the first clear statement of the fact of swallow migration (*ibid.*, 123-4), and it was not until the 1820s that this was generally accepted (*ibid.*, 136). Bircham does not mention Collinson.

²⁹³ Collinson to Jacob Theodore Klein, March 6, 1758, in Armstrong, *Letters of Peter Collinson*, 211.

²⁹⁴ Collinson to Linnaeus, September 15, 1763, in Armstrong, *Letters of Peter Collinson*, 249.

²⁹⁵ Collinson to Klein, 212.

This evidence convinced Collinson; he was adamant that ‘the Question’ was ‘out of doubt, that Swallows are Birds of Passage, and the Hear Say stories of Ignorant Peasants & Credulous People are by no means to be putt in competition with it’.²⁹⁶ He insisted that this ‘enlightened age will not be imposed upon and belief must be established on undeniable and uncontestable proofs’.²⁹⁷ Keith Thomas suggested that Collinson’s comments were typical of ‘serious’ 18th century naturalists’ contempt for popular folklore on the natural world.²⁹⁸

The confident tone in which Collinson put his case contrasts with his cautious approach to the origin of rocks and the significance of fossils (4.4.3). In the one case, he considered that the observed facts allowed only one rational explanation. In the other, there were insufficient observed facts in his opinion to draw any conclusion, regardless of tradition or scriptural evidence. Although he framed his argument against swallows living under water in terms of a lack of provision by ‘the All Wise & Powerful Creator’, this reflected the general Christian belief in a divine creation prevailing at the time; it does not materially affect his argument based upon scientific observations.

In 1735, James Logan convincingly demonstrated that contact between the male and female parts of the maize plant was necessary for the plant to set seed.²⁹⁹ Logan’s observations on pollen grains have been described as ‘very remarkable for that day’,³⁰⁰ and, followed up by John Bartram and others, led to the general

²⁹⁶ Ibid. Collinson challenged Linnaeus to carry out two ‘experiments’, involving confinement of a few Swallows under or close to water, ‘in Hopes of Elucidating the Subject’ (Collinson to Linnaeus, 249-50).

²⁹⁷ Collinson to Klein, 212.

²⁹⁸ Thomas, *Man and the Natural World*, 80-1.

²⁹⁹ James Logan to Peter Collinson, November 20, 1735, published as ‘Some Experiments Concerning the Impregnation of the Seeds of Plants’, *Philosophical Transactions* 39: 192-5.

³⁰⁰ Armistead, *James Logan*, 161.

acceptance of sexual reproduction in plants.³⁰¹ The results also supported the Linnaean system (4.2.2), based as it was, on the existence of the sexes of plants.³⁰² The eminent historian of botanical science, Julius von Sachs, contrasted the contribution to science of Logan and other true experimentalists favourably with that of the ‘schoolman’, Linnaeus.³⁰³

The Enigma of John Dalton

In contrast, John Dalton’s experiments on the chemical nature of gases were pursued largely in isolation.³⁰⁴ Dalton was fascinated with the question of the composition of the atmosphere,³⁰⁵ and, in 1799, published the first of a series of papers about the natural recycling of water based on his own experiments and observations in his laboratory in Manchester.³⁰⁶ This has been described as ‘the first quantitative study of a problem which is fundamental to the understanding of the economics...of the

³⁰¹ A.G. Morton, *History of Botanical Science* (London: Academic Press, 1981), 241. Logan was careful to stress that the results obtained in his experiments with maize could not be applied with certainty to other plants ‘without a great variety of experiments on different subjects’ (Logan to Collinson, 1735). Linnaeus asked Logan to carry out further studies into the structure of pollen to aid identification of plant species. Being too busy with affairs of government, Logan passed the request on to John Bartram who had already established the existence of separate male and female flowers on the same plant in sweet gum at the request of Collinson in 1738. Bartram also experimented with campion plants in his garden, where he was able to show that pink-flowered forms were hybrids between plants with red flowers and plants with white flowers (Berkeley and Berkeley, *John Bartram*, 61-3).

³⁰² Armistead, *James Logan*, 158.

³⁰³ Julius von Sachs, *History of Botany (1530-1860)* trans. by Henry E.F. Garnsey, rev. by Isaac Bayley Balfour (Oxford: The Clarendon Press, 1906), 85/391. Sachs saw Linnaeus as an ‘Aristotelian’, arguing that he ‘was not an investigator of nature in the modern meaning of the word’ and that he ‘never made a single important discovery throwing light on the nature of the vegetable world (ibid., 85). Logan is the only Quaker mentioned by Sachs in his ‘History’.

³⁰⁴ Greenaway, *John Dalton*, 44-7.

³⁰⁵ Arnold Thackray, *John Dalton: Critical Assessments of His Life and Science* (Cambridge, MA: Harvard University Press, 1972), 68-74. Until the mid-18th century, it was generally believed that there was basically only one gas, namely air; other gases were thought to be various modifications of air (Greenaway, *John Dalton*, 113).

³⁰⁶ John Dalton, ‘Experiments and Observations to determine whether the Quantity of Rain and Dew is equal to the Quantity of Water carried off by the Rivers and raised by Evaporation; with an Enquiry into the Origin of Springs’, *Memoirs of the Literary and Philosophical Society, Manchester* 5, part 2, 1802.

water on which we depend for life'.³⁰⁷ Dalton's conviction 'that clouds obeyed the simple laws of physics' was an important influence on Luke Howard (4.2.2).³⁰⁸ Dalton went on to study the relative solubility of gases in water,³⁰⁹ concluding that the extent to which different gases dissolved depended on the weight of their ultimate particles, an idea that led to the formulation of his Atomic Theory (4.2.2).³¹⁰ Despite these achievements, some of Dalton's 'close friends' considered that he was not a good experimentalist'.³¹¹ Whilst his extreme self-reliance was 'legendary', this led to his being unaware of other workers in the same fields, and a reluctance to accept their results.³¹² He was said to be 'averse to relinquish, or even modify,' his own cherished views, and to adopt newer and better instruments and methods of research.³¹³ Although Dalton has been described as 'the greatest man of science born to England since the days of Newton',³¹⁴ it is not altogether clear how he arrived at his conclusions from his experiments.³¹⁵ The geologist Adam Sedgwick said that 'the God of Nature had laid His hand upon...[Dalton's] head, and had ordained him for the ministration of high philosophy'.³¹⁶ Dalton himself attributed his own success to methodical observation and experimentation over a long period, and unwavering

³⁰⁷ Greenaway, *John Dalton*, 106.

³⁰⁸ Hamblyn, *Invention of Clouds*, 119.

³⁰⁹ Thackray, *John Dalton*, 74-5.

³¹⁰ Leitch and Williamson, *Dalton Tradition*, 6.

³¹¹ *Ibid.*, 8.

³¹² *Ibid.*

³¹³ Greenaway, *John Dalton*, 85.

³¹⁴ Henry Lonsdale, *The Worthies of Cumberland: John Dalton F.R.S.* (London: Routledge, 1874), 274f.

³¹⁵ Leitch and Williamson, *Dalton Tradition*, 6.

³¹⁶ Adam Sedgwick, 'Introductory Address to Meeting of the British Association, Cambridge, 1833' quoted by Lonsdale, *Worthies of Cumberland*, 276.

perseverance.³¹⁷ He also claimed that it was from Isaac Newton's *Principia*³¹⁸ that he 'obtained the basis for his atomic theory'.³¹⁹

Later historians of science have not agreed on how Dalton reached his conclusions, variously emphasizing intuitive, inductive and deductive elements in his approach. The distinguished Victorian chemist Henry Roscoe described the Atomic Theory as one of the 'great...steps in our knowledge of nature [that] are made at once, and almost without intellectual effort',³²⁰ whilst Dalton has been portrayed as 'primarily a theorist' rather than an experimentalist.³²¹ Conversely, Arnold Thackray described Dalton as 'a front-rank innovative thinker and experimenter',³²² and concluded, rather obscurely, that '*it was by a gradual, internal process that Dalton's thought developed*'.³²³

4.4.3 The Challenges of Geology

The scientific study of nature generally provided abundant evidence for the wisdom and beneficence of God. However, before Charles Lyell decisively established the 'Uniformitarian principle'³²⁴ in 1830, the science of geology seemed to pose some intractable questions.³²⁵ Although the collection and study of geological specimens

³¹⁷ Lonsdale, *Worthies of Cumberland*, 282.

³¹⁸ Isaac Newton, *Philosophiae Naturalis Principia Mathematica*, 1687; translated by Andrew Motte as *The Mathematical Principles of Natural Philosophy*, (1729, repr. 1803); and by Robert Thorp, as *Mathematical Principles of Natural Philosophy by Isaac Newton, Knight*, (1777 repr. 1802).

³¹⁹ Fairbrother et al., 'Science in Manchester', 191.

³²⁰ H. E. Roscoe, *John Dalton and the Rise of Chemistry* (London and New York, 1895), 150 quoted by Jones, *Later Periods of Quakerism*, 766.

³²¹ Fairbrother et al., 'Science in Manchester', 192.

³²² Thackray, *John Dalton*, 1.

³²³ *Ibid.*, 63 (author's italics).

³²⁴ This is the principle (on which the science of geology is founded) that past changes in the earth's surface are to be explained in terms of natural geological processes taking place at the present time. It had a major influence on Charles Darwin's thinking on evolution.

³²⁵ Charles Lyell, *Principles of Geology* (London: John Murray, 1830), vol. 1. Although James Hutton had reached a similar conclusion in 1785 (see, for example, John Gribbin, *Science: A History* (London: Allen Lane, 2002), 313-4), at the turn of the century, the science of geology was, according to Quaker geologist William Phillips (1773-1828) in 1815, still 'little understood' (William Phillips, *Outlines of*

had long been popular, the large spatial scales and long time-scales over which geological processes operated presented particular challenges to the observational approach to understanding them. The observed nature of some geological specimens and rock strata appeared to defy rational explanation, and were construed by some as a challenge to the biblical account of creation. This applied particularly to the origin of different kinds of rocks and fossils, and the age of the Earth.³²⁶

Quakers generally accepted the truth of the biblical account of creation. Individual Friends, however, responded to the potential conflict between scripture and geology in different ways, although there is also evidence of a trend over time towards greater emphasis on evidence-based conclusions. Thomas Story and John Bartram sought explanations by the speculative extrapolation of authentic observations to fit conventional or modified interpretations of scripture. Peter Collinson was more cautious, and urged that valid explanations must be based only on objective evidence, an approach exemplified by John Fothergill's work on amber. By the end of the period, opinion was divided: Priscilla Wakefield saw firm evidence from geology for the reality of the biblical Flood, whilst William Phillips opposed attempts to match science and scripture, and urged that explanations must await further scientific knowledge. Others were convinced of the literal truth of the word of scripture: for them, science served only to illuminate scriptural truths, and regarded as invalid interpretations of science that could not be reconciled with scripture.

Mineralogy and Geology, comprehending the elements of those sciences; intended principally for the use of young persons, 4th ed., (London: William Phillips, 1826), 86-7.

³²⁶ For example, according to James Hutton, the Earth showed 'no vestige of a beginning –no prospect of an end' (Porter, *Enlightenment*, 141).

Observation, Speculation and Peer Review

The Quaker historian Rufus Jones claimed that Thomas Story was ‘one of the first’ to conclude that the Earth was far older than calculations based on scripture had indicated.³²⁷ Having studied the rock strata in the cliffs at Scarborough during the summer of 1738, Story became convinced that:

the earth is of much older date, as to the beginning of it, than the time assigned in the Holy Scriptures, *as commonly understood*, which is suited to the common capacities of human kind, as to six days’ progressive work, by which I understand certain long and competent periods of time, and not natural days, the time of the commencement and finishing of all those great works being undiscoverable by the mind of man, and hid in that short period, ‘In the beginning God created the heavens and the earth.’ And then the author goes on to set forth the further modifications of the terraqueous globe; and, I conjecture, very long after it had its being with the rest of the worlds.³²⁸

Whilst Anne Conway had questioned the conventional belief about the age of the earth on metaphysical and logical grounds (3.2.2), Story’s conclusion appears to have been some form of intuitive extrapolation of his observations of rock strata. Story’s insight is particularly interesting since he appears to have given greater authority to his empirical observations of nature than to the literal truth of the Bible. Despite its potential challenge to biblical authority, no evidence has been found of a contemporary response to it.

Speculative extrapolations of observations in nature could also serve to support rather than challenge theological belief. Story was also impressed by the recycling of physical material between the living and non-living worlds during natural cycles of birth, growth, death and decay. He saw this as evidence for his radical and largely speculative hypothesis that all non-living matter had once been alive.³²⁹ In this case, Story may have been influenced by theology as much as by observation, and

³²⁷ Rufus Jones, ‘Introduction’ to Emily Moore, *Travelling With Thomas Story: the Life and Travels of an Eighteenth-Century Quaker* (Letchworth: Letchworth Printers, 1947), xxi.

³²⁸ Story to Logan, 12th Month, 8th, 1738, quoted by Armistead, *James Logan*, 155.

that it was his belief that God had originally created only living things that led him to reason on the recycling of substance between the living and non-living worlds.³³⁰

Story's idea seems to have met with incredulous although not unsympathetic responses from leading scientific Friends of the time. Logan wrote to him that he believed that it was 'not only new to thyself, but to all mankind', but confessed that 'it surpasses my understanding'.³³¹ But he re-iterated Story's point that the existence of fossil shells provides evidence that solid rocks contain the remains of previously living organisms.³³² Following 'some objections' from Dr Fothergill,³³³ Story said that he had clarified his argument, and went on to frame it in a more general way:

For it appears to the rational man that God *is* by referring back from the creation to the Creator, even so by tracing the works from their present state and manner of working backward, we may thereby the better perceive the manner of her procedure, from her fountain and origin, the peradventured mode to perfection in every particular.³³⁴

The discussion of these ideas within the scientific Quaker community served to reinforce Story's incipient insight into the important principle that scientific knowledge of the distant past could be obtained from observations made of present day features.³³⁵ Speculation about the origins of rocks, and the relationship between living creatures and inanimate material, appears again a few years later in correspondence between John Bartram and Peter Collinson and others. Basing his thoughts more transparently on observed facts that Story had done, Bartram was convinced that limestone and marble were the result of 'marine salts' reacting with

³²⁹ Armistead, *Memoirs of Logan*, 143.

³³⁰ Ibid. See also Richard S. Ferguson, *Early Cumberland and Westmorland Friends...* (London: F. Bowyer Kitto, 1871), 137-8.

³³¹ Logan to Story, 143.

³³² Ibid.

³³³ Story to Logan, 12th Month, 8th, 1738, in Armistead, *Memoirs of Logan*, 156.

³³⁴ Ibid.

³³⁵ The connections he made between past and present geological features and processes are prescient of Lyell's much more cogent and coherent conclusion nearly a century later.

mud containing the shells of marine organisms.³³⁶ Although Collinson published his friend's ideas, he does not appear to have found his case convincing, confessing that Bartram's theory of the origin of limestone 'enters not into my comprehension'.³³⁷

Like many of their contemporaries, Bartram and Collinson were fascinated by fossils. In a letter of 1740, Collinson wrote that he believed that 'most petrefactions represent some animal or vegetable' although he was 'as yet in the dark' as to 'what part of the creation [certain fossils] belong to'.³³⁸ In answer to a query from Bartram, Collinson assured him that belemnites (a common conspicuous fossil) were the remains of a marine organism. In an attempt to explain the discovery of fossils at latitudes far cooler than those at which their closest living relatives occurred, Bartram suggested that the earth's rotational axis had shifted at or since the time of the flood – possibly as a result of cataclysmic earthquakes.³³⁹ Collinson, however, was reluctant to speculate further about the nature or significance of fossilized remains of living creatures: 'to what use or purpose [they were created] He best knows (besides raising our speculation)'.³⁴⁰

Science and Scripture

Nevertheless, as Collinson remarked, the idea that fossils were the result of the biblical deluge was becoming widely accepted.³⁴¹ According to Phillips, by the 19th century, even the scientifically inclined tended to explain the history of the Earth

³³⁶ John Bartram to Peter Collinson in *Gentleman's Magazine* 26 (1756): 474.

³³⁷ Darlington, *Memorials*, 204.

³³⁸ Collinson to Dr. Key of Leek, Staffordshire, January 4, 1740 Toft MSS vol.III no.40 Friends House Library.

³³⁹ Berkeley and Berkeley, *Life and Travels of Bartram*, 142. Bartram also surmised that apparently marine creatures known only from fossils might yet be found living in unexplored parts of the oceans. He did not appear to consider the possibility of species becoming extinct or changing over time.

³⁴⁰ *Ibid.*

³⁴¹ William Darlington, ed., *Memorials of John Bartram and Humphry Marshall* (1849), (New York, 1967), 186.

almost entirely in terms of ‘two events only, the creation and the deluge’.³⁴² Writing in 1806 of discoveries in Lower Carolina, Priscilla Wakefield described ‘entire oyster-beds, in a fossil state...sixty miles from the sea...formed of a species of that fish no longer to be found on the coast’. To Wakefield, this seemed ‘to confirm the truth of the deluge’ and proved ‘incontestibly, that this whole tract was once covered with water’.³⁴³

By 1815, William Phillips regarded as an authenticated fact that some fossil shells were identical to some of those presently living in the sea, and that ‘the sea must consequently have rested’ where the fossils were found. However, he made no attempt ‘to follow others through a laborious undertaking to reconcile our *partial knowledge* of the phenomena of nature...with the Mosaic account of the creation’.³⁴⁴ Phillips insisted that whilst geology started with ‘the incontrovertible truth, that ‘In the beginning God created the heaven and the earth’,³⁴⁵ speculation about the subsequent history of the Earth should be resisted. He argued that greater understanding would come only from observed facts and those generalizations that could justifiably be made from them. Phillips adopted a similar approach in his slightly later *Outline of the Geology of England and Wales* (1818), and here offered no religious perspective at all.³⁴⁶

Although John Fothergill was described as having a ‘habit of mind which referred all things to a Higher Power’,³⁴⁷ in an essay on the nature and origin of amber, he also adhered to observed facts. Fothergill felt justified in alluding to far-

³⁴² William Phillips, *Outlines of Mineralogy*, 87.

³⁴³ Priscilla Wakefield, *Excursions in North America* (London: Darton and Harvey 1806), 69.

³⁴⁴ Phillips, *Outlines of Mineralogy*, 90.

³⁴⁵ *Ibid.*

³⁴⁶ William Phillips, *A Selection of Facts from the Best Authorities, Arranged so as to Form an Outline of the Geology of England and Wales* (London: William Phillips, 1818).

³⁴⁷ R. Hingston Fox, *Dr. John Fothergill and His Friends: Chapters in Eighteenth Century Life* (London: Macmillan, 1919).

reaching changes in the earth's surface, citing as evidence, finds of 'the exuviae of fishes...on the tops of the highest mountains' and 'the bones of large animals...at prodigious depths [in the earth]'.³⁴⁸ Thus 'many substances now occur, where they were not originally framed'.³⁴⁹ Critically significant was his explanation of the occurrence of amber in terms of a close study of the material itself, and by reference to natural processes that could be observed operating at the present time. Thus he concluded (correctly) that

Amber was, in its origin, a vegetable resin; the product, perhaps, of the fir or pine kind; by considering the appearance of the substance itself: and that though it has some distinguishing properties, yet it has many others, which are common to an indurated resin. Its aspect, its texture, its form, are arguments for this.³⁵⁰

An anonymous essay written for a Quaker audience in 1824 attempted to reconcile the findings of geology with the 'indubitably authentic chronicles' of the creation in Genesis.³⁵¹ Its author (who admitted he had only a 'very slight acquaintance with Geology')³⁵² saw both divine order and harmony and also difficult issues in the findings of geology. Like Phillips, he saw the resolution of these difficulties as a challenge to the provisional and partial knowledge of science and not to the truth of scripture. Unlike Phillips, he cited geological evidence to show that although there are 'indubitable proofs of that Deluge the Sacred Historian records',³⁵³ that, 'consonant with the simplicity of Scripture record...the deluge did not in any very general or essential degree, alter the formation of the earth'.³⁵⁴ He claimed that 'the originals of the fossil remains of animal and vegetable life...arose with the

³⁴⁸ John Fothergill, *Essay upon the Origin of Amber* in Elliott, *Works of John Fothergill*, 94.

³⁴⁹ *Ibid.*, 93.

³⁵⁰ *Ibid.*

³⁵¹ Anon., 'Hints Relative to some Principles Displayed by Creative Inference in the Formation or Organisation of the Earth', in *Collectitia: or, Pieces, Religious, Moral, & Miscellaneous Adapted to the Society of Friends* (York: W. Alexander & Son), 112. Authorship of this collection has been attributed to William Alexander (Smith, *Catalogue*, 1: 13).

³⁵² *Collectitia*, 100.

³⁵³ *Ibid.*, 101.

Divine creative command, on the third and fifth days of creation'.³⁵⁵ Thus, several decades before Charles Darwin published his theory of evolution by natural selection, there was awareness among Friends of the potential of geology to subvert scriptural truth. The subordination of observation-based science to scriptural truth may have reflected the growing influence of evangelical ideas, as well as the interest in popular science, within the Society of Friends at this time.

4.4.4 Networks and Communication

A major contribution of 18th century Quakers to the advancement of science lay in the facilitation of scientific research and the communication of scientific findings and methods. This section presents evidence for the view that Friends played a major part in this way, evidence that sheds additional light on Quakers' views of the natural world.

Scientific Networks and Societies

Evidence has already been presented of scientifically-minded Quakers such as William Curtis, Sydney Parkinson, and John Dalton, being supported by more wealthy and well-connected Friends. The latter provided introductions, financial support and technical advice to Friends in Britain and America, some of whom embarked upon expeditions to uncharted parts of north America and elsewhere in order to record, collect, and send safely back, specimens of plants, animals, and other natural objects and materials. Peter Collinson, for example, supported John Bartram in this way, introducing over 100 American plants to British gardens through

³⁵⁴ Ibid., 114.

³⁵⁵ Ibid., 106. Other Quaker authors, mainly after 1830, attempted to explain and elaborate the scriptural accounts of the creation and the deluge in speculative terms.

Bartram's collecting efforts. John Fothergill provided similar support for Bartram's son, William.³⁵⁶ As the growing success of his medical practice precluded continuing his own studies on the atmosphere,³⁵⁷ Fothergill supported others, including his friend and patient, the Unitarian scientist Joseph Priestley, in their investigations. For years he made an annual contribution to Priestley, and persuaded others to do so, including Josiah Wedgwood and the statesman Sir George Savile. Without this support, Priestley wrote to Benjamin Franklin, 'I must have desisted altogether'.³⁵⁸

Such activities involved extensive 'networking' with many Quaker and non-Quaker friends (including prominent landowners, as well as nurserymen and other leading gardeners) and correspondents in Britain, America and continental Europe. Collinson has been described as 'an indefatigable broker of enthusiasms',³⁵⁹ and appears to have been outstandingly effective in this way.³⁶⁰ John Fothergill recorded that not only did Collinson supply the Royal Society 'with many curious observations' himself, but was invaluable 'in promoting and preserving a most extensive correspondence with learned and ingenious foreigners, in all countries, and on every useful subject'.³⁶¹ Betsy Corner and Christopher Booth describe Collinson as 'the acknowledged leader of an international circle which is one of the earliest examples of world-wide co-operation amongst scientific men for the dissemination of useful knowledge'.³⁶² Collinson was also instrumental in persuading Benjamin

³⁵⁶ Corner and Booth, *Chain of Friendship*, 391-3.

³⁵⁷ Hingston Fox, *Fothergill and his Friends*, 215f.

³⁵⁸ *Ibid.* 215.

³⁵⁹ Armstrong, *Letters of Peter Collinson*, xxiv.

³⁶⁰ It has been claimed that the 'Royal Society had no other member so active in promoting the introduction and development of scientific learning in the New World' (Stearns, 'Colonial Fellows in the Royal Society of London' *Osiris* (1948), 73-121, quoted by William Thomas Stearn, 'Botanical Gardens and Botanical Literature in the Eighteenth Century', in *Catalogue of Botanical Books in the Collection of Rachel McMasters Miller Hunt* (Pittsburgh, PA: Hunt Foundation, 1948).

³⁶¹ John Fothergill, 'Memoirs of Peter Collinson, F.R.S. & F.S.A.' in John Coakley Lettsom, *Memoirs of John Fothergill, M.D. &c* 4th ed. (London: C. Dilly, 1786), 265-6.

³⁶² Corner and Booth, *Chain of Friendship*, 17.

Franklin to carry out experiments on electricity, and Collinson and Fothergill ensured that the results of these experiments were communicated to the scientific world.³⁶³

John Dalton has been portrayed as an archetype of the ‘new man’ of Industrial Revolution science in Britain, epitomizing a transformation of scientific endeavour from ‘the leisured, casual virtuoso’ to ‘the remunerated, committed scientist’.³⁶⁴

Despite his reputation for self-sufficiency, Arnold Thackray saw Dalton’s access to the Quaker network as crucial to his development and success as a scientist.³⁶⁵ These connections ranged from local to international, involving ‘northern Friends, Quaker manufacturers in the Midlands, London merchants, and Philadelphia residents’.

Together with the Quakers’ ‘strong emphasis on education and the interest in natural philosophy displayed by so many ...members, Thackray claims that such connections provide ‘the key to understanding the peculiarly favorable [sic] context in which Dalton grew and matured as a scientific thinker.’³⁶⁶

Geoffrey Cantor has documented in detail the involvement of 18th century Quakers in the Royal Society.³⁶⁷ Friends were especially prominent in the Askesian Society, founded in 1796³⁶⁸ at the Plough Court laboratory in London by William Allen (1770-1843) in conjunction with Richard Phillips³⁶⁹ and William Haseldine Pepys.³⁷⁰ The majority of its 17 ‘full members’ were young Quakers,³⁷¹ several of

³⁶³ Hingston Fox, *Fothergill and His Friends*, 177-9.

³⁶⁴ Thackray, *John Dalton*, 2.

³⁶⁵ *Ibid.*, 43.

³⁶⁶ *Ibid.*

³⁶⁷ Cantor, ‘Quakers in the Royal Society’.

³⁶⁸ Raistrick, *Quakers in Science and Industry*, 274. The name of the society came from the Greek ‘askesis’ meaning ‘exercise’, ‘practice’ or ‘training’. This reflected its founders’ aspirations to self-improvement through practical science, particularly in the fields of chemistry, mineralogy, and electricity (Cantor, *Quakers, Jews, and Science*, 138). In 1807 the Society was merged with the British Mineralogical Society (Allen, *Life*, 1: 83).

³⁶⁹ Richard Phillips, geologist and chemist, and brother of William Phillips: according to Raistrick, an ‘illustrious scientist’ in his own right (Raistrick, *Quakers in Science and Industry*, 274). William Phillips was also a member of the Askesian Society (Bib. Cat., 524).

³⁷⁰ Cantor writes that W.H. Pepys ‘adopted Quaker habits, but appears never to have joined the Quakers’ (Cantor, *Quakers, Jews and Science*, 138f). He was a descendant of Pepys the diarist (Raistrick, *Quakers in Science and Industry*, 274).

them from the local Quaker community in which the laboratory – where Allen and Phillips had worked before Allen took over the business – was situated.³⁷² The society's objects were 'to elucidate, by experiment, either facts generally understood, or to examine and repeat any novel discoveries',³⁷³ and its early meetings acquired notoriety for degenerating into 'drug-taking binges'³⁷⁴ as its members experimented with various hallucinogens. Cantor sees the participation of young Quakers in this and other newly-formed scientific societies (including the Royal Institution in 1799) as evidence of a new generation of Friends who 'looked to science as a career or a pastime that conformed to their religious beliefs'.³⁷⁵ Friends were well represented when, in 1823, the Meteorological Society of London was founded, including Howard, Allen and W.H. Pepys. Howard's friend, George Birkbeck (1776-1841), another Quaker and founder of the newly opened Mechanics Institute, was elected president, and the first paper read to the society was by John Gough of Kendal.³⁷⁶ Quakers were also involved in learned societies in the rapidly developing centres of industry outside London. The Manchester Literary and Philosophical Society, founded in 1781, was said to have 'played an early and critical role' in Dalton's intellectual development, providing him with a library, a means to publish and publicize his work, as well as a laboratory for his experiments.³⁷⁷ Dalton was its president for 27 years before his death.

³⁷¹ Cantor, *Quakers, Jews, and Science*, 138.

³⁷² Hamblyn, *Invention of Clouds*, 71.

³⁷³ *Life of William Allen*, 1: 26f.

³⁷⁴ Hamblyn, *Invention of Clouds*, 75.

³⁷⁵ Cantor, *Quakers, Jews, and Science*, 138-9.

³⁷⁶ Hamblyn, *Invention of Clouds*, 232. Gough's paper was titled 'The Natural History and probable causes of the Vernal Winds of the North of England' (*ibid.*, 232).

³⁷⁷ Thackray, *John Dalton*, 53.

Publication and Popularization

Earlier Quaker naturalists and scientists published little on scientific subjects.

Thomas Lawson published nothing on his botanical studies, and Collinson insisted he was too busy, or not sufficiently educated scientifically, to produce substantive works.

From the 1770s onwards, however, Quakers were amongst the pioneers in the scientific documentation of their own and others' observations of the diversity of nature, and in the production of educational and popular works about the natural world. In some cases works of lasting value were produced that became sources of knowledge in their own right.

Documenting the Diversity of Creation

Several Quakers who were active field botanists also pioneered ambitious attempts to describe and document Britain's botanical diversity. Stephen Robson of Darlington (1741-1779) intended his *British Flora* of 1777 to be the most comprehensive work of its kind yet published, including an annotated catalogue of all plants then known to grow in the wild in Great Britain and Ireland. William Curtis' superb *Flora Londinensis* was illustrated by some of the leading botanical artists of the day and, although unsuccessful financially, was described as 'next to Ray's Synopsis in original merit and authority on British Plants'.³⁷⁸ The *Botanist's Guide* of 1805,³⁷⁹ was informed not only by the authors' own observations, but also by a pioneering four-page questionnaire seeking authentic botanical records from other botanists.³⁸⁰

³⁷⁸ Sir James Smith quoted by Gilmour and Walters, *Wild Flowers*, 19. James Edward Smith (1759-1828), was a leading British botanist, author, and founder of the Linnean Society of London in 1788.

³⁷⁹ Lewis Weston Dillwyn and Dawson Turner, *A botanist's guide through England and Wales*, 2 vols. (London, 1805).

³⁸⁰ Allen, *Naturalist in Britain*, 67.

William Woodville's (1752-1805) *Medical Botany*³⁸¹ was a landmark publication describing plants in the leading catalogues of *materia medica* at the time.³⁸²

Popularization of Natural Science

Following the established Quaker tradition of promoting knowledge of the physical world, especially to children, several Quakers were notable popularizers of natural science to an audience well beyond the Quaker community. Quoting 'Dr Watts', Priscilla Wakefield asserted that there were 'four methods of obtaining knowledge: observation, reading, conversation, and meditation',³⁸³ and her own works were designed to promote each of these methods. Quakers wrote educational books not only to impart what they regarded as authoritatively established factual knowledge about the physical world, but also to encourage in their readers the habit of careful observation of nature, as well as particular interpretations of such facts and observations. Abraham Shackleton enjoined his young readers thus:

We'll take our telescopic glass,
No object great or small shall pass
 Unknown, unnoticed by:
When distant objects tire the eyes,
We'll search the hill and botanize
 With microscopic eye.³⁸⁴

Even apparently insignificant details could be valuable additions to scientific knowledge: 'Let every flower instruction yield / And add one line to Wisdom's lore'.³⁸⁵ William Phillips argued that 'fanciful ideas' and theories about earth history

³⁸¹ William Woodville, *Medical Botany, comprising a system and general description, with plates, of all the Medicinal Plants, indigenous and exotic, comprised in the Catalogues of the Materia Medica, as published by the Royal Colleges of Physicians of London and Edinburgh...* 3 vols. (London, 1790-3).

³⁸² Raistrick, *Quakers in Science and Industry*, 269-70. See also J. Reynolds Green, *A History of Botany in the United Kingdom* (London: Dent & Sons, 1914), 263.

³⁸³ Priscilla Wakefield, *Mental Improvement: or the Beauties and Wonders of Nature and Art* vol.1 5th ed. (London: Darton and Harvey, 1804), iii.

³⁸⁴ Shackleton, 'The Holiday', in *Court of Apollo*, 65-69.

³⁸⁵ Shackleton, 'The Garden', in *Court of Apollo*, 60.

served little purpose (4.4.3), and stressed that it was ‘*only by the patient investigation of facts and of natural phenomena*, that we can hope to approach the truth, in the sublime study of the history of the earth’.³⁸⁶

The importance of reasoned exchanges of views, not just for scientists, but for all who took an intelligent interest in nature, was reflected in Wakefield’s use of the fashionable medium of imaginary letters or conversations exchanged between family members or friends (in which female characters were prominent). Poetry was used by other Quakers to celebrate the virtues of nature and science, especially botany,³⁸⁷ and even of Linnaeus’s ‘system’.³⁸⁸ The sustained popularity of certain works by Quaker authors (Wakefield’s *Introduction to Botany* ran to 11 editions between 1796 and 1841)³⁸⁹ may have been enhanced by an early awareness of the power of advertising. Botanical books by Wakefield and by James Lee are among the few such works to have been advertised in *The Times* newspaper in the 18th century.³⁹⁰

Personal Development and the Social Environment

A recurring theme in biographical accounts of Quakers who in adult life were interested in natural history or natural science, was the onset of a lasting sensitivity and curiosity about of the natural world at an early age. Sydney Parkinson, for example, took ‘a particular delight in drawing flowers, fruits, and other objects of

³⁸⁶ Phillips, *Outlines of Mineralogy*, 89.

³⁸⁷ See, for example, William and Mary Howitt, ‘Ode to Botany’, in William and Mary Howitt, *The Desolation of Eyam*, 256-63.

³⁸⁸ Shackleton, ‘The Garden’, 59-65.

³⁸⁹ Ray Desmond, *Dictionary of British and Irish Botanists and Horticulturalists*, 3rd ed. (London: Taylor & Francis, 1977), 633.

³⁹⁰ E. Charles Nelson, ‘Newspaper Gleanings: how times have changed for botanifts [sic]’ *Newsletter of the Society for the History of Natural History* no. 96 (September 2009), 9-11. Nelson’s searches reveal a total of 45 references to the word ‘botanift’ (all rendered ‘botanift’ with a long ‘s’) in 18th century editions of *The Times*, most of them advertisements. He writes that advertisements for books with ‘botanift’ in the text ‘included, *not surprisingly* [my italics], James Lee’s and Priscilla Wakefield’s separate Introductions to botany’ (ibid).

natural history' whilst in his teens, his talent being such 'to attract the notice of the most celebrated botanists and connoisseurs in that study'.³⁹¹ The son of a Quaker linen weaver, Stephen Robson 'early in life manifested an earnest thirst after scientific knowledge, and as a schoolboy, William Curtis 'showed signs of a compulsive interest in natural history that was to dominate his adult life'.³⁹²

The Quaker doctor, William Curtis (1803-1881), in an account of his schooldays written for his own children, recalled the delight he experienced as a boy in searching out and observing wild creatures.³⁹³ Although he urged his children to 'turn your attention earnestly and vigorously to the study of some branch of Natural History'³⁹⁴ which, he believed, had 'a very beneficial influence in forming and expanding the mind', he appeared to deny any significant family influence in this direction in his own case.³⁹⁵ Curtis attributed his own passion for natural history as the following of an innate calling, asserting that 'there is, I am confident, a love of natural objects implanted in our souls quite independent of education, and when it is strong will show itself in some form or other'.³⁹⁶ More typical, however, are accounts that attribute the awakening of such an interest to the early educational influences of family and/or friends, particularly within the Quaker community. Mention has already been made of the importance of early influences on John Dalton's development as a scientist. Peter Collinson recorded that, having been 'sent at two years old to be brought up with my relatives' [grandmother],³⁹⁷ it was 'from them I received the first liking to gardens and plants'.³⁹⁸ Elizabeth Fry drew attention to the

³⁹¹ Stanfield Parkinson, preface, in Sydney Parkinson, *Journal*.

³⁹² Desmond, *Celebration of Flowers*, 9.

³⁹³ Wm. Hugh Curtis, *A Quaker Doctor & Naturalist in the 19th Century* (London: Bannisdale Press, 1961), 31-42.

³⁹⁴ *Ibid.*, 20.

³⁹⁵ *Ibid.*, 31.

³⁹⁶ *Ibid.*

³⁹⁷ Brett-James, *Peter Collinson*, 25.

³⁹⁸ Collinson, 'note in his diary', quoted by Brett-James, *Peter Collinson*, 25-6.

importance of parental influences, and her mother in particular, in developing a lasting interest in natural history:³⁹⁹

How great is the importance of a wise mother, directing the tastes of her children in very early life, and judiciously influencing their affections. I remember with pleasure my mother's beds for wild flowers, which, with delight, I used, as a child, to attend with her; it gave me that pleasure in observing their beauties and varieties, that though I never have had time to become a botanist, few can imagine, in my many journeys, how I have been pleased and refreshed, by observing and enjoying the wild flowers on my way.⁴⁰⁰

There is evidence of a continuing perception of the unity of all true knowledge, manifested in the belief that the teaching of religious ideas increased children's capacity for intellectual development and knowledge of the natural world. Rebecca Reynolds stated that children were 'very early susceptible of religious ideas' and that 'their culture illuminates the understanding, increases the capacity for knowledge of natural things, and facilitates the exertion of the reasoning faculty beyond the most elaborate endeavours independent thereof'.⁴⁰¹

More rarely, there are accounts of Friends whose passion for particular aspects of natural history or science is attributed to the influence of others when they themselves were adults. Although some knowledge of plants formed part of his training and expertise as a physician, John Fothergill attributed his 'love of plant life' to the stimulating teaching and companionship of his friend and fellow Quaker Peter Collinson.⁴⁰²

³⁹⁹ Gil Skidmore, ed., *Elizabeth Fry: A Quaker Life Selected Letters and Writings* (Lanham, MD: Alta Mira, 2005), 2.

⁴⁰⁰ Elizabeth Fry, *Memoir*, 11.

⁴⁰¹ Rebecca Reynolds, 'Extracts from a MS Book...' in *Letters of Richard Reynolds*, 300. She recalled that 'Solomon had this conception of its efficacy when he prayed for wisdom from God – he knew it to be His gift and he desired it above all things' (ibid). Rebecca Reynolds was the wife of Quaker ironmaster, Richard Reynolds.

⁴⁰² Fothergill to Linnaeus, April 4, 1774, in Corner and Booth, *Chain of Friendship*, 409.

4.4.5 Reservations about Science

There is considerable evidence for persistent reservations about science from the contemporary Quaker community. Most of the following evidence comes from within the Quaker scientific community; but if Clarkson's comments on Quaker involvement in science generally were valid (4.1.2), such reservations were probably widely shared by British Quakers. These focussed either on the dangers of being distracted from the spiritual path by the pursuit of science, or on the limited ability of the human intellect and of science to explain the created world (4.4.1).

The Primacy of Spiritual Knowledge

Although Thomas Story was described as 'a Man of Excellent Understanding and Extensive Learning', especially with respect to natural history, those responsible for the publication of his *Journal* noted that it contained no reference to such matters.⁴⁰³ This, they explained, was because Story regarded them 'as Subjects of too light and insignificant a Nature to bear any Part or Mixture with Things appertaining to Religion and the World to come'.⁴⁰⁴ Story himself contrasted the 'weak and perplex'd Condition of human Reason and the natural Abilities of Man' with the 'eternal and unchangeable Mansions prepared in the Heavens': though God's creation was 'wisely design'd and order'd', 'the World...he held of small Account'.⁴⁰⁵ (see also 4.3.1 & 4.3.2). Story's understanding was gained inwardly: 'all his outward activities, mental and physical, were but on the circumference of his life'.⁴⁰⁶ Dr. John Fothergill, also keenly interested in natural science himself, reminded his scientific

⁴⁰³ Story, *Journal*, ii.

⁴⁰⁴ Ibid.

⁴⁰⁵ Ibid.

⁴⁰⁶ L. Violet Holdsworth, 'Thomas Story: A Forgotten Saint' *Friends Quarterly Examiner* (1933): 38.

correspondents about the relative importance of scientific studies and exploration, and their spiritual duty and calling. Requesting plant specimens from an American correspondent, Fothergill urged him not to spend too much time on this, since such activities were ‘allowable recreations’ but ‘not the main business of life’. They should not be pursued to the detriment of ‘the more essential...[duties] of another life.’⁴⁰⁷ Luke Howard explained that ‘the true reason’ why he had ‘accomplished comparatively little for science’ was that he was ‘a *Christian*, and the practical sense in which he apprehends his religion leaves him, in fact, but little time for himself’.⁴⁰⁸ The physician and medical researcher, Dr. John Rutty (1698-1775), was acutely affected by guilt that his enthusiasm for nature was a form of worldly temptation that diverted him from true spirituality and communion with the divine. In his journal he wrote of ‘idolizing nature’⁴⁰⁹ and declared that ‘Now is the snare laid in natural science: Lord, grant that it be in vain!’⁴¹⁰. He pledged that ‘I will, God helping, reject all unnecessary worldly engagements, though I cannot quit a piece of natural history, nor of the *Materia Medica*, nor practice in sobriety; but, Lord, limit me!’⁴¹¹ Struggling to resolve the contradiction he experienced between his love of science and the influence of Quietism, he urged himself to ‘Write this sacred truth upon thy heart: ‘As much as thou has descended into the earth in search of nature’s mysteries, so much thou ascend in search of those of grace’’.⁴¹² Rutty’s dilemma reflects well the prevailing 18th century Quaker caution towards becoming too involved with outward things in general. In one its frequent exhortations to Quaker parents and children, London Yearly Meeting in 1785 warned young Friends to ‘Be on your guard against

⁴⁰⁷ John Fothergill to Humphry Marshall, March 2, 1767, in Corner and Booth, *Chain of Friendship*, 275.

⁴⁰⁸ Elizabeth Fox Howard, ‘Luke Howard’ *The Friend* 7, no.41 (1864): 100.

⁴⁰⁹ Rutty, *Spiritual Diary*, 149.

⁴¹⁰ *Ibid.*, 161.

⁴¹¹ *Ibid.*, 108.

every thing that tends to draw the mind outward’ but ‘to watchfully regard every manifestation of the light in your consciences.’⁴¹³ Friends were reminded that attention to the divine principle within demanded ‘inward retirement, and an abstraction from earthly objects, imaginations, and attachments’.⁴¹⁴

To a more limited extent, William Allen shared such reservations about the potential of science to distract him from the development of his religious gifts and concerns. He described how, as a young man, he was cautioned by a respected Friend ‘lest...[his] ‘ardent desire for knowledge, even with the laudable intention of benefiting mankind, should eclipse the lustre of that inestimable gift, which she believed was bestowed upon me’. He wrote in his diary in 1794 that ‘I am persuaded that it was the intention of the beneficent Creator that the conveniences, &c. of this life should be enjoyed, but yet kept in subordination. Beware, lest chemistry and natural philosophy usurp the highest seat of thy heart’.⁴¹⁵ Science could also divert its followers from the spiritual path through a sense of pride or superiority that could result from scientific achievement and understanding. Allen warned that

Whatever knowledge thou mayst obtain in the prosecution of thy plan of study, let it not excite any degree of self-complacency or pride, but rather humbly rejoice that thou art favoured with an opportunity of being beneficial to mankind.⁴¹⁶

Joseph John Gurney contrasted the natural sciences, whose progress depended on ‘the exertion of the human intellect’, with Christianity ‘as a moral science’.⁴¹⁷ Whilst the former were imperfect and incomplete and ‘for the most part distinguished by a perpetual series of progressive changes’, the latter was ‘promulgated by its divine

⁴¹² Ibid., 36.

⁴¹³ Epistle, 1785, in *Epistles from the Yearly Meeting of Friends, Held in London*, vol.2 (London: Edward Marsh, 1858), 62.

⁴¹⁴ Epistle, 1770, in *Yearly Meeting Epistles*, 2: 3.

⁴¹⁵ William Allen, *Life*, 1: 23.

⁴¹⁶ Ibid.

author, and his disciples, in a condition of perfection'.⁴¹⁸ Although the Christian gospel had been distorted by 'unsightly and incongruous ornaments', in its original form it was 'so exactly adapted [for its purposes], as to be capable (as far as appears to our limited comprehension) of no amelioration'.⁴¹⁹ Fothergill also cautioned against the aridity of scientific exploration pursued without spiritual awareness, since the human mind had been created 'to admire infinity above all'.⁴²⁰ The Quaker poet, Robert Barnard, writing after a visit to the Liverpool Botanic Garden, was moved to assert that no matter how diligent the scientific study of nature, notwithstanding the biblical precedent of Solomon, it was ultimately worthless if it did not itself lead to religious awareness and devotion.⁴²¹

Vain is thy knowledge, if thou canst not tell
 Of Him, who bids the simplest bud to swell...
 Vain is thy knowledge, if thou canst not trace
 Almighty Power and Skill in every place;
 Vain is thy knowledge if the boundless theme
 Excite not homage to The Great Supreme.⁴²²

The Limits to Science

John Rutty also referred to the intrinsic limitations of scientific knowledge for its own sake, declaring that 'the imperfections of science shew that the end of thy creation was not perfection in knowledge there, but proclaim another country'.⁴²³ Given the

⁴¹⁷ Joseph John Gurney, *Essays on the Evidences, Doctrines, and Practical Operation, of Christianity* (London: J. and A. Arch, 1825), 76.

⁴¹⁸ Ibid.

⁴¹⁹ Ibid.

⁴²⁰ John Fothergill to Israel Pemberton, Jr., 20 October 1738, in Corner and Booth, *Chain of Friendship*, 46.

⁴²¹ Robert Barnard, 'Lines Written after a visit to the Botanic Garden, Liverpool', in *A Wreath from the Wilderness: Being a Selection from the Metrical Arrangements of Accola Montis-Amoeni*. (Ironbridge: William Smith, 1816), 50-1.

⁴²² Ibid. Barnard argued that, with the benefit of what the microscope revealed, not only could naturalists and scientists go far beyond the ancients in 'tracing the wondrous works of Omnipotence', but also 'ought to go equally beyond them in the willing tribute of admiration, love, and praise' (ibid).

⁴²³ Rutty, *Spiritual Diary*, 1: 165.

primacy of religious awareness and development insisted on by most Quakers at the time, it is not surprising that some Quaker authors deprecated the role of science in bringing understanding of the most profound truths. The poet, John Fry, for example, urged that:

Thy Wisdom and thy Pow'r are such,
And Works so far extend,
No human Thought can penetrate,
Nor Science comprehend...

Our utmost Knowledge yet attain'd,
Or found by all our Art,
Concerning God, his Works, or Ways,
Is not a thousandth Part.⁴²⁴

The physician, Thomas Hancock, in a lengthy treatise of 1824, compared the natures of instinct and reason in humans and other creatures.⁴²⁵ Based on the premise that instinct is divinely endowed, whilst the practice of reason is subject to human weakness, he places severe limits on the extent to which he expects science to progress in terms of explaining the nature and workings of the creation. In relation to the human body, he states without reservation that the 'profoundest researches of the physiologist cannot explain how a man performs the simple act of raising his arm, nor how the eye and ear transmit their responsive sensations to the mind'.⁴²⁶ For Hancock, the purpose of science was to reveal a sample of the wonders of creation, rather than to explain them:

In every department of human knowledge, therefore, there is a point at which enquiry must rest; and where it becomes the true philosopher to contemplate in awful humility the wonders of Almighty Power, adoring in silent reverence that infinite wisdom, which has only unlocked, as it were, to man, the vestibule of the great Temple, that contains thousands of Nature's secrets yet unopened, and thousands more, perhaps, never to be revealed.⁴²⁷

⁴²⁴ John Fry, 'Creation', in *Select Poems, containing religious Epistles, &c occasionally written on various Subjects, Recommended to the Perusal of serious Readers, especially the Youth* (London: Mary Hinde, 1774), 34/38.

⁴²⁵ Hancock, *Essay on Instinct*.

⁴²⁶ *Ibid.*, 4.

⁴²⁷ *Ibid.*

Quakers and the Influence of Isaac Newton

Geoffrey Cantor observes that in view of the ‘widespread interest in Newton’s theories and the profusion of religious-based commentaries, it is surprising that eighteenth-century Quakers paid scant attention to Newtonianism, not even writing to oppose it’⁴²⁸ (3.4.2). Cantor cites Dalton as ‘one of the few exceptions’⁴²⁹ (4.4.2). By contrast, ‘several ex-Quakers were avid Newtonians’, thereby (according to Cantor) ‘implicitly rejecting their Quaker backgrounds and aligning themselves with a natural philosophy that was widely endorsed by the liberal Anglican establishment’.⁴³⁰ For example, the precociously talented Thomas Young (1773-1829) embarked on a medical career at Cambridge University in 1797, and was disowned by Quakers soon afterwards. Later in the 19th century, however, Young was described by Quakers as ‘without doubt the greatest man of letters and of science that has sprung from the ranks of the Society of Friends’.⁴³¹ His most notable contribution to science was on the wave theory of light,⁴³² but Cantor suggests he was too ready to draw conclusions without fully understanding the observed facts, or the work of others.⁴³³

However, Dalton was not alone among those who stayed true to Quakerism in making reference to Newton during this period, and in positive terms. As early as 1714, the visionary and philanthropist, John Bellers, described the Royal Society as ‘being compos’d of many Persons of Quality, eminent Physicians and

⁴²⁸ Cantor, *Quakers, Jews, and Science*, 181.

⁴²⁹ Ibid.

⁴³⁰ Ibid., 182.

⁴³¹ London Friends Institute, *Bibliographical Catalogue*, 757.

⁴³² Ibid., 755.

⁴³³ G. N. Cantor, ‘Physical Optics’, in R.C. Olby, G.N. Cantor, J.R.R. Christie and M.J.S. Hodge, eds., *Companion to the History of Modern Science*, (London: Routledge, 1990), 634-5.

Mathematicians, well skill'd in Experimental Philosophy'.⁴³⁴ He recommended that the Royal Society be given

all the Helps needful for the bringing forth their succeeding useful Thoughts, and the more especially whilst that Eminent and Great Man their President, Sir *Isaac Newton*, is living, which may be a great Inducement to invite many more to Employ those vigorous and excellent Faculties which they are the Masters of...to produce something useful and valuable to the World.

Bellers quoted Newton's *Opticks*⁴³⁵ to argue that, although consideration of the beauty and harmony of the universe and of the creatures living on Earth did 'not immediately lead us to the Knowledge of the first Cause...it certainly brings us nearer and nearer to it, and is therefore much to be valued'.

Nevertheless, these references appear to be exceptional at the time and for many years afterwards. It was noted in 3.4.2 that William Penn apparently made no reference to Newton,⁴³⁶ although at the start of the 18th century, this might be unsurprising. For Isaac Newton (1642-1727), God had written the 'book of nature' in the language of mathematics; his *Principia* of 1687⁴³⁷ was written in Latin (the first English translation was published in 1729),⁴³⁸ and its arguments were mathematical. Newton himself intended that his work should be shared with those who were conversant with the mathematics it contained,⁴³⁹ and at the end of the 17th century his work was known only to a small group of natural philosophers, mainly at

⁴³⁴ Bellers, *Improvement of Physick*, in Clarke, *John Bellers*, 189.

⁴³⁵ Isaac Newton, *Opticks; or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light* (London, 1704).

⁴³⁶ Dunn and Dunn, *William Penn*, 3: 378.

⁴³⁷ Isaac Newton, *Philosophiae Naturalis Principia Mathematica* [*Mathematical Principles of Natural Philosophy*], 1687. In this, Newton stated his three laws of motion, governing how objects move and interact with one another. Newton's great achievement was to formulate 'a single mathematical law to describe the motion of the heavenly bodies as well as the minute particles of matter on earth' (Patricia Fara, *Newton: The Making of Genius* (London: Macmillan, 2002), 8-9).

⁴³⁸ H. Zeitlinger, 'A Newton Bibliography', in W.J. Greenstreet, *Isaac Newton 1642-1727: A Memorial Volume Edited for the Mathematical Association*, (London: G. Bell & Sons, 1927), 153-58.

⁴³⁹ Fara, *Newton*, 18.

Cambridge.⁴⁴⁰ According to Patricia Fara, initial reaction more generally ‘was mainly stunned incomprehension’,⁴⁴¹ and for some years afterwards ‘most English people had never heard of him’.⁴⁴² Some of Newton’s contemporaries dismissed his concept of gravitational attraction as ‘a fancy term that explained nothing’.⁴⁴³ Other scientists, including Robert Boyle, opposed Newton’s view that scientific truths about the natural world could be adequately expressed and understood only in terms of mathematics, and therefore accessible only to a small elite.⁴⁴⁴

More remarkable, perhaps, is the fact that Quakers involved in scientific matters appear to have continued to ignore Newton throughout the 18th century. By mid-century, Newton’s principal scientific works had become ‘canonical texts’,⁴⁴⁵ whilst by the end of the century, he was universally celebrated, an ‘emblematic hero symbolizing stability, equality and rational progress for people who had only a hazy notion of his achievements’.⁴⁴⁶ In Cantor’s words, for ‘most 18th century commentators the most impressive example of a successful natural philosophy was that of Newton’.⁴⁴⁷

Newtonian natural philosophy was distinctive in its successful combination of empirical and non-empirical elements: it was founded both upon the direct observation and experimentation, and also on ideas, in particular, mathematical ideas.⁴⁴⁸ By contrast, Quaker approaches to understanding the physical character of

⁴⁴⁰ Voltaire was said to have claimed that, at the time of Newton’s death in 1727, he had ‘no more than twenty followers in England’ (Zeitlinger, ‘Newton Bibliography’, 157).

⁴⁴¹ Fara, *Newton*, 61.

⁴⁴² *Ibid.*, 18. Fara adds that although, today, Newton is widely remembered for his laws of gravity, at the start of the 18th century, he was equally linked to studies in alchemy, theology and biblical interpretation, and ancient chronology, by those who knew of his work (*ibid.*, 41/70).

⁴⁴³ *Ibid.*, 18.

⁴⁴⁴ *Ibid.*, 59/62.

⁴⁴⁵ *Ibid.*, 73.

⁴⁴⁶ *Ibid.*, 150.

⁴⁴⁷ Cantor, pers. comm., 28 May 2009.

⁴⁴⁸ See for example, A. Rupert Hall, *From Galileo to Newton 1630-1720* (London: Collins, 1963), 244-9.

the natural world were much more exclusively empirical, largely restricted to the direct observation of nature or the results of simple experiments. Quakers were largely excluded from the ranks of the university-educated, and probably ignorant of higher mathematics. There is a suggestion that Friends may have been uneasy about the development of a closed scientific elite, if Peter Collinson's early views on the ramifications of Linnean botany were at all typical (4.2.2). Although William Allen was keenly interested in astronomy, both Allen and Collinson suggested (without mentioning Newton) that the 'order of nature' or 'natural laws' could be observed as convincingly in flowering plants and the structure of insects, for example, as in the workings of the planets in the heavens (4.3.1). Quakers emphasized the importance of investigating objects and phenomena that were close to the observer, both literally and in terms of direct experience. Quaker approaches to science were characterized not only by empiricism but also by a quality of spiritual and intellectual receptivity, based on the belief that true knowledge of the natural world was a privilege allowed to them or bestowed upon them by God (3.4.1 & 4.4.5).

It remains the case, however, that no instance has been found during the present study of any Quaker explicitly opposing Newton's ideas or conclusions. Robert Barclay's reference to 'Cartesian Philosophy' (appendix 5), and his quotation of classical authors (3.4.1), reflected a willingness to identify common ground with leading thinkers of the past whose religious views and ideas in other respects were not necessarily compatible with the tenets or traditions of Quakerism. Whilst it is possible that later Friends may have been influenced by similar considerations, they are likely to have had reservations about Newton's views on the fundamental place of mathematics in science, and, by the mid-18th century, possibly also the promotion of Newton's iconic status by educated society at large. It should be noted, however, that

whilst both Penn and Barclay were clearly aware of the work and ideas of other leading British and Continental philosophers and scientists, after Bellers (see above), direct references in Quaker writing to philosophical sources or ideas from the outside world are rather scarce until the end of the 18th century. Whilst individual Friends were keenly interested in exploring aspects of the natural world, under the influence of Quietism there seems to have been little interest generally in what might be termed the philosophy of science. By the early 19th century, the apparent Quaker silence on the subject of Newton had been broken. In 1802, William Allen began to give lectures on chemistry and physics at Guy's Hospital, London, in which the subject of mechanics was to figure prominently⁴⁴⁹ (4.4.4). In a lecture on 'experimental philosophy' in 1813, he referred to 'our illustrious countrymen... Bacon, Locke, Newton, Boyle and Hook [sic]...[to whom] we are indebted for a more rational system of philosophy'.⁴⁵⁰ Making no reference to either mathematics or the capacity of human reason, Allen described their achievements in terms of which many Quakers would have approved:

rejecting idle speculations, they directed their attention to watch the processes of nature, and to attempt to discover some of the laws by which her operations are governed; they built upon facts and experiments, and the progress since made in every department of science, has proved the correctness of their views.⁴⁵¹

In 1817 William Phillips (4.4.3) described the science of astronomy as 'a system of the utmost beauty and harmony',⁴⁵² and Newton as 'that truly great man',⁴⁵³ who 'contributed largely to the perfecting of this science, of all others the most noble'.⁴⁵⁴

For Phillips, it was 'most noble' because of the strength of its evidence for natural

⁴⁴⁹ Nicolle, *William Allen*, 29-30.

⁴⁵⁰ Allen, *Life*, 1: 177.

⁴⁵¹ *Ibid.*

⁴⁵² William Phillips, *Eight Familiar Lectures on Astronomy*, 2.

⁴⁵³ *Ibid.*, 12.

⁴⁵⁴ *Ibid.*, 32.

theology (see also 4.3.1). There was no suggestion from either Allen or Phillips that Newton was in any sense a controversial figure: whatever reservations they might have had about Newton in the past, he was accepted by these Friends at least as one of the great men of science.

4.5 LIVING IN GOD'S CREATION

This section explores five aspects of 18th century Quaker attitudes towards nature as a resource in everyday life. The first part is a brief summary of attitudes and actions in the fields of medicine, agriculture and industry, as means of improving people's material lives, especially those of the poor and sick. The second explores Friends' awareness of human impacts on, and responsibilities for, the non-human creation, whilst the third is concerned specifically with the treatment of animals. The fourth part examines perceptions of nature as a spiritual or emotional resource that do not make reference to natural theology (4.3.1). Finally, evidence is given of the continuing belief in divine intervention in the operation of natural processes in order to reward or punish human behaviour.

4.5.1 Nature as a Material Resource

Individual Friends were prominent in the practical application of scientific findings about the natural world to everyday life, and especially in moves to benefit the poor and the sick, both at home and overseas. Although later authors have identified various reasons for this involvement,⁴⁵⁵ contemporary sources usually emphasized its humanitarian motivation. William Phillips expressed the prevailing belief that nature

⁴⁵⁵ See, for example, Raistrick, *Quakers in Science and Industry*, 335-49.

was a resource to be used for human benefit, declaring that man was ‘Lord of Creation’ and ‘everything is intended for the advantage of Man’.⁴⁵⁶

Medicine

George Newman saw medicine as a natural application of Quakers’ ‘innate public spirit’, and claimed that a disproportionately large number of them were involved in medical practice or ancillary activities.⁴⁵⁷ It has been said that to mention ‘the names of Quaker doctors, such as Fothergill, Lettsom and Dimsdale⁴⁵⁸ is to enumerate some of the chief medical luminaries of the eighteenth century’.⁴⁵⁹ Newman described Dr. John Fothergill as ‘the most prominent practitioner in London, and one of the best therapeutic prescribers of his age’.⁴⁶⁰ These and other Friends were highly regarded for their energy and commitment in treating the sick of all social classes, and also in seeking and testing new and more effective forms of treatment. Friends, including Thomas Corbyn⁴⁶¹ and William Allen were also prominent in the pharmaceutical industry.

Fothergill emphasized the importance of dietary and personal hygiene,⁴⁶² and was noted for his contributions to the recognition and understanding of ‘malignant sore throat’ (scarlet fever) and tubercular meningitis.⁴⁶³ Thomas (Baron) Dimsdale and John Coakley Lettsom were active supporters of inoculation against small pox;

⁴⁵⁶ Phillips, *Outline of Mineralogy*, 191/193. See also Porter, *Enlightenment*, 299.

⁴⁵⁷ Newman, ‘Quaker Principles’, 61.

⁴⁵⁸ Thomas Dimsdale was the son of a Quaker (Margaret E. Hirst, *The Quakers in Peace and War* (London: Swarthmore Press, 1923), 461n.).

⁴⁵⁹ Frederick B. Tolles, *Meeting House and Counting House: The Quaker Merchants of Colonial Philadelphia 1682-1763* (Chapel Hill, NC: University of North Carolina Press, 1948), 222.

⁴⁶⁰ Newman, ‘Quaker Principles’, 62.

⁴⁶¹ Corbyn has been described as ‘London’s leading apothecary in the mid-eighteenth century, manufacturing and selling drugs throughout Britain, Europe and the Americas... a trade that seemed especially attractive to Quakers’ (James Walvin, *The Quakers; Money and Morals* (London: John Murray, 1997), 83).

⁴⁶² Newman, ‘Quaker Principles’, 62.

but quarreled about the dangers of the indiscriminate inoculation of the poor.⁴⁶⁴ Lettsom later came to be an enthusiastic advocate of the much safer practice of vaccination, and, influenced by the work of Richard ('Sea-water') Russell,⁴⁶⁵ a promoter of the curative properties of sea-bathing, and the founder of the Sea-Bathing Infirmary at Margate in 1796,⁴⁶⁶ as well as the founder of the Medical Society.⁴⁶⁷ Friends questioned the veracity of claims about long-standing but objectively unproven 'remedies'. Fothergill discouraged traditional practices such as blood-letting, purging and blistering,⁴⁶⁸ whilst William Curtis criticized John Ray (3.4.2) for having been 'too credulous' in believing claims that seeds of Meadow Clary could cure eye problems, which he described as 'a manifest absurdity'.⁴⁶⁹

Industry, Agriculture and Related Activities

Raistrick observed that Quakers were 'to be found in the early part of the eighteenth century permeating the whole of basic industry', as well as 'supplying outstanding members of the medical profession'.⁴⁷⁰ Their success in manufacturing and mining has been attributed to a number of factors, including business acumen and integrity, networking with other Quakers, barriers to professional careers, benevolence to their workforce, and a 'willingness to experiment and insistence on technical progress'.⁴⁷¹ Walvin has also emphasized the crucial importance of Friends' networks in the

⁴⁶³ Ibid., 63.

⁴⁶⁴ See Abraham, *Lettsom*, 185-204, for an account of the 'great inoculation controversy'.

⁴⁶⁵ Russell claimed that his work was 'the outcome of years of observation' of the health of seafarers and their families (ibid., 281).

⁴⁶⁶ Ibid., 285.

⁴⁶⁷ Newman, 'Quaker Principles', 63.

⁴⁶⁸ Ibid., 62.

⁴⁶⁹ Curtis, *Flora Londinensis*, 63.

⁴⁷⁰ Raistrick, *Quakers in Science and Industry*, 12.

⁴⁷¹ Arthur Raistrick, *Two Centuries of Industrial Welfare: The London (Quaker) Lead Company, 1692-1905*. 2nd ed., (1977; repr., Littleborough and Newcastle upon Tyne: Kelsall & Davis, 1988), 95.

success of their businesses.⁴⁷² Raistrick cited Abraham Darby's experiments on smelting iron with coke; Quaker potters of Bristol; brassfounders of Bristol and Birmingham; ironmasters of Furness, Sheffield and South Wales, as well as the London Lead Company. Although Raistrick claimed of the Darbys of Coalbrookdale, that 'their implicit belief that in all and every event, serious or trivial, the Inward Light would direct them',⁴⁷³ direct contemporary evidence of Friends' involvement in industry being the result of religious experience or belief is meagre.

Not all Friends were so enamoured of industrial progress. Thomas Shillitoe believed that the transfer of textile manufacture from the cottage to the factory 'had been injurious to the nation', both in terms of the inferior quality of the goods, but more especially because of the destitution of 'tens of thousands of her subjects' who had been rendered unemployed. In a petition to Queen Adelaide,⁴⁷⁴ Shillitoe suggested that 'the queen's example and influence' could help to relieve this distress if 'in the palace such articles as are made by hand should be used'.⁴⁷⁵

Despite the extent of Quaker involvement and success in industry, Erin Bell (3.5.2) has pointed to the continuing importance of agriculture in 18th century Quaker identity.⁴⁷⁶ Although many of the early Friends were directly involved in agriculture, by the 18th century this applied to only a minority of Quakers. Bell shows that Joseph Besse, in his accounts of the sufferings of Quakers,⁴⁷⁷ was biased towards the reporting of rural, as opposed to urban, occupations. She suggests that Besse may have wished to give the impression that 'the spiritual and actual roots of Quakerism

⁴⁷² Walvin, *The Quakers*, 81-90.

⁴⁷³ Arthur Raistrick, *Dynasty of Iron Founders: The Darbys and Coalbrookdale* (London: Longmans, Green, 1953), 273.

⁴⁷⁴ Wife of William IV.

⁴⁷⁵ Shillitoe, *Journal*, 2: 414-5.

⁴⁷⁶ Erin Bell, 'Husbandry Among Quakers', 140-52.

⁴⁷⁷ Joseph Besse, *A Collection of the Sufferings of the People called Quakers* 2 vols. (London: Luke Hinde, 1753).

lay in the countryside',⁴⁷⁸ and 'an image of pious Friends working in the countryside away from 'worldly' influences, in contrast to the corrupt urban dweller'.⁴⁷⁹ Some Quakers had a practical interest in the development of agriculture, both at home and overseas: Blanche Henrey considered that 'Quaker botanists with their ideal of community service carried out for the good of all, were particularly interested in the utility of plants'.⁴⁸⁰ Curtis's promotion of information about different kinds of grasses was specifically directed at the improvement of agricultural grasslands at home,⁴⁸¹ whilst Lettsom, for example, actively promoted growing of mangel-wurzel,⁴⁸² as well as the virtues of tea, which Fothergill and he thought could also be cultivated in Britain.⁴⁸³ Other Quakers, often of relatively humble origin, were prominent as nurserymen, particularly in the London area.⁴⁸⁴ James Lee (4.2.2) was involved in establishing a nursery garden at Hammersmith that was said to be 'the resort of all persons curious in botanical researches'.⁴⁸⁵ James Maddock (c.1715-86) specialized in growing and propagating florist's flowers, and in 1792 produced *The florist's directory*, which remained 'the best English work' on the subject for nearly 30 years.⁴⁸⁶

Quakers in industry promoted the practical and moral virtues of agriculture to their employees, and to the labouring poor. The Quaker-owned London Lead Company, for example, built cottages for its workers in Cumbria, with up to 6-acres

⁴⁷⁸ Bell, 'Husbandry Among Quakers', 145.

⁴⁷⁹ Ibid., 146.

⁴⁸⁰ Henrey, *British Botanical Literature*, 2: 310.

⁴⁸¹ William Curtis, *Practical Observations on the British Grasses, especially such as are best adapted to the laying down or improving of Meadows and Pastures; to which is added, an Enumeration of the British Grasses* 3rd ed. (London: Stephen Couchman, 1798), 1.

⁴⁸² James Johnston Abraham, *Lettsom: His Life, Times, Friends, and Descendants*, (London: Heinemann, 1933), 75.

⁴⁸³ Ibid.

⁴⁸⁴ John Harvey, *Early Nurserymen* (London & Chichester: Phillimore, 1974), 12; Nichols, *Golden Age*, 49-56.

⁴⁸⁵ *Gentleman's Magazine* 65 no.2: 1052 (1795), quoted in Henrey, *Botanical and Horticultural Literature*, 2: 355.

of land attached to each, in addition to grazing rights on communal pasture.⁴⁸⁷ From 1825, the company developed a new planned village nearby at Nent Head, ‘set in a large acreage of fields, gardens and plantations’.⁴⁸⁸ Company policy was to provide a garden for all estate cottages, and to foster ‘the love of gardening among the workpeople’, including the formation of local Horticultural Societies.⁴⁸⁹ These societies had annual shows of fruit, flowers and vegetables, ‘at which practically every person from manager down to the horse boys showed something or other’.⁴⁹⁰ The London Lead Company was also a pioneer in the improvement of hill land by draining and liming, experimenting with different treatments, and with plantations of conifers to provide timber for the mines.⁴⁹¹ Although not an original idea, William Allen was the driving force behind the ‘Lindfield Allotments’ in Sussex.⁴⁹² Allen’s vision was that ‘Every poor rural family should be provided with a small piece of ground and instructed in the means of cultivating it to the greatest advantage so that each labourer could supplement the wages received from his employer’.⁴⁹³ Amongst the advantages of his scheme for ‘Colonies at Home’, Allen listed avoiding dependence on Parish Relief, and enabling working families ‘to procure an education for their children in moral, religious and industrious habits’, as well as the relief of poverty in Ireland.⁴⁹⁴ Gardening and farming were taught (to boys) at the ‘Schools of Industry’ set up by Allen in his home village of Lindfield.⁴⁹⁵ Despite initial

⁴⁸⁶ Henrey, *Botanical and Horticultural Literature*, 2: 391-3.

⁴⁸⁷ Raistrick, *London Lead Company*, 25.

⁴⁸⁸ *Ibid.*, 20.

⁴⁸⁹ *Ibid.*, 27.

⁴⁹⁰ *Ibid.*, 28.

⁴⁹¹ *Ibid.*

⁴⁹² Margaret Nicolle, *William Allen: Quaker Friend of Lindfield 1770-1843* (Lindfield: Margaret Nicolle, 2001), 116-139. See also Jones, *Later Periods of Quakerism*, 1:347.

⁴⁹³ William Allen, *Colonies at Home or The Means for Rendering the Industrious Labourer Independent of Parish Relief and for providing for the Poor Population of Ireland by the cultivation of soil* (Lindfield, UK: Charles Greene, [1827]), quoted by Nicolle, *William Allen*, 116.

⁴⁹⁴ Nicolle, *William Allen*, 116.

⁴⁹⁵ *Ibid.*, 97.

opposition, some 25 cottages were built, each with outbuildings suitable for keeping a cow or a pig and about an acre of land. In a pamphlet designed to promote the replication of the scheme, Allen provided instructions including a list of suitable crops, a guide to the 4-year crop rotation, the importance of manures, the keeping of a cow, and designs for cottages and outbuildings.⁴⁹⁶

4.5.2 Stewardship of Natural Resources

Simplicity and Charitable Support

References to the long-standing Quaker testimony to simplicity occur in the corporate records of the Society of Friends, appearing periodically in the epistles of London Yearly Meeting. However, whilst early Friends had linked simplicity of living with the proper use of God's creation, later references to simplicity were generally concerned with the Friends' spiritual state and lifestyles rather than with the stewardship of natural resources. In 1734, Friends were advised that simplicity was to be understood as 'an inward sincerity and lowly disposition of mind, producing that plainness of speech, habit and manners, which Christ himself and his holy apostles recommended'.⁴⁹⁷ Similar expositions were included in *The Book of Extracts* for 1783 and 1802, where Friends were urged not to 'turn aside from the plainness, simplicity, and life of the truth, into the words, ways, customs, and fashions of the world'.⁴⁹⁸

Friends were also reminded of this testimony at times of hardship amongst the general population, as in the 1750s, when attention was directed to the relationship

⁴⁹⁶ Allen, *Colonies at Home*, in Nicolle, *William Allen*, 116.

⁴⁹⁷ Epistle, 1734, in *Epistles from the Yearly Meeting of Friends, Held in London...* London: Edward Marsh 1858 p.203

between Friends' personal consumption and the privations of the poor, reflecting the earlier concern of William Penn (3.5.2). The Yearly Meeting Epistle for 1757 enjoined Friends to 'open their hearts and hands freely, for the relief of the poor and needy of all denominations'. Friends were reminded that 'none are intrusted [sic] with riches that they may indulge themselves in pleasures, or for the gratification of luxury, ambition, or vain glory; but to do good, and to communicate thereof'.⁴⁹⁹ In 1769, Friends were urged to make 'a right and grateful use' of the material favours bestowed upon them, and to 'remember the goodness of our universal benefactor'.⁵⁰⁰

Depletion and Conservation of Resources

Nevertheless, there is some evidence of Friends' continuing awareness of stewardship issues. Thomas Story stated that the purpose of the extensive tree planting programme on his estate was to 'furnish that part of the country, in time, with timber, which is now scarce', and to set an example to others to do likewise.⁵⁰¹ In 1825, Joseph John Gurney reminded Friends that 'as creatures formed for a purpose of his glory, and endowed for a time with the *tenure* of his property, we are *stewards*'.⁵⁰²

Some Quakers were aware that human activities could have far-reaching impacts on wild species. John Fothergill foresaw that settlement of the American colonies would be likely to have a negative impact upon the native flora and fauna. Referring to wild tortoises, he noted that as 'the inhabitants increase, these, as well as

⁴⁹⁸ *Extracts from the Minutes and Advices of the Yearly Meeting of Friends Held in London* 2nd ed. (London: W. Phillips, 1802), 131.

⁴⁹⁹ Epistle, 1757, in *Epistles from the Yearly Meeting*, 304.

⁵⁰⁰ Epistle, 1769, in *Epistles from the Yearly Meeting*, 357.

⁵⁰¹ Moore, *Travelling with Thomas Story*, 14.

⁵⁰² Joseph John Gurney, *Essays on the Evidences, Doctrines, and Practical Operation, of Christianity* (London: J. & A. Arch, 1825), 196.

the native plants, will be thinned',⁵⁰³ and that some species of animals and plants 'will perhaps be extinguished, or exist only in some still more distant parts'.⁵⁰⁴ Fothergill thought that this was inevitable, and his response was to urge that records of species be made before they disappeared. It was 'of great advantage to natural history to have every thing of a fugitive nature consigned to paper with as much accuracy as possible',⁵⁰⁵ and 'of some consequence to begin their history as soon as possible'.⁵⁰⁶ William Curtis saw the local loss of wild flowers at first-hand. In 1777 he referred to the 'rage for building, joined to the numerous alterations perpetually making in the environs of London, have been the means of extirpating many plants which formerly grew plentifully around us'.⁵⁰⁷ Although Curtis has been described as 'an early conservationist who was always distressed by the destruction of plant habitats',⁵⁰⁸ he also appears to have seen a positive aspect to this change. In order to see Deadly Nightshade, for example, growing in the wild, he wrote 'happily we are now under the necessity of going much further into the country'.⁵⁰⁹ Although Curtis was pleased to receive gifts of plants gathered from the wild, he also recognized the potential impact of collecting plants that were of ornamental or medicinal value. Of the Lily of the Valley, he commented: 'Like many of those plants which are eagerly sought after, it is now become rather scarce in the neighbourhood of London'.⁵¹⁰

Peter Collinson believed that the diversity of living things was an integral part of God's plan for creation. He argued that the common weeds of cultivated land produced vast quantities of seed in order to ensure their perpetuation in a hazardous

⁵⁰³ Fothergill to John Bartram, May 1, 1769, in Corner and Booth, *Chain of Friendship*, 303.

⁵⁰⁴ Fothergill to John Bartram, January 13, 1770, in Corner and Booth, *Chain of Friendship*, 318.

⁵⁰⁵ *Ibid.*

⁵⁰⁶ Fothergill to Bartram, 303.

⁵⁰⁷ Curtis, *Flora Londinensis*, 1: 238.

⁵⁰⁸ Desmond, *Celebration of Flowers*, 28.

⁵⁰⁹ Curtis, *Flora Londinensis*, 1: 238.

⁵¹⁰ *Ibid.*, 1: 314.

environment. Otherwise, ‘their species might risque [sic] being near Lost and the Great and Wise Ends of Providence frustrated’⁵¹¹ (appendix 6). It has been claimed that Collinson and Fothergill may have been instrumental in the first recorded move to protect wild plants.⁵¹² A note written in 1762 reads ‘You may let Mr. Collinson and Mr. Fothergill know that Mr. Webb⁵¹³ will assist them in getting a clause put into an Act of Parliament to make it Transportation to steal curious plants’.⁵¹⁴ However, David Allen admits that the proposed legislation, with its ‘draconian’ penalty, may have been intended to protect garden plants rather than wild ones.⁵¹⁵ This would seem to be much more likely: the theft of rare plants from gardens was a problem that Collinson suffered personally.⁵¹⁶

4.5.3 The Treatment of Animals

The treatment of animals was a long-standing Quaker concern⁵¹⁷ (although not officially recognized until 1790 – see below), and one where Quakers, along with other religious groups, made a significant contribution to changing the attitudes of society at large.⁵¹⁸ Thomas Clarkson noted that:

It has frequently been observed by those who are acquainted with...[Quakers] that all animals belonging to them are treated with a tender consideration, and are not permitted to be abused; and that they feel in like manner for those, which may be oppressed by others...⁵¹⁹

⁵¹¹ Collinson to Joseph Hobson [c. 1742] in Armstrong, *Letters of Peter Collinson*, 95.

⁵¹² David Elliston Allen, ‘Changing attitudes to nature conservation: the botanical perspective’ in ‘Naturalists and Society: The Culture of Natural History in Britain 1700-1900’ *Biological Journal of the Linnean Society*, 32 (1987): 204.

⁵¹³ Philip Carteret Webb, antiquary, horticulturist, and politician.

⁵¹⁴ Anon. ‘What’s new about conservation?’ *Linnean* 2, no.1 (1986): 5-6.

⁵¹⁵ Allen, ‘Changing attitudes to nature conservation’, 204.

⁵¹⁶ *Ibid.*

⁵¹⁷ Clarkson, *Portraiture of Quakerism*, 1: 139-51; 3: 179-81.

⁵¹⁸ Thomas, *Man and the Natural World*, 180. Thomas claims that ‘an essential role was played by Puritans, Dissenters, Quakers and Evangelicals’.

⁵¹⁹ Clarkson, *Portraiture of Quakerism*, 3: 179.

Horse-racing and cock-fighting were considered criminal activities.⁵²⁰ Similar considerations were extended to wild animals; Clarkson continued that

In the same manner the Quakers condemn the hunting of animals, except on the plea of necessity, or that they cannot be destroyed, if their death be required, in any other way. For, whatever may be their several uses, or the several ends of their existence in creation, they were never created to be so used by man, that they should suffer, and this entirely for his sport. Whoever puts animals to cruel and unnatural uses, disturbs, in the opinion of the Quakers, the harmony of creation, and offends God.⁵²¹

Thomas Young and David Barclay⁵²² cited scriptural evidence that it was ‘the will of God that we should abstain from cruelty, and cultivate humanity towards the brute creation’.⁵²³ Weighing the positive and negative attributes of field sports, Jonathan Dymond (1796-1828), author of ‘the standard Quaker work on ethics’⁵²⁴ concluded that ‘the balance is presently found to be greatly against them’.⁵²⁵ Thomas Wilkinson, noted for his ‘great tenderness to the inferior creatures’⁵²⁶ felt that shooting had ‘something too cruel in it, to sport with the existence of anything’.⁵²⁷ Peter Collinson urged his correspondents to show compassion towards the insect specimens they sent him,⁵²⁸ whilst Thomas Young and David Barclay raised concerns

⁵²⁰ Ibid., 1: 149.

⁵²¹ Ibid., 1: 149-50.

⁵²² David Barclay was grandson of Robert Barclay the Apologist.

⁵²³ Thomas Young, *An Essay on Humanity to Animals; Abridged by permission of the Author* [by David Barclay: see Smith, *Catalogue*, 1: 168] 2nd ed. (London: John and Arthur Arch and J. Hatchard, 1809). Howard Brinton adds that ‘this may be the same Thomas Young, originally a Quaker, who is said to have displayed extraordinary genius in more lines, scientific and literary, than anyone who had ever lived’ (Brinton, ‘Quakers and Animals’, 198).

⁵²⁴ Jonathan Dymond, *Essays on the Principles of Morality, and on the Private and Political Rights and Obligations of Mankind* (London: Hamilton, Adams, 1829). This assessment is from Brinton, ‘Quakers and Animals’, 193; Dymond’s book ran to nine editions.

⁵²⁵ Dymond, *Essays on Morality*, 450. Dymond commented that it was ‘wonderful to observe our inconsistencies. He who has, in the day, inflicted upon half a dozen animals almost as much torture as they are capable of sustaining, and who has wounded perhaps half a dozen more and left them to die of pain or starvation, gives in the evening, a grave reproof to his child whom he sees amusing himself with picking off the wings of flies!’ (ibid., 452).

⁵²⁶ Mary Carr, *Thomas Wilkinson: A Friend of Wordsworth* (London: Headley Brothers, 1905), 13.

⁵²⁷ Ibid., 4-5.

⁵²⁸ Collinson to Cadwallader Colden, August 25, 1748, in Armstrong, *Letters of Peter Collinson*, 149. In a request of 1748 to an American correspondent to send insect specimens for him to study, Collinson urged that before pinning them, he ‘first drown them in Spirits of Wine or Else they’l Live a Long while in pain with the pinn through them’ (ibid).

about the robbing of birds' nests,⁵²⁹ killing of bees for their honey,⁵³⁰ and caged birds and animals.⁵³¹ They also opposed unnecessary suffering of animals used for experiments 'in Anatomy and Natural Philosophy'.⁵³² Friends were instrumental in raising a petition in the 1790s, urging a consumer boycott of lobsters with pegs driven into their claws, in order to encourage the more humane method of tying the claws together⁵³³ (appendix 7).

As in previous generations, such concerns were not always heeded in practice (see 3.5.2). J.C. Lettsom recounted how, as a boy at a well-known Quaker school at Penketh (near Warrington) in the 1750s:

the common amusements of bird-nesting, nutting, sliding and the usual country sports occupied much of our leisure...One of the most violent and gratifying species of amusements, which we occasionally enjoyed, was following the hounds and huntsmen....⁵³⁴

Official Statements

Treatment of animals was virtually the only instance where matters relating to the creation were taken up by Quakers as a body, although it was not until the 1790s that it was reflected in official Quaker publications. The earliest reference appears to have been in a document of 1790, linking the subject to the issue of slavery and oppression of fellow human beings:

We are also clearly of the judgement, that if the benevolence of the gospel were generally prevalent in the minds of men, it would effectually prevent them from oppressing, much more from enslaving, their brethren, (of whatever colour or complexion) for whom, as for themselves, Christ died; and would

⁵²⁹ Young, *Essay on Humanity*, 12-18.

⁵³⁰ *Ibid.*, 39-43.

⁵³¹ *Ibid.*, 54-5.

⁵³² *Ibid.*, 51-3.

⁵³³ Anon. [?Anna Buxton], *Cruelty to Lobsters*, (Weymouth: undated broadsheet). I am grateful to David Irwin at Friends House London for supplying a copy of this.

⁵³⁴ Christopher Lawrence and Fiona A. MacDonald, eds., *Sambrook Court: The Letters of J.C. Lettsom at the Medical Society of London*, (London: Wellcome Trust, 2003), 16.

even influence his conduct in his treatment of the brute creation, which would no longer groan, the victims of his avarice, or of his false ideas of pleasure.⁵³⁵

The concern was taken up in the second printed edition of the Quakers' book of discipline of 1802, in which a more specific statement relating to field sports (agreed in 1795) appeared as follows:

We clearly rank the practice of hunting and shooting for diversion, with vain sports; and we believe the awakened mind may see, that even the leisure of those whom Providence hath permitted to have a competence of worldly goods, is but ill filled up with these amusements. Therefore, being not only accountable for our substance, but also for our time, let our leisure be employed in serving our neighbour, and not in distressing the creatures of God for our amusement.⁵³⁶

Rights and Responsibilities

Keith Thomas noted that, at the end of the 18th century, vegetarianism had radical social and political overtones, but that its appeal was limited by 'its association with unfashionable dissenting groups', including the Quakers.⁵³⁷ Thomas stated that such groups were 'disproportionately prominent', but this claim is unsupported by evidence.⁵³⁸ Towards the end of the period, some Friends are certainly known to have avoided eating meat. Abraham Shackleton, who refrained from tea and refused the products of slave labour,⁵³⁹ in his last years lived mainly on potatoes and milk,⁵⁴⁰

⁵³⁵ [Joseph Gurney Bevan] *A Summary of the History, Doctrines and Discipline of Friends: Written at the Desire of the Meeting for Suffering 1790* (London: James Phillips, 1790). The author's name has been inserted by hand in the copy in the Woodbrooke Library; the word 'his' in the above paragraph has been amended by hand to 'their'. Quoted with minor changes and without source by Clarkson, *Portraiture of Quakerism*, 3: 181, and by Brinton, 'Quakers and Animals', 192.

⁵³⁶ *Extracts from the Minutes and Advices of the Yearly Meeting of Friends Held in London...*, (London: W. Phillips, 1802), 25.

⁵³⁷ Thomas, *Man and the Natural World*, 296-7.

⁵³⁸ *Ibid.*, 297.

⁵³⁹ Whilst some Quakers were involved in the importation and sale of the products of slave labour, others were active in the promotion of attempts (especially in the 1790s) to boycott the use of tea and sugar. See James Walvin, *The Quakers: Money and Morals*, (London: John Murray, 1997), 114; Elizabeth A. O'Donnell, '“There's Death in the Pot!": The British Free Produce Movement and the Religious Society of Friends, with Particular reference to the North-east of England', *Quaker Studies* 13/2 (March 2009), 186-7; C. Midgeley, 'Sugar Slave Boycotts, Female Activism and the Domestic Base of British Anti-Slavery Culture', *Slavery and Abolition* 17.3 (1996), 137-62.

whilst Thomas Shillitoe became a vegetarian on medical advice.⁵⁴¹ More generally, however, it seems to have been agreed that Quakers, like other Christians, had ‘a right to take away the lives of animals for food’⁵⁴² (3.5.2). Humanity had been given the power of dominion over the lives the rest of creation, but this was conditional in that it should be exercised ‘with as little pain as possible to the creatures’.⁵⁴³ Like other Quakers, Priscilla Wakefield appears to have had few qualms about whaling, which she celebrated as a noble occupation, taken up by the ‘necessity to earn a living’ by those who had a calling for a life at sea,⁵⁴⁴ and in which Quakers were prominently involved.⁵⁴⁵ In the case of the American beaver, however, Wakefield carefully weighed the arguments for and against its hunting. Whilst she concluded that on balance hunting was justified on the grounds of the utility of the skins, she also expressed sympathy for the beaver on the grounds of its intelligence and industry, seen as exemplary traits in human beings.⁵⁴⁶

According to Clarkson, Quakers considered that animals were not ‘mere machines to be used at discretion’, but had rights in relation to human beings. They were creatures of God, ‘of whose existence the use and intention ought always to be considered, and to whom rights arise from various causes, any violation of which is a violation of a moral law’.⁵⁴⁷ Thus ‘duties arise out of this spiritual feeling, independently of any written law in the Old Testament, or any grant or charter, by

⁵⁴⁰ Richard S. Harrison, *A Biographical Dictionary of Irish Quakers*, 2nd ed. (Dublin: Four Courts Press, 2008), 202.

⁵⁴¹ Shillitoe, *Journal*, 2: 410-12.

⁵⁴² Clarkson, *Portraiture of Quakerism*, 1: 139-40.

⁵⁴³ *Ibid.*, 1: 140.

⁵⁴⁴ Wakefield, *Mental Improvement*, 1:13.

⁵⁴⁵ Richard Allen, ‘“A most industrious well-disposed people.” Milford Haven Quakers and the Pembrokeshire whaling industry c.1791-1821’ in Pamela O’Neill, ed., *Nation and Federation in the Celtic World: Papers from the Fourth Australian Conference of Celtic Studies University of Sydney, June-July 2001* (Sydney: University of Sydney, 2003), 64-95.

⁵⁴⁶ *Ibid.*, 90.

⁵⁴⁷ Clarkson, *Portraiture of Quakerism*, 3: 180.

which their happiness might be secured'.⁵⁴⁸ Clarkson went on to assert that 'the renovated man' believed that God 'never constituted any part of animated nature, without assigning it its proper share of happiness during the natural time of its existence'. Quakers viewed their animals 'as created for special ends, and must consider themselves their guardians, that these ends may not be perverted but attained'. Whilst humans and animals differed in terms of their reason, instincts and emotions, 'their bodily feelings are alike, and they are in their due proportions susceptible of pain'.⁵⁴⁹ Quakers were aware of 'a similarity of natures, through all animated creation'.⁵⁵⁰ Priscilla Wakefield went so far as to claim that 'canine virtue...was not very different from moral virtue', and that animals merited human kindness on the grounds of their cognitive abilities.⁵⁵¹ Howard Brinton concluded that 'Quakers were not sure about the presence of the Light in animals'.⁵⁵² Clarkson suggested that their attitude towards animals was an outgrowth of the benevolence towards fellow humans to which Quaker 'principles' led:⁵⁵³ those who were kind to others would always extend that kindness to the creatures around them.⁵⁵⁴ Brinton felt that Quaker attitudes were based primarily on 'a sensitive conscience through which shone the Inward Light, the ultimate source of moral and religious insight'.⁵⁵⁵

Quakers saw a caring attitude towards animals as an integral part of the virtuous life. William Allen considered it to be part of a lived philosophy based upon scientific inquiry and humility, and the proper exercise of divinely-given rational

⁵⁴⁸ Ibid., 1: 148.

⁵⁴⁹ Ibid., 1: 151.

⁵⁵⁰ Ibid., 1: 150.

⁵⁵¹ Wakefield, *Instinct Displayed*, 192. See also Thomas, *Man and Nature*, 140, and Goldin and Kilroe, *Human Life and the Natural World*, 173.

⁵⁵² Brinton, 'Quakers and Animals', 189.

⁵⁵³ Clarkson, *Portraiture of Quakerism*, 3: 179-80.

⁵⁵⁴ Ibid., 3: 179.

⁵⁵⁵ Brinton, 'Quakers and Animals', 188-9.

faculties.⁵⁵⁶ ‘True philosophy’, asserted Allen, taught its followers ‘to set a proper value on all the productions of the Creator, and leads them to feel even for the least of his animate beings’.⁵⁵⁷ A tract of 1823 opposing cruelty to livestock at London’s Smithfield Market⁵⁵⁸ saw the proper treatment of all animals as central to practical Christianity:

...the great design of Christianity is to eradicate [selfishness]...and to implant in its stead universal love...to delight in the happiness and to sympathise in the suffering of every sentient being, and to stimulate our utmost exertions to promote the one and to remove the other.

These Friends regarded the way someone treated animals as a measure of that person in general. Clarkson quoted William Allen: ‘There appears to me such a meanness and lowness of disposition in those who are cruel to animals that I think I could not put confidence in them, even in the common concerns of life’. The author of the ‘Smithfield’ tract agreed that our ‘treatment of animals... may be regarded as an accurate criterion of our humanity towards our own species’,⁵⁵⁹ since cruelty to brute animals was indicative of ‘a selfish, sordid, unfeeling character’.⁵⁶⁰ Cruelty to animals not only caused them hurt and distress but also had a ‘degrading and brutalizing’ effect on the perpetrator.⁵⁶¹ She concluded that ‘no propensity in human nature is more directly hostile to the well-being and good order of society...to every principle of religion and justice – than cruelty’.⁵⁶²

⁵⁵⁶ Allen, *Life*, 1: 72.

⁵⁵⁷ *Ibid.*

⁵⁵⁸ Anon. *Cursory Remarks on the Evil Tendency of Unrestrained Cruelty; Particularly on that Practised in Smithfield Market* (London: Harvey and Darton, 1823). A marginal note on the title page of the copy in the Woodbrooke Library indicates the author was ‘probably Elizabeth Heyrick’.

⁵⁵⁹ *Ibid.*, 14.

⁵⁶⁰ *Ibid.*, 15.

⁵⁶¹ *Ibid.*, 23.

⁵⁶² *Ibid.*, 24.

4.5.4 Nature as a Spiritual Resource

Friends frequently manifested a sense of unity with nature in practical ways, and also in verse. Richard Reynolds, for example, was ‘in the habit of feeding the birds from the windows of his study’,⁵⁶³ whilst Thomas Wilkinson (1751-1836) was particularly generous towards his garden birds: ‘I scarce would forbid you the use of my trees / When you go with my cherries and pilfer my peas’.⁵⁶⁴ Bernard Barton (1784-1849)⁵⁶⁵ saw the Robin’s song as a model for his own writing, hoping that his verses would be perceived in the way that he heard the bird’s song:

And I methinks, were well content,
Like thee, to be by most unheeded,
If with my artless strains there went,
As with thy own, a charm that pleaded
For Nature, Tenderness, and Truth...⁵⁶⁶

The poets, William and Mary Howitt, described an awakening by nature of a faculty of inward spiritual understanding with which God had already endowed humanity. Once awakened, the feeling of joy and kinship with the living world that this engendered persisted as a constant state of heightened awareness.⁵⁶⁷ A voice from ‘the soul’s deepest dwelling’ reminded the poet:

That God hath given thee a discerning power
To see how love and beauty, side by side,
Wait on thee; and dost feel in every hour
A sympathy of joy with all that lives...⁵⁶⁸

Abraham Shackleton, too, invested ‘Nature’ with spiritual power:

⁵⁶³ Reynolds, *Memoir*, 35.

⁵⁶⁴ Thomas Wilkinson, ‘To My Thrushes, Blackbirds, Etc.’ in Armitage, *Quaker Poets*, 304-6.

⁵⁶⁵ Bernard Barton was, from 1812 onwards, a prolific writer of poetry described as ‘unaffected...[with] occasional touches of deep and genuine pathos’. By the 1880s, his poetry was ‘quite forgotten’ and he was chiefly remembered as the friend of Charles Lamb (London Friends Institute, *Bibliographical Catalogue*, 60/63).

⁵⁶⁶ Bernard Barton, ‘To a Robin’, in *Napoleon, and Other Poems* (London: Thomas Boys, 1822), 125.

⁵⁶⁷ William and Mary Howitt, ‘Human Destiny’, in Howitt and Howitt, *Desolation of Eyam*, 89-93.

⁵⁶⁸ *Ibid.*, 92.

Who has not felt the secret charm,
Which swells the sympathetic heart,
When life, with renovation warm,
Unfolds the elegance of form,
By powerful Nature's plastic art?

The Quaker poet, Charles Lloyd (1748-1828) also attested to his belief in the potential for renewal of the human spirit through the experience of nature. Nature's spiritual qualities, beaming 'with boundless love' could succeed where human agency had failed: 'Nature, thou alone can boast the power' to restore the human soul 'aspiring to her kindred sky' but wounded by 'unrequited friendship' or 'the fluttering world's unmeaning strife'.⁵⁶⁹ Referring to her lifelong interest in flowers, shells and other natural objects, Elizabeth Fry described how 'in the midst even of deep trouble, and often most weighty engagements of a religious and philanthropic nature' she derived 'advantage, refreshment, and pleasure, from my taste for these things'.⁵⁷⁰

However, Quakers frequently qualified their belief in the spiritual power of nature. Charles Lloyd, despite his first-hand experience of nature's healing power, believed that God's power was greater (see also 4.3.1). Describing an earthly paradise far removed from worldly cares and strife, in which 'a man might hope to pass his life', he was led, 'piercing, while his ears heaven's music drink, Nature's profoundest depths, the God of Nature [to] thank'.⁵⁷¹ Whilst 'Nature' beamed 'with boundless love', it was the 'God of Nature' who 'would instruct you'.⁵⁷² Indeed, Quakers were warned against using 'Nature' as a substitute for 'God'.⁵⁷³ The moral philosopher, Jonathan Dymond stated that 'there are few senses in the word ['Nature']

⁵⁶⁹ Charles Lloyd, 'A Poetical Effusion, written after a Journey into North Wales', in Charles Lloyd, *Poems* 3rd ed. (London: J. and A. Arch, 1819), 2-3.

⁵⁷⁰ Elizabeth Fry, *Memoir*, 11.

⁵⁷¹ Charles Lloyd, 'Stanzas', in Lloyd, *Poems*, 128.

⁵⁷² Lloyd, 'Poetical Effusion', 3.

⁵⁷³ Dymond, *Essays on Morality*, 132.

is used, that do not refer, however obscurely, to God'.⁵⁷⁴ He argued that aphorisms such as “‘Nature teaches us to adhere to truth’” gave ‘Nature’ a ‘fallacious’ authority and urged that Robert Boyle’s advice⁵⁷⁵ be heeded that it should not be used in this way. There is also evidence of continuing caution about the relative spiritual value of outward beauty in nature (4.3.1). Although John Scott (1730-1783) celebrated nature, landscape and rural life in verse,⁵⁷⁶ in a poem written for Quaker physician John Coakley Lettson, he asserted that human compassion and practical help to the less fortunate (as exemplified by Lettson) meant more ‘to the feeling heart’ than ‘Nature’s beauteous scenes’.⁵⁷⁷

4.5.5 Divine Intervention in Creation

Geoffrey Cantor points out the similarity of Collinson’s reaction to the catastrophic Lisbon earthquake of 1755 to Fox’s response to the Plague and Great Fire of London nearly a century earlier.⁵⁷⁸ Collinson saw the earthquake as divine retribution for human sin, particularly with reference to the Roman Catholic Church’s harsh treatment of heretics:

...you will have heard of the Totall overthrow of the Great City of Lisbon by an Earthquake Novembr 1 in the Morning on which Day was to have been their Cruel auto de Fae, but it pleased God to shake the Strong hold of Satan & Bury those Workers of Iniquity in its Ruins, not only Lisbon but all the Cittys of Portugal & Sevil & many other Cittys & Destroying many thousands of the Inhabitants.⁵⁷⁹

⁵⁷⁴ Ibid., 36.

⁵⁷⁵ Dymond quotes Boyle thus: ‘Nature is sometimes, indeed commonly, taken for a kind of semi-deity. In this sense it is best not to use it at all.’ (Robert Boyle, *Free Inquiry into the vulgarly received Notions of Nature* quoted by Dymond, *Essays on Morality*, 132.)

⁵⁷⁶ Armitage, *Quaker Poets*, 241-2.

⁵⁷⁷ *The Poetical Works of John Scott Esq.* 2nd ed. (London: J. Buckland, 1836), 193.

⁵⁷⁸ Geoffrey Cantor, ‘Quakers in the Royal Society’ *Notes and Records of the Royal Society* vol.51 1997, 189.

⁵⁷⁹ Collinson to Jared Eliot, December 15, 1755, in Armstrong, *Letters of Peter Collinson*, 193.

Eighteenth century British Quakers could also see the hand of God at work in thwarting the aggressive intentions of foreign powers towards Britain. Catherine Phillips recounted that, in 1779, the French and Spanish fleets were anchored off Falmouth with presumed hostile intents, and how she experienced a premonition in Meeting for Worship that God would intervene to prevent ‘the intended mischief’.⁵⁸⁰ She noted the wind rising as Friends returned home from Meeting, followed by a violent and prolonged storm, and avers how:

the Lord, who holdeth ‘the wind in his fists,’ discharged against them his terrible artillery so powerfully, as to prevent their designs, and obliged them to seer off from our coasts in a shattered state O! what frequent occasions have Britons to ‘praise the Lord for his mercy’ and wonderful interference in their favour!⁵⁸¹

More typical are statements of belief in divine intervention in the operation of creation that take the form of expressions of gratitude for the continuance of God’s providence for his creation, and for humankind in particular. Peter Collinson wrote that, after the very wet summer of 1756, ‘it pleased God most graciously at the Very Critical Time when our Harvest begins to send us Three Weeks continued Fine Weather, so now Wee have all Cause to be very Thankfull’.⁵⁸² Such gratitude was often intensely personal as, for example, when Thomas Shillitoe described the ending of a storm on a difficult voyage from Liverpool to New York: ‘...the day closed with feelings of reverent gratitude to the Author of all our mercies, who had been pleased to be with me from time to time, since traversing this watery element...’⁵⁸³

⁵⁸⁰ Catherine Phillips, *Memoirs*, 254.

⁵⁸¹ *Ibid.*, 255.

⁵⁸² Collinson to John Frederick Gronovius, September 17, 1756, in Armstrong, *Letters of Peter Collinson*, 201.

⁵⁸³ Shillitoe, *Journal*, 2: 147.

4.6 CONCLUSION

This section re-examines the character of Quaker responses to the physical world outlined in 4.1.1, in the light of the evidence presented. It discusses the findings of this chapter in relation to three major developments over the period: the growth of the natural world as a shared concern of Quakers; the co-existence of diverse views on the relationship between theology and the natural world; and the changing balance between revelation and empiricism in the search for knowledge.

4.6.1 From Private to Public Concern

New Sources of Evidence

One of the most distinctive features of this period relates to changes in the nature, sources and quantity of the evidence itself. For much of the 18th century, the natural world seems to have been ignored in the records of the corporate or ‘official’ life of the Society of Friends in Britain. Indeed, despite the widespread involvement of Quakers in the practical exploitation of natural resources in manufacturing industry, few references to the natural world in Quaker thought or spiritual experience have been found from the first two decades of this period. The subject re-appears in the 1730s, characteristically, however, in private correspondence (which shows evidence of significant personal involvement and networking) between trusted F(f)riends and colleagues. The fact that the editors of Thomas Story’s *Journal* (published 1747) thought it necessary to explain to readers why it contained so little on his scientific interests suggests that whilst Story himself regarded such subjects as relatively unimportant, some mid-18th century readers might have been surprised at this omission. A new level of engagement with the natural world is evident from the

1770s onwards, as Quakers became involved in publishing scientific findings, initially for a specialist audience, and later, by way of popular works aimed at a much wider, though not specifically Quaker, readership. Quaker poets of the early 19th century frequently addressed scientific and non-scientific ideas about nature. However, it was not until the 1790s that the first, brief, reference to the natural world was recorded by British Quakers as a body, specifically in relation to their concern about the cruelty of field sports. By the 1820s, polemics for and against the value of empiricism and human reason, and on the factual truth of the biblical account of creation, appeared in Friends' Journals or other publications directed at Friends as part of a more open exchange of views.

The Natural World in Quaker Culture

Despite its virtual absence from the formal discipline of Quakerism in Britain, by the close of the period the natural world came to occupy a significant place in a wider, informal Quaker culture. Friends were prominent in the application of scientific knowledge to industry, horticulture and medicine, and gardening and practical natural history were popular leisure pursuits, and a significant part of many a Quaker child's upbringing. Overall, it appears that the origins of an interest in the natural world on the part of some Friends were likely to be found in the influence of family, or friends within the local Quaker community early in life. Engagement with the natural world brought together Friends with different theological beliefs, who appear to have co-existed without significant conflict. A Quaker 'scientific community' might be recognized which also fostered friendships and intellectual co-operation outside the Society of Friends, at a time of promotion of the 'hedge' to protect Quakers' religious legacy. Nature was also an acceptable medium for the expression of Friends'

aesthetic and artistic sensibilities and skills, and largely compatible with the Quaker emphasis on plainness.

4.6.2 The Growth of Theological Diversity

The competing claims of Quietism and rationalism might have been expected to lead to tensions between Friends, and between individuals and the Society of Friends, over their views on the relationship between the spiritual life and the natural world.

Indeed, whilst some Quaker scientists and naturalists were well-esteemed as Quakers, and a few occupied leading roles within the Society, others severed their links with Quakers in the later part of the period. However, in general, such departures were not explicitly related to Friends' views on this topic. The privatization of discourse and involvement in the natural world under the influence of the prevailing Quietist orthodoxy within British Quakers appears to have allowed for the co-existence of different experiences and beliefs. The exploration of the creation dialectic in sections 4.3.1 and 4.3.2 suggests that, by the later part of the period, Quakers were remarkable for the diversity and range of their views on the place of the natural world in theology and revelation.

Despite growing Quaker involvement in natural science and its applications, and support for natural theology (see below), belief in the God-centred dimension of the creation-dialectic seems to have persisted throughout the period. Thomas Story, Elizabeth Webb and Catherine Phillips stressed divine revelation as the way to knowledge of the creation, whilst Thomas Hancock re-iterated the orthodox Quaker position on the limitations of human cognitive abilities well into the 19th century. Friends differed in their attitudes to natural theology, both in relation to the capacities and significance of the human mind, and also in the ways they responded to the

experience of outward beauty in nature. Although Peter Collinson and John Fothergill shared a keen interest in natural history, the beauty of nature spoke spontaneously to Collinson of the providence of God; for Fothergill, it seems to have been primarily an innocent indulgence for the human senses. At the same time, the creation-centred dimension of the dialectic developed to the point where Quaker support can be identified for natural theology in all its major forms. Even the Quietist, Thomas Shillitoe, recognized his experience of natural beauty as theologically significant; William Allen and Priscilla Wakefield, for example, promoted the reasoned appreciation of the order of creation as evidence of the work of God, and Abraham Shackleton, the capacities of the human mind. For Elizabeth Fry and John Bartram, nature appears to have been the primary medium through which they had personal experience of the divine.

Developments in Quaker Natural Theology

In the first half of the period, Quakers appear to have been notably selective and rather cautious in their deployment of natural theology. Such expressions were limited mainly to illustrations from nature, either of God's will for way men and women should behave, or of God's providence to humanity (4.3.1). From the later 18th century onwards, however, Quaker expressions of natural theology appear to have become much more common, and surprisingly diverse. Based on empirical evidence from the natural world, they were characteristically experiential in the sense that they involved some kind of spiritual response to the natural world. In some cases authors made clear their belief that any intimation of the divine presence or will gained through such experiences was not possible through natural human faculties but depended on the operation of the divine inward light. Later expressions of this

‘pseudo-natural’ theology come from the early 19th century, expressed as a positive and more evenly-balanced symbiosis between human experience of the outward creation and the inward divine light working together to lead the individual towards a knowledge of God. This kind of process is therefore not wholly ‘natural’ in any sense of that term.

Increasingly, however, Quakers described such personal experiences without any reference to the inward light. Such accounts suggest that the natural human capacity for wonder and imagination and the appreciation of visual beauty could engage with empirical experience of the natural world to lead to an experience and knowledge of God. A few Friends, including John Bartram and Elizabeth Fry, went so far as to admit that their experience of the divine was largely or even entirely mediated by nature in this way, a considerable departure from the orthodox Quaker emphasis on immediate revelation. .

By the end of the period, there seems to have been widespread Quaker support for the ‘argument from design’, in the sense that the consideration of the adaptations and organization of the natural world, as disclosed in detail by scientific observation, clearly demonstrated divine power, wisdom and goodness, reinforcing the reality of God. William Allen’s slightly grudging but explicit approval of Paley (4.3.1) supports Brooke’s argument for the widespread appeal of such arguments (4.3.1): in this case it may have reflected Quaker distaste for sophisticated rhetoric, but respect for Paley’s scientific understanding, as well as support for his underlying argument.⁵⁸⁴

Whilst Friends remained divided on the value of human reason, their approach to natural theology may be seen as distinctive in three respects. Firstly, there is little or no evidence of Quaker interest in arguments or ‘proofs’ of the existence of God by

reason alone. Secondly, for the first Quakers, natural theology based on the consideration of created things existed only as ‘pseudo-natural’ theology in that it was dependent on the operation of the divine inward light. Thirdly, all expressions of Quaker natural theology were based on the direct personal experience of the created world, either spiritual or empirical, rather than on the power of argument or rhetoric. As the 20th century Quaker scientist, Arthur Eddington, observed many years later, Quakers generally were much more interested in the revelation of God than in proofs of his existence.⁵⁸⁵

4.6.3 The Changing Balance between Revelation and Empiricism

Notwithstanding this diversity, certain trends can be identified over the period in relation to the acquisition of knowledge about the creation. These are the growing importance of empirical observation and human reason on the one hand, and the diminished scope for revelation and the inward light on the other.

The Impact of Quietism

Personal testimony to the continuing reality of the God-centred dimension of the creation-dialectic comes from Elizabeth Webb and Catherine Phillips, both of whom testified to personal experience that appeared to recapitulate aspects of the revelation of creation to George Fox. In neither case does it appear that the experience led to an awakening of a scientific interest in the creation. Indeed, whilst Damiano’s ‘alternative reality’ of Quietist revelation might incorporate a sense of the harmony and the spiritual significance of creation, it is unclear as to what extent, and how, this

⁵⁸⁴ Eddy points out that, prior to the *Natural Theology*, Paley was known for his plain and unadorned

could accommodate the pursuit of a scientific view of the natural world. Whilst Thomas Story was clearly interested in the physical world, his perception of the relationship between his factual knowledge of creation and his experience of divine revelation is less clear: his emphasis on the essential difference between natural and spiritual knowledge does little to resolve this point. Clarkson and later authors also questioned the relationship between the Quietist model of the re-enchantment of the creation, the role of the inward light, and Quaker views on the treatment of animals. Clarkson considered that this concern was a by-product of their concern for fellow humans, whilst Howard Brinton also stops short of attributing what he describes as the ‘intuitive’ concern shown by Quakers to animals to personal spiritual transformation.

The epistemological priorities of Quietism cannot be regarded as directly conducive to the study of the natural world, since the latter was seen to divert attention away from spiritual attainment and towards outward things, and served to elevate the importance attached to purely human powers of observation and reason. The direct antagonism described by John Rutty between his spiritual life and his scientific research may have been an extreme position, seldom encountered in Quaker literature of the period. Nevertheless, it can be seen as an authentic product of the Quietist dialectic, which, whilst it might encompass a divinely-inspired view of humanity’s place in creation, left little room for the unfettered application of human curiosity and human reason to the scientific exploration of the natural world. However, whilst Quietism may be seen as a constraint on scientific thinking and activity, it probably also served to channel Quaker science in particular directions. Thus scientific Friends concentrated on observation and experiment, particularly with

style of writing (Eddy, ‘Rhetoric and Science’, 5).

a view to practical applications for the benefit of humanity, rather than the philosophy of science and the formulation of hypotheses and theories.

The Growth of Quaker Science

Despite continuing Quaker reservations about the consequences and the value of science, many intellectual Friends became persuaded that science was *the* way to study the natural world in order to reveal its truths. Without challenging directly the tenets of Quietism, the period saw a significant shift in terms of the growing epistemological value attributed to the outward creation. Knowledge of God's world was increasingly seen to come from the study of that world itself, by the powers of human observation and reason. Whilst 18th century Friends frequently justified science on the grounds of its contribution to natural theology, no clear evidence has been found of any Quaker naturalist or scientist after Thomas Story suggesting that an understanding of the natural world came through divine revelation rather than empirical observation. Whilst the role of the divine inward light diminished in relation to natural theology (see above), it appears to have all but vanished from the world of science.

John Fothergill's emphases, in particular, also reflect an increasing tendency for personal motivation to scientific study by Friends to be independent of spiritual transformation or development. The fact that he felt it necessary to urge others to remember the creator of the natural world in the excitement of their scientific work suggests a partial uncoupling of science from religious experience. Motivation for the pursuit of science in practice was more likely to come from a variety of other sources, both within and outside the Quaker community. These included personal experience

⁵⁸⁵ Arthur Stanley Eddington, *Science and the Unseen World* (London: Allen & Unwin: 1929), 42-48.

of nature itself, the general climate of curiosity about the world, influence of family and friends (especially other Quakers) and the growth of scientific communities, as well as the drive to better the material condition of humankind. By the late 18th century, some Friends had come to regard differences in religious doctrine as unimportant compared to the development of human capacities for humanitarian ends. J.C. Lettsom referred to Dr Fothergill and himself as ‘born and educated Quakers’, but trusted that ‘I entertain no narrow selfish notions of Religion, as I believe all are equally children of one supreme beneficent creator – equally regarded by their common parent in proportion to their intellectual improvement’.⁵⁸⁶

4.7 CHAPTER SUMMARY

This chapter showed how 18th century Quaker thinking on the natural world reflected the contrasting influences of outside intellectual ideas on the one hand, and the doctrines of Quietism on the other. Discourse was effectively privatized until the later years of the period, when Quaker authors variously set out to promote support for science and natural theology, whilst others warned of over-reliance on empiricism and human reason. Whilst positions were diverse, there was a significant growth in support for empiricism and natural theology, and in involvement with science. However, it is argued that although the God-centred dimension of the creation dialectic continued, explicit evidence of an awareness of a role for the inward light in either natural theology or science is largely absent. Whilst the natural world was largely ignored in the official corporate life of the Society of Friends, this contrasted with the growth of popular science in Quaker culture by the end of the period.

⁵⁸⁶ Lawrence and MacDonald, *Letters of Lettsom*, 137.

5. CHANGE, CONTINUITY AND DIVERSITY 1647-1830

Chapters 2, 3 and 4 considered the place of the natural world in Quaker thought and experience in a chronological sequence of three periods, from the start of Quakerism up to the early 19th century. This chapter presents the principal findings of the study for the period as whole (5.1), their implications for previous scholarship (5.2), and suggestions for further research (5.3).

5.1 PRINCIPAL FINDINGS

Findings from each of the four themes considered in turn are presented, with particular reference to elements of continuity and change over the period of study (5.1.1 to 5.1.4). Cutting across thematic boundaries as appropriate, conclusions are then presented relating to the key questions posed in 1.1.1, and particularly on the diversity of Quaker responses to the natural world. These are framed in a discussion of the complexities of the relationship between Quakerism and science (5.1.5), of the role of the natural world in the spiritual experiences of individuals and in theology (5.1.6), and of the place of the natural world in Quaker life and culture (5.1.7). The findings are concluded with an overview of the different ways in which Quakers came to perceive the natural world as a resource in their lives (5.1.8). The main findings are summarized in 5.1.9.

5.1.1 The Nature and Status of Creation

The nature of the evidence here shifts over time from beliefs about the moral status of creation, based on scripture, to questions about the physical nature of the world. The

latter includes forays into metaphysical speculation in the later 17th century, and in the 18th century, intuition and, increasingly, scientific questions and answers (1.4.2).

God's Continuing Creation

Although early Quakers used nature as a source of conventional (biblical) metaphors for human struggles and failings (2.3.3), their experiences of the natural world were enlightened by spiritual transformation and as such were generally highly positive. This experience of nature, as God had intended it to be, reflected the biblical account of the creation as the work and providence of God. George Fox, and other early Friends, believed that originally the whole of the created world was intrinsically good (2.2.1) and, throughout the period, Quakers described the natural world as the visible evidence of God's wisdom and power and of his providence to humanity. Whilst the fall of humanity had impacted on the creation as a whole, and had distorted the relationship between humanity and the rest of creation, the latter did not share in human sinfulness (2.2.2). Early Quakers not only emphasized the essential distinction between the creator and his creation, but also distinguished between the creation or natural world (God's providence) on the one hand, and 'the world' of fallen humanity, based on greed, pride and ignorance, on the other. Compared with the negative views of some of their Puritan contemporaries, early Quakers' spiritual experiences led them to a distinctly optimistic view of creation. There is no convincing evidence that Fox or other Quakers shared the Gnostic view of creation as being intrinsically evil, or not of God (2.2.2).

Early Quaker leaders agreed that the creation as a whole, and the relationship between humanity and the rest of creation, could be restored to its original perfection through the personal restoration of human beings in Christ (2.2.3). Although this idea

was lost, Quakers shared the general belief that God continued to actively uphold and support his creation. Despite the growing awareness that the creation was underpinned by laws that science revealed, it was believed that God could also choose to intervene in the normal operation of the physical world, both positively as the result of prayer, for example, or negatively as a punishment and a warning to the wicked. There was also general agreement on the transient character of the material world, as opposed to the permanent reality of spiritual salvation through Christ (3.2.3). Although individual Quakers were accused of deism by their detractors, there is little or no evidence of truly deistic views among Friends during the period. There was however, a persistent ambiguity or tension between dualistic and unified interpretations by various Friends of the relationship between spirit and matter in the world (3.2.3), although it seems unlikely that Friends ever extended their belief in the inward light in human beings to include the animal creation. Whilst individual positions varied, Friends generally avoided the extremes of pantheism on the one hand, and mechanistic views of the physical world on the other.

Order in the Material Creation

Quakers generally reflected wider intellectual changes in the way that the creation was viewed and over the period of study, questions concerning the nature of creation became increasingly specific, concerned more with the scientific nature of the physical world, rather than its moral or metaphysical status. Friends were sometimes at the forefront of the development or promotion of new ideas about the physical world. From the 1670s onwards for nearly a century, a few Quakers postulated radical interpretations of the physical nature of God's creation, particularly in relation to physical change and to its age, suggesting that changes were the result of

essentially natural processes that appeared to have operated over vastly longer periods of time than was commonly believed (3.2.2; 4.4.3). Many 18th and early 19th century Quakers shared with non-Quakers a particular interest in the exploration of the present natural order of the physical world, not only in the classification of natural objects, but also in the operation of natural processes (4.2.2).

5.1.2 The Creation Dialectic

The natural world was important in the spiritual lives of many individual Quakers in terms of the experience of a direct relationship between knowledge of God and knowledge of the creation. This relationship is characterized in this thesis as the two dimensions of a ‘creation-dialectic’. Whilst the dialectic is based on experiential evidence, it is essentially concerned with spiritual experience and understanding (1.4.2). The manifestation of the dialectic continued throughout the period, but changed significantly over time, as intellectual Quakers gradually absorbed outside ideas on the value of empirical experience and to some extent, human reason, and their relationship to God’s purposes and divine revelation.

Revelation and the Inward Light

For Fox and other early Quakers, it was God who revealed the nature, uses and order of creation directly to human beings as they were spiritually transformed through the inward light of Christ (2.3.2). The revelation of the creation to Fox in 1648 was a uniquely powerful event in the story of the Quaker creation dialectic (2.3.2). There are echoes of this experience of revelation from some of his contemporaries in the 1650s, but no further evidence has been found of Friends experiencing similar

‘openings’ later in the 17th century. After the Restoration period, most Quakers were members of the Society of Friends by virtue of their parentage, rather than by conviction. The God-centred dimension of the dialectic became didactic as well as experiential, often expressed in terms of belief in the necessity for continuing divine guidance in the study of creation to reveal its true nature and order, and thereby the wisdom of God (3.3.2; 4.3.2). Whilst the revelation of creation by God as experienced by Fox, re-appeared in the experience and testimonies of some 18th century Friends (4.3.2), there is little evidence that this was regarded as being of particular spiritual significance by contemporary Quakers.

The creation-centred dimension of the dialectic was incipient in a ‘static’ state in that the creation was seen to be the visible expression of God’s wisdom and power on earth (2.3.3). In the 17th century, both dimensions of the dialectic were held together by the operation of the inward divine light, even after the explicit recognition of the creation-centred dimension of the dialectic in the Restoration period (3.3.2). Thus both the God-centred and creation-centred dimensions of the dialectic were understood to be dependent upon the work of divine forces.

In the 18th century, the creation-centred dimension diversified significantly in terms of expressions of natural theology, and evidence appears of the creation-centred dimension freeing itself of the inward light, and the emergence of true natural theology, dependent only upon the natural human senses and the powers of human reason (4.3.1). By the early 19th century, there is also evidence of attempts to renew and redefine the God-centred dimension of the dialectic, involving a profound change in the orthodox Quaker understanding of divine revelation. In this way William Allen could reclaim Penn’s contribution to Quaker heritage to describe new knowledge of

the physical world obtained by empirical observation, experiment and reason, as ‘divine revelation’ (4.3.1 & 4.3.2).

The Growth of Natural Theology

One of the most significant changes with respect to the creation-dialectic concerns the emergence and development of natural theology. In the early years of Quakerism, Fox used conventional objects from nature to illustrate spiritual truths, whilst other 17th century Friends cited the works of nature as illustrations of the power and wisdom of God. Such knowledge, however, was accessible only through the medium of the divine inward light (pseudo-natural’ theology), and it was not until the 18th century that unambiguous evidence for natural theology as such emerges among Friends, based on empirical observation of the created world and human reason, and apparently independent of any supernatural medium. Much of this evidence is based on Friends’ responses to their own experiences of visual beauty or intellectual order in nature, although explicit support for Paley’s ‘Argument from Design’ appeared late in the century (4.3.1). Throughout the whole period there is continuity in that Quaker deployment of natural theology was based on personal spiritual or empirical experience of creation, rather than the power of logical argument or rhetoric.

Friends’ responses to visual beauty in nature varied, and their views on the relationship between aesthetics and spirituality show elements of continuity and change. From early times, some Friends, at least, were ready to accept the spiritual value of outward beauty in creation in the sense of an appeal to the moral or, later on, also the intellectual faculties. However, until the influence of the Romantic movement in the late 18th century, reservations about outward beauty in the sense of that which primarily afforded sensual (visual) pleasure remained persistent and

widespread, on the grounds that it distracted from the spiritual life. Views on natural beauty in this sense relaxed and also diverged in the 18th century: for some, visible beauty was an integral part of religious experience; others saw the appreciation of visual beauty as an essentially sensual and secular response, not directly related to religious experience (4.3.1).

The purposes for which Quakers deployed natural theology also developed over time. Fox intended his models and parables from nature to foster greater spiritual awareness and education, whilst for many 17th century Friends, ‘pseudo-natural’ theology was the lens through which they found integrity and meaning in the physical creation and humanity’s place in it, which became important as belief in the symbolic qualities of natural objects declined. Penn explicitly extended this purpose to foster a sense of care and stewardship towards the creation, and also established natural theology as a justification for the pursuit of natural science. These didactic and celebratory purposes continued in the 18th century, but were joined by the development of natural theology by individuals as a way to personal experience of the divine through nature. At the end of the 18th century, Quakers, like other churches at the time, were prepared to use the argument from design to make common cause with the wider Christian community. However, Quakers do not seem to have been much concerned to use natural theology as a way to prove the existence of God.

5.1.3 Epistemology of Creation

The Growth of Empiricism

Throughout the period, there is a recurring emphasis on the primacy of direct personal experience over other sources in the search for knowledge of the creation. Over time,

however, the emphasis shifted in terms of the kind of experience most relevant to furthering knowledge of the natural world, from divine revelation to empirical observation of the physical world based on the human senses. William Penn's affirmative description of George Fox as 'a divine and a naturalist' suggests that Fox valued both kinds of knowledge, although this statement could also be seen as reflecting and vindicating Penn's own position. Fox himself consistently played down the epistemological significance of the outward world in favour of inward spiritual knowledge. The tension between 'inward' and 'outward' knowledge that some modern authors have recognized in Fox, and most have identified in Robert Barclay onwards, remained a persistent feature of Quaker thinking throughout the period. Most Friends during the period in question agreed that direct divine revelation was the highest form of experience, and some continued to believe that this remained the surest way to knowledge of the world. The transition from the belief that God was the source of knowledge of God and of creation, to the recognition of separate realms of knowledge – God known by inward knowledge, and the creation known by outward knowledge – was never complete for Friends during this period. One or the other dimension of the creation dialectic continued to be experienced by individual Friends.

Although Fox accepted that empirical knowledge in this context could be of practical value, God's revelation of creation to him was part of his spiritual transformation in Christ, potentially available to others, and it has been argued, a potent sign of the authenticity of that transformation (2.4.2). Thomas Lawson also referred to the supposed Adamic knowledge, and also to the biblical example of Solomon whose knowledge of creation was a sign of the wisdom he had requested and received from God. Whilst Penn was an early champion of human observation

and reason in the search for knowledge, Lawson, F.M. van Helmont and Thomas Story all suggested that the quest for knowledge of the creation involved both direct observation of nature and divine revelation (3.4.1). Whilst Story's and Bartram's ideas on the age and nature of the Earth may have been speculative, they appear to have originated with empirical observations on the present material world (4.4.3). These observations were recognized as important evidence for elucidating the history of the Earth in the distant past, normally understood to be the realm of the Bible.

The experiential and epistemological continuum which individuals of a rationalist tendency like Penn, Collinson and Shackleton saw between the spiritual life and empirical inquiry was probably a relatively unusual position among Quakers. After Story, the evidence suggests that most Quakers perceived the kinds of knowledge that came from spiritual and empirical sources to be separate and different. Whilst there is continuing evidence of the experience of appreciation of the creation by revelation, this appears to have been regarded as distinct from scientific understanding. Fox's described the creation being 'opened to him' as an instantaneous spiritual experience. In contrast, for Lawson, van Helmont, and later Friends, gaining knowledge of the created world was a gradual and painstaking process, increasingly based on empirical observation and methodical study (3.4.2). By the mid-18th century, it seems to have been widely accepted by Friends that the principal source of knowledge of the created world was the created world itself, and the tools for the task of gaining that knowledge were the human senses and, to varying extents, human reason (4.4.1).

Reservations about Human Reason

Despite growing support from individual Quakers for empiricism and science, caution was urged from within the Quaker community throughout the period about the limitations of human reason and the inferiority of knowledge and ideas that were not inspired by divine wisdom. From the time of van Helmont to the early 19th century, caution was consistently urged from within the Quaker community against speculative ideas about the nature of the created world that were periodically advanced by individual Friends (3.4.1). Helmontian Quakers based their ideas on philosophical and theological considerations (3.2.2), whilst later speculations were usually intuitive ideas that had some basis in the observation of the natural world. In both cases, however, the ideas were predominantly the result of ‘natural’ human reason, which many Quakers continued to believe was an inadequate basis on its own for the acquisition of true knowledge, either because it operated independently of the guiding divine light, or in the case of the scientifically-minded, were based on inadequate evidence.

Some Quakers also expressed reservations about the value of scientific endeavours as such, in terms of their ability to yield real knowledge about the underlying nature of the physical world, and about practical human relationships with it. Epitomized by Penington’s letter to the Royal Society (3.4.1), such views were persistent in some quarters and were also based on the perceived disparity between the unlimited wisdom of God and the limited powers of human reason (4.4.5).

The Role of Human Agencies and the Bible

Fox claimed that his awareness of the 'unity of creation' was divinely revealed to him as a child, but no record has been found of other Friends having this kind of childhood experience. Although direct personal experience remained central to Quaker epistemology of the created world, by the late 1650s it was accepted that the teaching of factual and useful information about the created world, including the use of books written for the purpose, was part of a moral education for young Quakers (3.4.3).

This belief in education proved a lasting legacy for many later Quakers, the origins of whose sensitivity to the natural world were attributed, either by themselves or their Quaker contemporaries, not to spiritual transformation but to the influences of family and F(f)riends in early childhood (4.4.4). The significance of such early experiences could, however, be greatly expanded and deepened in adult life both as a result of spiritual experiences and human influences. There is also evidence of some correlation between sensitivity to the natural world originated by human agency in childhood and support for natural theology in adult life. Whilst Penn and Barclay both cited outside intellectual authorities in support of their views on creation, until the end of the 18th century later Quakers seem to have been reluctant to join openly in discussion of outside intellectual ideas.

The late 18th and early 19th centuries saw a major growth in the publication of books by Quakers promoting popular science, especially natural history and geology, written both for Quaker and non-Quaker readers, especially older children. This would seem to reflect the growing acceptance of the importance of human agencies in learning about the physical world, and early influences from family and friends within the Quaker community seem to have been important in disposing Friends towards an awareness of the natural world. The involvement of Quakers in national and local

scientific communities that included non-Quakers, was highly effective in the dissemination of scientific knowledge to the community at large (4.4.4).

From their early days, Friends were presented with the challenge of reconciling knowledge gained through personal experience with the historical truth of the Bible. This did not present a problem so far as the moral status of creation was concerned, since the experience of Friends was generally in accord with the biblical record (2.2.1; 2.2.4). Whilst philosophical reflection, and more importantly, the growing body of observations on nature, prompted occasional expressions of doubt about received views on the age and the nature of the earth, Quakers generally seem to have been cautious about drawing evidence-based conclusions that conflicted with biblical statements. Whilst Friends sought to interpret the Bible in ways which accorded with their own experience and thinking about the natural world, it is likely that most Friends accepted the factual truth of the biblical accounts of creation. Only at the end of the period did some Quakers openly assert the superiority of biblical facts over the findings of the rapidly developing science of geology (4.4.3).

5.1.4 Living in God's Creation

Evidence on the practical matters of using and managing the rest of creation is remarkable for its continuity, in theory and, after the first period of Quakerism, in practice, over the period as a whole, as Friends tried to put into practice the implications of their beliefs. This also applies to Friends' belief in the continuing power of God to intervene at will in the natural world.

Exploitation and Stewardship of the Natural World

Fox urged his followers to fix their attention on things spiritual and to avoid the temptations of the material world (2.5.3). Nevertheless, 17th century Friends were keen to develop the resources of the natural world for human benefit, which was seen as integral to the goal of restoring humanity to its rightful place of dominion over the creation. Quaker individuals and groups were soon at the forefront of technological innovation and industrial development for peaceful purposes. Views on the politics of the distribution and ownership of natural resources varied, and some Quakers grew rich from their success in business (3.5.2). Friends were repeatedly advised to avoid outward expressions of material wealth and frivolous adornments: material resources were to be used responsibly, and excess wealth used to help the poor.

For Fox, the treatment of the creation was part of the new covenant with God, rather than a 'contractual' obligation to God. However, the explicit connection that Fox had made between the plain life on the one hand, and the proper use of God's creation and its stewardship for future generations on the other, was subsequently lost (3.5.2). By the end of the 17th century Quaker plainness had become codified in rules about plain speech, dress, manners and home furnishings. A stewardship ethos continued, however; it was principally understood to mean good husbandry of the land, a healthy life to produce wholesome food, which was encouraged on both large and small scales (3.5.2; 4.5.1). The planting and care of trees, especially for their useful potential, was also a significant concern for 18th century Quaker landowners. By the last quarter of the 18th century, some Quaker naturalists were aware that human activity could have negative effects on other species, and even lead to their extinction, through the destruction of their habitat. Whilst the diversity of different

species was stated to be part of the divine plan, there is no evidence of a concern for the conservation of species in a modern sense (4.5.2).

Attitudes to Living Creatures

Throughout the period Quakers, along with other dissenting groups, were noted for their sympathetic attitude towards animals. This was also manifested in their long-standing opposition to field sports, although the hunting of wild animals for food or other useful products could be condoned and even admired. Friends actively opposed unnecessary cruelty to animals, extending this even to lesser creatures such as insects (2.5.3; 3.5.2; 4.5.3).

The natural world was seen as a teaching resource for both self-knowledge and right behaviour from the 17th century onwards. Throughout the period, conventional metaphors from nature and agriculture were used to illustrate the human struggle for spiritual knowledge, whilst nature provided examples from the animal world of models for good and responsible behaviour (2.3.3; 3.3.1; 4.3.1). Ideas about the intrinsic mutuality of all living things were advocated by Helmontian Quakers (3.2.2), and appear again in Quaker poetry in the early 19th century. Influenced by Romantic ideas about 'Nature', the natural world was seen by these poets as a source of spiritual balm in its own right, whose pleasing harmonies and sympathetic reflections of the human condition could help to calm the tormented human soul (4.5.4).

5.1.5 Quakers and Science: A Complex Relationship

Although the relationship between Quakerism and science in the 17th and 18th centuries is now conventionally viewed as a positive one, in practice this relationship

was complex and ambiguous (1.1.1). Evidence to support this conclusion comes firstly from the synergies and tensions that are evident in contemporary individual responses to science, and secondly from the peculiar history of the way that the relationship between Quakers as a group and science at that time has been portrayed by later commentators (4.1.2 & below). Whilst certain tenets seem to have been shared by most Friends who took an interest in science, different attitudes to science also co-existed amongst individual Friends for much of the period, linked to different views on theology and the epistemological status of human reason (5.1.6).

Changing Assessments of Quakers in Science

One of the most remarkable features of the historiography of Quaker involvement in science is the way in which the assessment of that involvement was revised in the 20th century. Clarkson's negative evaluation (4.1.2) was repeated a century later by the leading Quaker scholar J.W. Rowntree, who wrote of 18th century Friends as having 'floated into a backwater',¹ and of 'a torpor of undeveloped intellectual power'.² Rowntree's remarks appear to disregard the fact that in 1888, the *Bibliographical Catalogue* recognized the scientific activities of numerous Friends (including many who were active during the 18th and early 19th centuries), and declared:

It is certainly remarkable how much there is worthy of record in members of so small a Community, and how large a proportion have made their mark in the varied walks of life. Science and Literature, Art and Manufacture, Philanthropy and Religion, Mission Effort and Education, Social Reforms and Mechanical Developments, have all had their furtherance from various members of our Society whose lives are here recorded.³

¹ Joshua Rowntree, ed. *John Wilhelm Rowntree: Essays and Addresses* (London: Headley Bros., 1905), 238.

² *Ibid.*, 237.

³ W. Beck, W.F. Wells, H.G. Chalkley, eds., *Biographical Catalogue Being an Account of the Lives of Friends and Others Whose Portraits are in the London Friends Institute* (London: Friends Institute, 1888), vi.

The elevation of the epistemological status of human reason and its applications had long been seen as potentially in conflict with traditional Quaker beliefs. Thomas Clarkson highlighted what he saw as a marked tendency amongst many of his Quaker contemporaries to devalue human learning and scientific knowledge (4.1.2). The Quaker historian, Rufus Jones, writing in 1921, illustrates the deep-seated nature of this tension when he described, without further explanation, John Dalton as being ‘dedicated to scientific truth, *but* [my emphasis] maintaining ...the ancestral faith in the Quaker principle of the Light within’⁴.

By the 1920s, however, Quaker and non-Quaker authors attested to Quakers’ involvement in science: one author stated that ‘scientific studies of all kinds made a very keen appeal to [18th century] Quakers’.⁵ Indeed, assessments appear to have quickly swung towards the opposite extreme, and unfounded claims were made about 18th century Quakers devoting themselves to science ‘with a success quite out of proportion to their numbers’⁶ (4.1.2; 4.4.4). Arthur Raistrick’s studies in the late 1940s presented a factual account of Quaker involvement in science and technology before 1800, and stimulated a fresh appraisal of the contribution of Quakers to scientific and industrial progress that continues to the present day. In the meantime, the view that Quakers individually and in groups have contributed significantly to science and technology, has prevailed among British Quakers and has been acknowledged to varying degrees by non-Quaker historians of science. This change in perception may have been influenced by several factors. Jones and Rowntree were keen to align Quakers with modern thinking (particularly on the nature of the Bible and on Darwin’s theory of evolution), and to distance them from 19th century

⁴ Rufus M. Jones, *The Later Periods of Quakerism*, (London: Macmillan, 1921), 2: 762.

⁵ Norman G. Brett-James, *The Life of Peter Collinson F.R.S. F.S.A* (London: Edgar G. Dunstan, n’ d. [1925?]), 46.

⁶ *Ibid.*, 15.

Evangelicals, and 18th century Quietists. The continuing impulse to promote Quakerism as relevant to the modern age saw Friends in the 1920s seeking to establish their past scientific, intellectual and social credentials, at a time when several Friends were prominent in British science. It may also be attributed to the new interest in Quaker history that emerged and was encouraged at this time, and to the fact that the writing and understanding of Quaker history had already broadened to take more account of Friends' achievements and involvements outside of their Quaker 'lives'. Thus Friends started to take more interest in activities by those of their predecessors that had been significant for the scientific community, but neglected by Quaker historians. However, it is also possible that, just as Clarkson may be anachronistic in his characterization of late 18th and early 19th century Friends in terms of 17th century Quaker experiences and traditions, some 20th century authors may have been influenced by 20th century Quaker ideas about the value of personal experience (see below), and projected these ideas backwards in time to explain (and exaggerate) 17th and 18th century Quakers' interest in science.

The fact that Quakers showed distinctive preferences in terms of the types of activities they pursued may, in itself, have contributed to the disparate conclusions reached by earlier authors about Quakers and science. Although many Friends supported the pursuit and popularization of natural history for its educational value, the demonstration it afforded of God's infinite wisdom and providence, and the cultivation of mental discipline and methodical habits, this was viewed in some quarters to be of low status in the wider context of what would come to be understood as natural science. With its emphasis on observation and record keeping, natural history was seen by some contemporary and later commentators as less incisive than inductive science, and on the margins of scientific activity or progress. Whilst there

were significant contributions to inductive science by individual Quakers from the second half of the 18th century, commentators seem to have been more influenced in their assessment by Quakers' contribution to natural history, than by that to natural science in a wider sense.

Synergies and Tensions

However, the modern conventional view of the appeal of science to Quakers in the past has tended to obscure the real complexities and ambiguities in that relationship that existed throughout the period. Thus, the pursuit of science was variously seen by contemporary Quakers as a means to a better life for the poor and the sick; as a way to know God and his creation; as an act of religious devotion, and as an innocent and healthy recreation. It was also regarded as a worldly temptation that could become an obsession and a diversion from the spiritual life. Although the nature of the evidence precludes a quantitative assessment, some of these views were probably more widespread among Friends than others, and the balance between them changed over time. Individuals, both those who were interested in science and those who were not, within the contemporary Quaker community identified tensions between Quakerism and science but, except for Cantor (and Douglas Gwyn), these have been largely ignored by modern authors. Moreover, contemporary Friends who supported rationalist and scientific ideas rarely seem to have attempted to explain how these related to Quaker doctrines. Although individual Friends explicitly advocated the empirical study of the physical world, an explicit causal relationship between the religious tenets of *Quakerism* and the attractions of scientific inquiry appears mainly to have been a construction of the 20th century. Several authors have suggested such a relationship, based on the appeal to personal experience, and the ongoing search for

truth, which have been perceived as common to both (4.1.2). However, there is little evidence that contemporary Quakers themselves (with the possible exception of William Penn) perceived such a connection, and most contemporary observations on the relationship between Quakerism (rather than Christian belief in general) and science relate to tensions. Contemporary synergies between Quakerism and science may perhaps be best explained in terms of the Quaker testimonies to integrity, simplicity and equality (1.1.1), rather than Quaker theology or the nature of Quakers spiritual experience.

Although several of the early Quaker leaders shared a keen awareness of the natural world, other than Fox's challenge to the Jesuit's Mass, and possibly Penn's reference to him as 'a naturalist', there is little contemporary evidence of pre-Restoration Quaker interest in the understanding of the physical world based on empirical observation and experiment. Later in the 17th century, however, Thomas Lawson became a keen naturalist in the modern sense, and William Penn championed this kind of scientific understanding as an important element in the foundation for material and spiritual progress by humanity. Penn's contemporary, Robert Barclay, on the other hand, regarded the pursuit of scientific knowledge as an acceptable recreation for Quakers, but of little or no relevance to the spiritual life to which Friends should aspire. The tension between these two significantly different emphases had an enduring effect, both on the relationship between Quakerism and science in the 18th century, and on the perception of that relationship by later authors.

5.1.6 The Natural World in Quaker Spiritual Experience and Theology

The created world played a significant part in the spiritual experiences of Fox and other early Friends, and whilst there is no reason to suppose that this was true of the spiritual lives of all, or even most, Quakers at any time, there is evidence of a heightened awareness of the natural world by individual Friends throughout the period. However, Quakers' beliefs about the significance and place of the natural world appears to have been much influenced by personal spiritual experience, and this, particularly after the 1660s, varied widely between individuals as well as between different generations of Friends. Whilst experience of the natural world was meaningful for many Friends, it did not lead them into theological unity and, after the early years of Quakerism, Friends appear to have agreed to differ in their attitudes to the place of the natural world in theology.

From Divine Revelation to Natural Theology

Fox and other early Quakers stated that their knowledge of creation was divinely imparted to them by immediate revelation. There were differences of emphasis: Nayler's and Burrough's accounts indicate they believed their understanding of creation to be a consequence of their spiritual transformation, whilst Fox and Penington seem to have perceived it to be a transitional or intermediate stage in their spiritual journey to full restoration in Christ (2.3.2). There seems to have been general agreement that personal spiritual transformation would collectively bring about the 'new creation', in which the whole creation would be reborn in God's image (2.2.3).

Although Lawson re-iterated the significance of Adam's knowledge, and some Quakers continued to stress the importance of divine revelation in understanding the creation for many years afterwards, Fox's beliefs about the significance of his revelation of the creation do not appear to have survived beyond the first generation of Friends. Moreover, Thomas Story's 'dream' is almost the only instance that has been found of a Quaker 'convincement' narrative involving the creation, later than the 1650s (3.3.1). The created world does not appear to have had a significant place in the spiritual life of Robert Barclay, whose influence on later Quakers was profound and long-lasting (5.1.6). Whilst there is evidence that some later Friends did experience what they believed to be divine revelation of the creation, neither they nor their contemporaries seem to have attributed much spiritual significance to these experiences. However, the 'shadow' of Fox's experience and the former spiritual significance of such knowledge can be seen to live on in Quaker culture, in terms of Friends' widespread enthusiasm for natural history (4.4.2). Moreover, the Foxian tradition of the divine revelation of creation seems to have been adapted when the need arose to include the pursuit of modern science by observation and experiment and the use of human reason: thus knowledge of the physical world acquired in this way was described by William Allen as 'divine revelation' (4.3.1).

Fox and other early Quakers spent time alone out-of-doors in their search for spiritual fulfillment, but the natural world does not appear to have played any active part in their spiritual experiences (2.3.1). Thomas Lawson is an important transitional figure. Whilst he shared the view that acquiring knowledge of creation involved divine revelation, Lawson also suggested that, since the Bible showed that knowledge of the creation was a measure of divinely-imparted wisdom, the search for such knowledge by all true and honest means was, in itself, divinely-inspired (3.4.1). This

idea was promoted by both Lawson and Penn, and despite the emasculating effects of Barclay's *Apology* on the theological significance of the creation, re-appeared in the 18th century. Penn justified the study of the physical world for its contribution to natural theology: a knowledge of nature led to a greater understanding of God's wisdom and purposes for the world (3.4.2). For many 18th century Friends, it was the experience of nature illuminated by the divine inward light that was important for natural theology. Expressions of wonder at the creation as the outward manifestation of divine power and wisdom, and of God's providence to humanity, were frequent throughout the period. For leading Quietists like Story or Shillitoe, nature reflected what they believed they knew of God from inward spiritual experience. Other late 18th and early 19th century Friends espoused the 'argument from design', based on empirical observation and the abilities of human reason. For some, including Collinson, Shackleton and Elizabeth Gurney (Fry), their experience and appreciation of God came mainly (or only) through the study and contemplation of nature. Whilst admissions of the complete displacement of immediate revelation by natural theology appear to have been rare, in all these diverse cases, nature was significant in that it led to, or reinforced, an appreciation of the divine.

The Natural World and Theological Diversity: a Typology

Thus, the created world featured in the spiritual lives of many Friends who were otherwise diverse in terms of their personal experiences and in their views on its theological and epistemological value. Following the loss of Foxian ideas about the spiritual significance of the natural world, later generations of Quakers were largely left to draw their own conclusions about its theological significance, based upon their personal experiences, and guided by scripture and orthodox Quaker beliefs. Thus, a

variety of private theological positions emerged amongst Friends in relation to the natural world, some of them influenced by Quietist priorities, whilst others were primarily the result of fresh spiritual experiences by later generations of Friends.

The following typology summarizes the different ways identified in this study in which Quakers experienced or perceived the relationship between knowledge of God and knowledge of the creation. It is based on a primary division between relationships located within the creation-dialectic, and those that are outside it. The former are characterized by the *personal experience* of God revealing, or being revealed by, the outward creation. The latter describe relationships between God and creation that are either based primarily on *patterns of religious belief*, or reflect the absence of any explicit experience or expression of the kinds of relationship between inward spiritual knowledge and knowledge of the outward state of the creation which characterize the creation-dialectic. Evidence from particular individuals may fall into more than one of the four positions identified, and individuals differed in the priority they attributed to different positions.

- *Dialectical: God-centred*

This includes the God-centred dimension of the creation-dialectic, the belief that knowledge of the outward creation came by immediate revelation from God.

Predominant with early Quakers, but soon disappeared from view; it re-surfaced and apparently persisted tenuously through most of the 18th century, when potentially at least, it is in conflict or competition with the pursuit of natural science. Evidence comes mainly from early Quakers, especially Fox, and also Edward Burrough, James Nayler, and Isaac Pennington, but also from Thomas Story and Elizabeth Webb in the 18th century. The tradition appears to have been revived in a substantially modified form later in the 18th century, when the

methods and results of natural science were accorded the mantle of ‘divine revelation’. This category also includes the ‘pseudo-natural’ theology element of the creation-centred dimension of the dialectic, where contemplation of the outward creation led to knowledge of God, but only under the guiding influence of the inward divine light.

- *Dialectical: Creation-centred*

This comprises the various ways in which Quakers used natural theology: knowledge of God derived from the observation of the created world, the experience of beauty and order, and the ‘natural light’ of human understanding. During the period of study, it was easy to reconcile with natural science, and was often used as a justification for it. Not expressed until after the Restoration, it was probably rare until the mid-18th century after which it became widespread in various forms. Lawson(?), Collinson, Bartram, Allen, Fry, Hutchinson, Wakefield, Barton, and others provide much evidence.

- *Non-dialectical: Dualistic (or Separate Domains)*

The spiritual and material worlds are largely separate domains, in that knowledge of one did not come primarily from the other. The outward world tended to be viewed as irrelevant or only marginally relevant to the spiritual life, because true spiritual knowledge came from immediate revelation. Understanding of the physical world based on empirical observation and human reason was seen as essentially a secular activity and, as such, was of secondary importance to the spiritual (or ‘Quaker’) life. Whilst this position was probably typical of Quietists with intellectual interests, advocates differed in their attitudes to science. George Keith and Thomas Hancock, for example, were sceptical about the claims of

science, whilst Fothergill and Rutty were convinced of its benefits, and keenly interested in the exploration of the natural world.

- *Non-dialectical: Bible-centred*

This category is based on the premise that Scripture was the primary source of knowledge of both God and creation, and the relationship between them. In particular, it includes assertions of the factual truth of the biblical account of creation and humanity's place in it, the basis for technological advance to re-establish human dominion over the rest of creation. This position also includes the beliefs that in nature, God had provided a model for human behaviour, and understanding the human condition, and in God's continuing intervention in the operation of creation. Evidence comes from Fox, and other early Friends, and the position was probably common throughout the period.

Quaker Theology and Science

Underlying the ambiguity in the contemporary Quaker relationship with science was the lack of agreement amongst Friends about the value of empirical knowledge, and the importance of human reason. Like true spiritual knowledge, empirical knowledge was based on first-hand experience, but on the experience of the human senses, not the divine light in the human conscience. Whilst differences in the attitudes of individual Friends to science was doubtless influenced both by Quaker tradition and by new intellectual ideas from outside, the pattern of variation in attitudes to science is strongly related to variations in Friends' perception of the relationship between knowledge of God and of creation, and to differences in the way in which the natural world figured in Friends' personal spiritual experiences.

The two dimensions of the creation dialectic had different implications for attitudes to science on the part of those Friends concerned. Fox's and other early Quakers' made claims to knowledge of the creation that were apparently independent of empirical observation and human reason, and a few 18th century Friends made similar claims of divine revelation, contrasting it with the methods of science. However, early Friends, along with many others in the mid-17th century, did not regard knowledge of creation and knowledge of God as wholly distinct, or the media of immediate revelation and empirical observation as mutually exclusive: there is some evidence to suppose that William Penn was not the only Friend to support the use of natural human abilities to learn more of the physical world. Thomas Lawson and Thomas Story appear to have regarded scientific methods as complementary but subsidiary to the knowledge of creation revealed to them by God, and of relatively low epistemological status. By the end of the 18th century, Quakers like William Allen had radically redefined the understanding of 'divine revelation', so that it included the acquisition of knowledge by observation and experiment, thereby enhancing the status of science and appealing to Quaker tradition at the same time. The creation-centred dimension of the dialectic, on the other hand, consistently accorded a high epistemological status to the outward creation and its study. Those who experienced this relationship, like Collinson and Bartram, tended to be rationalist in their thinking and favoured empirical methods and evidence-based arguments as the ways of elucidating the truth about the outward creation. Creation-centred Friends, whether scientists or not, generally seemed to have experienced little or no conflict between science and religion. These Friends were more liberal and individual in their interpretation of valid experience, ready to accept empirical as well as spiritual experience mediated by outward creation, and here the Quaker emphasis on

the primacy of personal experience may be seen to have been conducive to scientific progress. However, with the possible exception of William Penn, there is little contemporary evidence that Quakers understood there to be a direct connection between the divine inward light and the pursuit of science which might serve to explain the appeal of the latter to Friends.

Even allowing that Clarkson may have exaggerated the level of ignorance of science and intellectual ideas generally among Quakers in the early 19th century, it still seems likely that most Friends, at least until the late 18th century, took little interest in scientific matters. Pennington's concerns about science in 1668 were probably also representative of the majority of Friends a century later, for whom science based on human reason was seen as being of limited value as a way to gain true knowledge. Those 18th century Quietists who were keenly interested in the natural world appear to have understood science and religion as radically separate domains both of experience and knowledge. Even though many accepted the utility of science in terms of its beneficial practical applications, empirical knowledge and human reason were still regarded by many as inferior and largely irrelevant to the acquisition of real spiritual knowledge, and too great an enthusiasm for the former was seen as likely to result in the neglect of the latter. The overall impression is that, although not intrinsically incompatible, the Quaker emphasis on inward knowledge and subsequent Quietistic priorities served in practice to constrain both the time Friends devoted to such matters and the ways in which they engaged with science (see above). In some cases, those 17th and 18th century Quietist Friends who pursued scientific research appear to have done so in spite of, rather than because of, their Quakerism. William Allen's writings suggest that, to a more limited extent, some evangelical Quakers shared this concern in the late 18th and early 19th centuries.

However, the belief-based approach to God and creation would seem to have been generally more accommodating and even favourable to observational science at least, possibly because there were parallels between science and the use of scripture. Both were outward rather than inward sources, and both provided relatively accessible ways to knowledge. Until the findings of geology, and the ideas of Hutton and Lyell, seriously challenged the literal truth of the biblical timescale of the creation and the age of the earth, there seems to have been little epistemological conflict between evangelical Quakerism and science at this time.

Evidence on variations in Quaker approaches to natural theology also suggests that some correlation might be expected with attitudes to science. Those Friends who believed natural theology was contingent upon the operation of the divine inward light would be expected to give primacy to inward divine revelation over any kind of knowledge gained from experience of the outward creation. (Although direct evidence is lacking, the same would probably apply to those who were generally sceptical about the reality of natural theology in any form.) Conversely, Quakers who, it is argued, espoused the reality of purely experiential natural theology, such as Collinson and Bartram, appear to have been untroubled by reservations about science: indeed, Collinson described science as his worshipful response to his experience of God's providence in creation. For them, both science and theology were based on the rich human experience of the natural world. Supporters of the Argument from Design, like William Allen, might be expected to occupy an intermediate position, since Paley's theology was concerned primarily with amassing evidence for the existence of God from creation, based on the powers of human reason rather than on spiritual experience of God in creation.

5.1.7 The Natural World in Quaker Life and Culture

Although concerns over practical issues on the care of creation were of long standing amongst individual Friends, the Society as a whole seems to have been reluctant to engage with such matters. Similarly, despite theological and epistemological differences amongst Quakers in relation to the natural world, the Society of Friends as a body appears to have been largely untroubled by them. Although certain positions presented potential challenges to Quaker orthodoxy or tradition, in practice, different views were tolerated within the Society provided that they were not perceived as a serious challenge to the discipline of the Society, the authority of the Bible or other fundamental tenets of Christian doctrine.

Contrasts in Corporate Life

Despite Fox's own experiences of the created world, and those of other leading early Friends, the creation is scarcely mentioned in Barclay's *Apology*. Similarly, although the natural world was an important source of both spiritual inspiration and theological knowledge for individual Quakers throughout the period, neither type of experience became part of orthodox 17th or 18th century Quaker belief or tradition. References to the creation are virtually absent from records of the corporate life of the Society of Friends until the late 18th century. Moreover, although the testimony to simplicity remained as a 'shadow' of earlier concerns about the use and abuse of creation, by 18th century it had been effectively uncoupled from the creation. The treatment of animals stands out as almost the only direct reference, first appearing in the late 18th century. The creation appears to have been excluded from corporate expressions of the 'idealized' spiritual experience, and the true path to spiritual knowledge. With

hindsight, the influence of Robert Barclay would seem to have been particularly important in determining the course of the history of the relationship between Quakers and science. Although William Penn's publications continued to be read by Friends for many years afterwards, in practice it was the legacy of Barclay, rather than that of Penn or Lawson, that prevailed within the Society of Friends as a whole. Thus, engagement with the natural world was an appropriate private leisure pursuit for Quakers, not an integral part of Quaker corporate witness, a position that was never abandoned entirely, and only began to be modified with the rise of natural theology, and a more evangelical Quakerism after 1800 (4.6.1).

The marginalization of the creation in the corporate life of the Society may be explained in that, after the early years of Quakerism, neither dimension of the creation-dialectic could readily be incorporated into orthodox Quaker doctrine. Fox's 1648 vision was difficult to place within the Christian orthodoxy of the New Testament, and his reference to attaining Adam's pre-fall knowledge of creation may have been powerful at the time, but would become increasingly seen as old-fashioned, over-ambitious, or unreasonable. Although individual 18th century Friends also related experiences of the God-centred dimension of the dialectic, these do not seem to have been common or much regarded by their Quaker contemporaries. Fox's 1648 revelation was remembered (and still is) for its account of Fox's spiritual transformation, not his regaining of Adamic knowledge. The creation-centred dimension of the dialectic and the implications of natural theology were also problematic for orthodox Quaker theology. For George Fox and other early Friends, knowledge of the physical world was believed to be a key outward indicator, not the source, of inner spiritual transformation. Although possibly widespread among Friends, support for natural theology, even in the form of 'pseudo-natural' theology,

did not sit easily with Quaker emphasis on direct revelation and was either opposed or seen as irrelevant to the 'idealized' spiritual path or experience espoused by the dominant Quietist majority. The opportunities available for personal experience and engagement with the natural world, endowed it with a potentially subversive character, since it could be seen as diluting or presenting an alternative to the divine inward light. It could (and did for some Friends) take the place of immediate revelation as a way to God, and by the end of the 18th century, potentially at least, nature could challenge the place of God as the seat of spiritual truths. Involvement with science also brought accusations of deism and even pantheism, although theological views on the created world do not seem to have been a major factor in the departure of scientific Quakers from the Society of Friends. However, for those Friends who pursued the path of science, the influence of personal experience was more powerful than that of orthodox Quaker theology.

As a body, British Quakers recognized neither the significance of the natural world in Friends' spiritual lives, nor the role of Quakers in the progress of science, throughout this period. Despite the existence of groups of practical scientists in which Quakers were prominent, their contributions to science do not appear to have been recognized as a significant part of Quaker culture or history until many years later. However, despite its absence from the formal discipline of Quakerism in Britain, by the close of the period the natural world had come to occupy a significant place in a wider, informal Quaker culture, probably encouraged by a more outward-looking Evangelical mood amongst British Quakers. The pursuit of natural history, in particular, proved popular with many Quakers, and the origins of an interest in the natural world were likely to be found in the influence of family, or friends within the local Quaker community early in life.

The Acceptance of Science

In practice, potential tensions between orthodox Quaker theology and the pursuit of science appear to have been minimized, if not resolved, by several factors. Whilst some 18th century Friends were keen to justify the pursuit of scientific knowledge for its value in natural theology, science could also be seen as an important contemporary development of long standing Quaker testimonies, around which most Quakers, including the dominant orthodox majority, could unite. Quaker emphases on humble seeking after truth under God's guidance, the education of children, and the practical application of scientific knowledge and the results of experimentation to for the benefit of humanity, directly reflected the Quaker testimonies to integrity and equality. Secondly, Allen's re-casting of empirical observation and experiment as 'divine revelation' seems to have been intended to raise the epistemological status of scientific enquiry with his audience, and at the same time to appeal to Quakers by its implicit recall of the traditions of Fox and Penn. Just as Penn had done more than a century earlier, Allen argued that the natural powers of human observation and human reason were divine gifts and were exercised under divine guidance. Thirdly, the particular ways in which Friends came to be involved in science, particularly after the mid 18th century, served to reduce potential conflict. Mathematics and the more theoretical forms of science were not only relatively inaccessible to Quakers denied university education and facilities, but were also viewed with caution by many Friends on religious grounds (3.4.1; 4.4.3). Although Friends did not agree about the status of human reason, they generally eschewed what they saw as the vanity or indulgence of scientific hypotheses in favour of simple but methodical observation and experiment. Thus, many Friends' involvement in science was limited to 'natural

history': the observation, identification and description of natural objects or phenomena. With few exceptions, Friends were also more prominent in the practice and application of science for human benefit- in fields ranging from horticulture and medicine to chemistry and iron-making – than they were in making major discoveries or original theories in 'pure' science. They were also prominent in areas ancillary to science itself, but important to the progress of science in society. These included plant-hunting and importation; networking amongst the wider scientific community; and educational activities including public lectures, and the writing and publishing on scientific subjects, especially natural history, for a popular audience. Engagement with the natural world increasingly brought together Friends with different theological beliefs, who appear to have co-existed without significant conflict. A Quaker 'scientific community' could be recognized which also fostered friendships and intellectual co-operation outside the Society of Friends, at a time of promotion of the 'hedge' to protect Quakers' religious legacy. Nature was also an acceptable medium for the expression of Friends' aesthetic and artistic sensibilities and skills, and largely compatible with the Quaker emphasis on plainness. Thus, the exploration of the natural world through art and science, whilst 'heterodox' in relation to orthodox Quaker theology, was itself becoming 'orthodox' in the context of the developing Quaker culture of the 19th century.

5.1.8 From Revelation to Resource: Nature and the Search for Order

Inward and Outward Order

It is suggested that experience of the natural world was important for many Friends because of the opportunities it afforded in the search for ‘order’.⁷ Eschewing the notion of order deriving from a unifying creed or statement of belief, the most characteristic early Quaker expression of their search for order was in Fox’s concept of ‘gospel order’. Dandelion defines this as ‘the divinely ordained structure for the chosen people to work within’: the ‘silent liturgy’ is ‘that which orders the very reality of the Quaker faith’.⁸ Thus the outward organization of Friends’ meetings and governance enabled the inward process of discernment of divine leadings by individuals and the group.⁹

Whilst Quakers generally rejected earlier allegorical interpretations of the non-human creation, Fox himself recognized relationships between outward order in nature and the hidden spiritual order (2.3.3). The natural world afforded abundant opportunities for personal experience, interactions that could be meaningful not only in the search for this hidden spiritual order, but also in the re-establishment of order in Friends’ own lives and in the material world around them. Different aspects of the order that could be found in nature were visible or hidden to varying degrees, but could become accessible by divine revelation, submissive waiting on God’s guidance, or by careful observation and diligent study, or various combinations of these. Moreover, the tenets of Quietism, whilst probably inspirational for the most

⁷ William James described religion in the broadest sense as ‘the belief that there is an unseen order, and that our supreme good lies in harmoniously adjusting ourselves thereto’ (William James, *The Varieties of Religious Experience* (London: Collins, 1902).

⁸ Pink Dandelion, *An Introduction to Quakerism* (Cambridge: Cambridge University Press, 2007), 48.

⁹ Douglas Gwyn, *The Covenant Crucified: Quakers and the Rise of Capitalism*, (Wallingford, PA: Pendle Hill Publications, 1995), 275.

spiritually gifted of Friends, imposed a very high threshold for attaining the authentic spiritual life, demanding the complete submission of human thought to the presence and will of God. Rufus Jones referred to a spiritual aridity that, he argued, developed within 18th century Quakerism as a consequence of Quietism (4.1.2), and which was eventually filled by Quakers moving towards a Bible-based evangelical Christianity. It is suggested that, like the Bible, the natural world was an alternative and accessible source of inspiration for some Friends in their search for order, especially those of a curious or intellectual disposition. The place of the natural world in Quaker experience was transformed from the subject of divine revelation, to a resource in the search for order in their lives, and in the world around them.

Nature as a Resource: a Typology

The different ways in which Friends perceived the natural world as a resource in their search for order are summarized in the following typology. Although individual Friends sometimes demonstrated various combinations of these approaches, they did not necessarily support all these views of the natural world.

- *A Theological Resource*

Whilst there seems to have been general agreement amongst Quakers that the created world provided abundant evidence of God's providence, power and wisdom, only under the influence of the inward light could this potential of the natural world be realized as a resource in the search for God. Not until well into the 18th century is there evidence to suggest that some Friends had come to accept the reality of natural theology as independent of immediate revelation. By the end of the century, the natural world had become a significant supplementary

theological resource in its own right, and for at least a few Friends the primary way in which they were able to gain experience of the divine.

- *A Moral and Emotional Resource*

Early Quakers used biblical images from nature to draw attention to human failings, and likened the debased spiritual condition of fallen humanity in general to the 'natural' (as opposed to the spiritual) world, being earthly, base and uncouth. Conversely, 17th century Quakers also saw other living creatures to be intrinsically free from sin, and a source of positive role models for human behaviour, in their industry and care of their offspring. Later 18th century Friends saw in nature innocent manifestations of being that reflected their own hopes and sorrows in a wider perspective, and that were a source of spiritual succour in troubled times.

- *An Aesthetic Resource*

As the work of God rather than man, the natural world was an appropriate object of aesthetic appreciation by Friends. Whilst this led some to God or science, for others it was essentially an innocent experience to be enjoyed by the human senses that did not conflict with Quaker beliefs and traditions. The faithful representation of nature in art was a means of expression of Quaker creativity and the development of artistic talent that was otherwise denied in a group that generally eschewed human art and artistry.

- *A Scientific Resource*

The first Friends believed that the order of creation was immediately revealed to them by God, whilst doubts about the value of human reason continued to be voiced by educated Quakers throughout the period. Nevertheless, direct personal

observation of the physical world was increasingly recognized as the most effective way to discover patterns and order in what appeared to be the infinite variety and complexity of the creation. Thus engaging the human senses and human reason, this satisfied Friends' natural curiosity about the physical world, in their search for order in nature, and in their intellectual lives.

- *A Material Resource (Social and Economic Order)*

From the early days of Quakerism, nature was seen as a resource provided by a beneficent God, to be used in furthering God's intended economic and social order. 18th century Quakers were noted for innovation in the fields of horticulture and agriculture, industry and medicine, usually avoiding the production of arms, and for pioneering initiatives to improve conditions for their workers. Quakers as a body expressed continuing concerns about wasting resources on unnecessary personal adornment and luxurious living, and also on the needs of the sick and the poor, although individual Friends varied in their political views on the distribution of resources, as well as in their own lifestyles and consumption of resources. Early ideas on the stewardship of natural resources seem to have disappeared from view, but Quakers were noted for avoiding unnecessary cruelty to animals.

5.1.8 Summary of Principal Findings

- Quakers agreed that the creation was God's work: despite the Fall, God continued to uphold the natural operation of the physical world, intervening according to his will. However, the early belief in the reality of the 'new creation' as the collective result of spiritual personal transformation in Christ, and the spiritual significance

attributed by early Friends to the place of the natural world in personal spiritual experience were both lost.

- There is evidence of a continuous history of spiritual and intellectual engagement with the created world on the part of individual Friends throughout the period. This is described in terms of a ‘creation-dialectic’, a personal experience of the transfer of knowledge between the spiritual and material realms. However, the nature of these experiences changed and diversified over time, and by no means all Quakers shared in them.
- Quakers managed to preserve their tradition that it was God who revealed the natural world to human beings, but the ways in which they believed this happened changed significantly over time, as the influence of rationalist ideas grew. Although the first Friends’ belief that knowledge of the created world came only through immediate revelation persisted well into the 18th century, by the early 19th century it was asserted that God’s revelation of creation could come through empirical observation and experiment. After the 17th century, there is no convincing evidence that contemporary Quakers perceived a direct connection between the pursuit of science and the work of the divine inward light as it was conceived in the 17th century.
- Alongside a variety of outside influences, the contrasting 17th century legacies of William Penn and Robert Barclay had a lasting effect on the engagement of Quakers in science. Whilst Penn’s empiricism may be seen as much the more conducive to science, Barclay’s theology and the general adoption of Quietist doctrine in the 18th century served both to constrain and direct the pursuit of science by Friends. Whilst Quakers were not agreed on the relationship between

empiricism and spiritual experience, the pursuit of science by Friends was characterized by its close relationship to personal empirical experience.

- Most early expressions of the creation-centred dimension of the dialectic cannot be truly described natural theology, since they are dependent on the influence of the divine inward light. Although the earliest evidence of true natural theology from Quakers appeared with Barclay and Penn, there is little evidence of it until the 1730s. By the end of the period, use of natural theology by Friends appears to have been generally accepted, but remained characteristically based on personal experience, rather than reason or argument.
- Friends believed that the natural world should be utilized responsibly for the benefit of humanity and the greater glory of God. Although Fox's attitudes to the natural world were underlain by a perception of 'covenant' rather than stewardship, there is evidence for the early development of a stewardship ethic over the way in which natural resources were used amongst some 17th century Quakers: this was principally concerned with the productive and responsible utilization of natural resources.
- Under the pervading influence of Barclay, Quaker views on the place of the natural world in theology were largely privatized, and a range of views consequently developed, some of them influenced by experiences within the creation dialectic, and others more by orthodox Quaker or Christian belief. Whilst Friends were drawn to science for a variety of reasons, and synergies existed between Quaker testimonies and science, tensions persisted between science and the claims of orthodox Quaker theology after Barclay, and in this context, science can be seen as theologically heterodox.

- Later commentators have not agreed about the role of the natural world in the spiritual lives of 17th and 18th century Quakers, and until the 20th century, about their involvement in science. Whilst these disparities can be attributed to several factors, it is argued that they are also the result of real differences within the contemporary Quaker community on the status of empiricism and on the relationship between science and religious experience.
- In its corporate life throughout this period, the Society of Friends did not recognize either the role of the natural world in Quaker spiritual life, or the involvement of Friends in science. Instead, popular science and the natural world gradually became part of a wider unofficial Quaker culture, fostered in the children of Quakers by family and friends, and later by Quaker schools.
- As the work of God, the natural world was, in practice, a significant resource for many individual Friends in their search for spiritual and material order in their personal lives and in the world. It was viewed as a resource for theology, for moral teaching, emotional support, aesthetic expression, and intellectual development, as well as economic and social progress.

5.2 IMPLICATIONS FOR PREVIOUS SCHOLARSHIP

5.2.1 Treatment of Fox's Evidence

Although Fox's evidence on the natural world is not intrinsically contradictory, different modern authors have drawn very different conclusions about his position. Anne Adams and Virginia Schurman, for example, have set out to establish Fox's

‘environmental’ credentials by citing his accounts of his experiences of the creation as evidence of Fox’s spiritual awareness of the natural world around him. In contrast, Glen Reynolds has argued that Fox had a fundamentally negative view of the created world, as part of his case to establish Fox’s affinities with Christian gnosticism. The evidence in the present study suggests that there is no convincing case for Reynolds’ more extreme conclusions about Fox’s views of the natural world, and also that care needs to be exercised in attributing modern aspects of environmental awareness to Fox.

Reynolds’ treatment of Fox’s evidence also illustrates a tendency for Quaker scholars who have focused on Fox’s spiritual transformation to ignore the evidence that Fox himself presented relating to the role of the created world in that transformation. This is most obvious in the treatment of Fox’s account of his 1648 revelation (2.3.2). Douglas Gwyn cites this passage as describing ‘the culmination of ...[Fox’s] conversion process’,¹⁰ and Pink Dandelion, too, sees it as marking the completion of ‘the outlines of Fox’s theology’¹¹. Carole Spencer describes Fox’s experience as ‘an ecstatic rapture’ and evidence of his experience of perfection through union with God through Christ.¹² These references each contain more or less edited versions of the passage, but make virtually no mention of the evidence that Fox himself cites for this transformation, namely his ‘perfect’ understanding of the created world.

¹⁰ Douglas Gwyn, *Apocalypse of the Word: The Life and Message of George Fox* (Richmond, IN: Friends United Press, 1986), 23.

¹¹ Pink Dandelion, *Introduction to Quakerism*, 22.

¹² Carole D. Spencer, ‘Holiness: the Quaker Way of Perfection’, in Pink Dandelion, ed., *The Creation of Quaker Theory* (Aldershot: Ashgate, 2004), 161-2.

5.2.2 Variations in Quaker Theology

Previous authors have identified differences amongst 17th and 18th century Friends in relation to their beliefs on the epistemological status of human reason, and its relationship to the divine inward light. Thus Endy contrasts William Penn's position with the majority of Restoration Quakers; and Barbour and Frost discuss the divergent trends of rationalism and quietism in the 18th century. Indeed, contemporary Quakers themselves expressed the view that plurality of religious belief among Christians was both inevitable, and ultimately of little consequence. Thomas Story, for example, preached to Quakers in 1737 on the theme that 'unity of Christians never did or will stand in unity of thought or opinion but in Christian love only'.¹³ Some Quakers insisted that practical actions were more important than religious beliefs.

However, it has been generally assumed that certain basic tenets of Quaker theology were universally shared, at least until the evangelical revival amongst Friends in the early 19th century. In particular, this assumption applies to the divine inward light. Referring to 18th century Friends generally, Barbour and Frost, for example, assert that 'All Friends agreed on the centrality of the experience of the Inward Light of Christ'.¹⁴ Geoffrey Cantor recognizes that approaches to natural theology among Quakers were characteristically experiential, but also attributes the process to Quaker belief in the inward light, citing Peter Collinson as an example. The present study suggests such statements may not reflect the true position: whilst it is clear that some Friends from Robert Barclay onwards believed in the necessity of the inward light in this context, no evidence has been found to show that Collinson and others shared this view. Indeed, no reference has been found from Peter

¹³ Brett-James, *Peter Collinson*, 76.

¹⁴ Hugh Barbour and J. William Frost, *The Quakers* (Richmond, IN: Friends United Press, 1988), 98.

Collinson to the inward light in any context.¹⁵ For Collinson, as for John Bartram and Elizabeth Fry, it appears to have been the natural outward world, as experienced by the human senses and engaged by reason, rather than the divine inward light, which was the source of their personal experience of God. Previous authors do not appear to have recognized the evidence for a largely hidden but highly significant change in Quaker perceptions of the nature of divine revelation of the created world, such that by the early 19th century, this could encompass the scientific exploration of the physical world by empirical observation and experiment.

5.2.3 Quietism and Liberal Thought

The nature of the relationship suggested between spiritual experience and scientific endeavour for Quietists (4.4.5; 5.1.3; 5.1.6) may help to explain the apparent contradiction that John Punshon finds in John Fothergill.¹⁶ The tightening of the discipline relating to personal behaviour within the Society of Friends in the 18th century, with which Fothergill was much concerned, was intended to preserve the Quaker way to spiritual self-improvement and salvation. Greater flexibility could be extended to matters that were outside the core content of that ‘Quaker life’, such as science and the natural world, provided they did not negatively impact upon it. Nevertheless, for those Quietists who were led to engage with either the natural or human worlds, it was the Quaker spiritual discipline and the way of life that sustained it that was basic, and the mainspring for that engagement. As in Fothergill’s case, it

¹⁵ Collinson’s surviving correspondence contains little about his religious beliefs, although he did ask Thomas Story to remember him in his prayers, since ‘it is my firm belief the prayers of good men are accepted and answered by the Almighty’. (Brett-James, *Peter Collinson*, 75). Brett-James observed that ‘it would be impossible to tell from his correspondence to what denomination he belonged’ (ibid., 65).

¹⁶ John Punshon, *Portrait in Grey: A Short History of the Quakers* (London: Quaker Home Service, 1984), 144.

was quite possible to be religiously conservative and intellectually liberal at the same time.

5.2.4 Quakers and Science

From the 1920s onwards, various Quaker authors have set out to establish a positive relationship between Quakerism and science (4.1.2; 5.1.6). Broadly, they have sought to explain this by drawing parallels between Friends' search for spiritual truth and the search for scientific truth, and also between the primacy Friends attributed to personal spiritual experience on the one hand and the direct empirical observation of nature on the other. The present study indicates that this is an oversimplification and that contemporary evidence for the latter proposition, in particular, is largely absent.

Only Geoffrey Cantor has given serious consideration to the tensions that existed between Quakers and science during this period,¹⁷ citing several examples of 18th century Quaker concerns that immoderate attention to science was likely to be detrimental to the spiritual life. This study supports Cantor in the recognition of both distinctive peculiarities and tensions in relation to Quaker attitudes to science. However, it contributes an additional dimension to Cantor's conclusions in that it offers a fresh interpretation and characterization of these qualities in terms of the individuality of spiritual experience leading to a plurality of belief in relation to theology, and thus to the value of science.¹⁸

¹⁷Geoffrey Cantor, *Quakers, Jews and Science: Religious Responses to Modernity and the Sciences in Britain, 1650-1900* (Oxford: Oxford University Press, 2005), 242-7.

¹⁸This parallels Cantor's own findings of diverse 19th century Quaker responses to Darwin's theory of evolution by natural selection (*ibid.*, 248-88).

5.3 AREAS FOR FURTHER RESEARCH

5.3.1 Networks Within and Outside the Society of Friends

Several authors have commented on the important contribution made by 18th century Friends to the networking of ideas and opportunities amongst the scientific community both inside and outside of Quakers (4.4.4). Although John Dalton had a reputation for working alone as a scientist, he exemplified how a local Quaker network could stimulate and facilitate an interest in the natural world amongst young Quakers. The present study suggests that in the late 18th and early 19th centuries, Quakers also made a significant contribution to an awareness of science and the natural world among a much wider non-Quaker audience. Further research might indicate the extent to which those Friends involved constituted identifiable sub-communities within British Quakers, the impact of Quaker educational work in the wider community, and the views of the wider contemporary Quaker community on such activities. Quaker ‘nature’ poetry of the late 18th and early 19th centuries would seem to be a particularly neglected area in this context. Further local studies might indicate how typical local networks of the kind that existed in parts of the north of England were across the Britain as a whole.

Networks and learned societies outside the Society of Friends probably played an important part in the dissemination of new intellectual ideas, and possibly a greater awareness of non-Quaker religious doctrines, amongst those 18th century Friends involved. In view of the comparatively large amount of surviving correspondence between some of those concerned, this is potentially a fruitful area of research. It would be particularly interesting to investigate in detail the particular roles and

reactions of Quaker and non-Quaker constituents of scientific networks, in order to understand more of how Quakers responded to Enlightenment ideas.

5.3.2 Diversity in Experience and Belief in Quakers

This study gives additional evidence for the existence of theological diversity among both 17th and 18th century Friends. Evidence relating to differing positions on natural theology in particular suggests not only that Friends differed in their views on the status of human reason, but also in relation to fundamental Quaker positions on the nature and reality of the inward light. Further research is required to establish whether Quaker responses to the natural world are peculiar in relation to the theological diversity they indicate, or whether there is evidence for the latter from other areas of Quaker experience or thought. Clarification of 18th century Friends views on the nature, mode of operation and status of the divine inward light in general is required, together with how and to what extent these views differed from one another and from early Friends.

The work also raises questions about what constitutes authentic spiritual experience for Quakers, past and present. In view of the peculiar significance attributed to the natural world by early Quakers, in particular, is spiritual inspiration from nature essentially similar to that from music, the visual arts, theoretical or applied science, or inspirational human lives? Is it intrinsically different from, and how is it related to, the experience of immediate divine revelation? How do these relationships manifest themselves in the lives of individuals, and how does a religious group respond to the diversity of individual experience? Do the experiences of 17th and 18th century Friends shed light on how concerns and sensitivities arise in childhood and develop in adult life?

5.3.3 The Natural World in Quaker Culture 1830-1960

By the close of the period, natural history had become a popular Quaker pastime, and together with the pursuit of the life sciences in a professional capacity, was to develop still further in the Victorian period. Geoffrey Cantor has shown that natural history became a significant element in 19th century Quaker schooling.¹⁹ The development of this involvement needs further clarification; in relation, for example, to the extent to which it was a result of the growing popularity of natural theology amongst Friends, as opposed to the growing interest in science, and relative importance of influences inside and outside the Society of Friends.

In the 20th century, the growth of science and scientific understanding of the natural world came to be seen by many Friends as part of God's continuing revelation to humanity. However, corporate expression of this interest had declined before the fresh interest in both spiritual and scientific aspects of human relationships with the natural environment arose outside the Quaker community in the 1960s and 70s. Subsequently, Quakers have been slow to reach a corporate position on such matters, and the link to scientific natural history has been lost. Research is needed into the causes for the decline of the Quaker cultural tradition of natural history and why the link between natural history and environmental awareness has not been made in contemporary British Quakerism.

¹⁹ Geoffrey Cantor, 'Real Disabilities? Quaker Schools as "Nurseries" of Science', in Paul Wood, ed., *Science and Dissent in England 1688-1945* (Aldershot: Ashgate, 2004), 147-61.

5.3.4 Other Religious Groups and the Natural World

No systematic attempt has been made in this study to compare the views of British Quakers with those of other religious groups. In view of the continuing interest in the relationship between religious ideas and the growth of science, it would be of value to compare the Quaker experience in Britain with those of other Christian groups, particularly Methodists, Baptists and Unitarians in Britain, as well as with Quakers in North America. Such comparative studies would initially have to be fairly narrowly focused in their theme, and over a shorter timescale than that adopted for the present study: for example, a comparison of reactions to the work and ideas of Isaac Newton. However, if other denominations show the kinds of variations found amongst Quakers in their members' responses to the natural world, great care is needed if valid comparisons are to be made. It would also be desirable to extend the present study to cover the period from 1830 to the present.

5.4 CHAPTER SUMMARY

This final chapter presented the main findings from each of the four major themes over the period as a whole, particularly with reference to elements of continuity and elements of change. Patterns of diversity within the Quaker community in terms of views of the natural world were discussed under the following three headings: Quakerism and science; the natural world in Quaker spiritual experience and theology; and the natural world in Quaker life and culture. The main findings and conclusions were summarized. The chapter concluded with a discussion of the implications of these findings for the conclusions of previous authors, followed by suggestions for areas of further research to follow up the present work. Throughout,

the chapter emphasized the original conclusions that this thesis makes to knowledge of British Quakers' relationship with the natural world.

APPENDICES

Appendix 1. Possible Influences on Fox and Other Early Quakers

This is a brief review of some of the findings and views of various authors' researches into possible influences on Fox and other early Quakers, as they relate to the natural world. Attention has been focused on three types of influence: continental mystics of the 15th-17th centuries; ancient wisdom traditions; and contemporary ideas, of which only those of the 'Digger', Gerard Winstanley, are given here.

Continental Mystics

Robert Barclay (of Reigate), the first of many Quaker scholars to explore such influences,¹ suggested that Fox's foremost progenitor was the Silesian nobleman, Caspar Schwenckfeld (1489-1561),² although he accepted that Fox might not have been conscious of this source of his ideas.³ Schwenckfeld had been convinced that not only was real salvation 'inward and dynamic'⁴ but also that salvation was essentially an act, not of man, but of God.⁵ Through this act of God, the soul experienced 'a new creation', a 'cataclysmic event' comparable to the cosmic creation, and through which the person saved was restored to Adam's state before the fall.⁶ Rufus Jones was more circumspect, but argued that Schwenckfeld 'was a living force in the period of the English Commonwealth' and a clear influence on the English 'Seekers'.⁷

It is known that Fox possessed a translation of works by Sebastian Franck (1499-1542),⁸ one of a number of German mystics of the 16th and 17th centuries who believed in the capacity of man to hear the voice of God within (which Franck sometimes referred to as 'the inward light'),⁹ and in the primacy of that voice over other sources of knowledge. Jones claimed that these spiritual reformers were influenced, to varying degrees, by the writings attributed to Hermes Trismegistus (see below), and also to 'nature mysticism' that has roots in the Kabala.¹⁰ This ancient Hebrew tradition teaches that the natural world is a visible revelation of an invisible universe; the former contains 'hints and symbols'¹¹ of the inner spiritual world that can be read by the initiated to reveal the mysteries of the latter¹² (see 3.2.2).

¹ Robert Barclay, *The Inner Life of the Religious Societies of the Commonwealth; Considered Principally with Reference to the Influence of Church Organisation on the Spread of Christianity* (London: Hodder & Stoughton, 1876).

² *Ibid.*, 226-239 (Barclay gives the year of Schwenckfeld's birth as 1490).

³ *Ibid.*, 248.

⁴ Rufus M. Jones, *Spiritual Reformers in the 16th and 17th Centuries* (London: MacMillan, 1928), 87.

⁵ *Ibid.*, 70.

⁶ *Ibid.*

⁷ *Ibid.*, 87/84.

⁸ J. Nickalls, 'George Fox's Library', *Journal of the Friends Historical Society* 28 (1931): 2-21.

⁹ Jones, *Spiritual Reformers*, 53.

¹⁰ *Ibid.*, 53, 136 n.

¹¹ *Ibid.*, 135.

¹² *Ibid.*, 134-136. Ormsby-Lennon also related such beliefs to what he described as the 'twilight...of linguistic Platonism during the Puritan revolution', and more particularly, to the so-called Rosicrucian manifestos, sometimes attributed to the mystic Thomas Vaughan (1622-1666). The Platonists saw language as inadequate to describe the direct experience of truth and the mystic vision, and encouraged the search for alternatives to human language in symbols of sight and sound drawn from the natural

There is, on the other hand, no direct evidence that Fox ever read or ‘consciously absorbed’ the views of Jakob Boehme (1575-1624),¹³ the German mystic whose writings most closely resemble those of Fox.¹⁴ Boehme held that true salvation took place only within the individual human soul; he also belonged to the tradition of nature mysticism in which the natural and material world is not to be negated but to be seen as a visible manifestation of a greater spiritual reality. Like Fox, as a young man he experienced powerful spiritual insights into the ‘very heart and secret of nature’¹⁵:

In this Light my spirit suddenly saw through all, and in all created things, even in herbs and grass, I knew God...and suddenly in that Light my will was set upon by a mighty impulse to describe the Being of God.¹⁶

Boehme was clear that whilst the creation was a parable of God, God was ineffable and the creation was not God: he was not a pure pantheist.¹⁷ He echoed Paracelsus in stressing that everything in nature could be understood only by means of inward revelation: ‘viewing the Herbs and Grasses of the Field, in his Inward Light he saw into their essences, uses and properties.’¹⁸ Boehme, too, lamented that most people remained ‘more foolish than the Birds in the Air which do all praise and honour God in one tongue and understanding...’¹⁹ He also described the pre-fall relationship between man and creation in terms of language and explained the significance of the creatures’ original names:

...he stood in the *Divine* Image and not the beaſtiſſall for he knew the properties of all creatures, and gave names to all Creatures from their eſſence, forme and property; He understood the language of nature, viz. the manifested and formed Word in every ones Eſſence, for thence the *Name* of every Creature is ariſen.²⁰

world, which would bring those who studied and understood them closer to the understanding of eternal truths. He claimed that ‘each of the topics with which Fox dazzled Bourne informed (and derived from) Rosicrucian linguistics’ (Hugh Ormsby-Lennon, ‘Nature’s Mystick Book: Renaissance Arcanum to Restoration Cant’, in Marie Mulvey Roberts and Hugh Ormsby-Lennon, *Secret Texts: the Literature of Secret Societies* (New York: AMS Press, 1995), 24)

¹³ Jones, *Spiritual Reformers*, 220. In English texts, Boehme is variously rendered as Boehmen, Behmen or Behmont.

¹⁴ Hugh McGregor Ross claims that Fox had works by Boehme in his library (Hugh McGregor Ross, ed., *George Fox Speaks for Himself* (York: William Sessions, 1991), 19) but this is not mentioned by Nickalls in ‘George Fox’s Library’. Nevertheless, the translation of Boehme’s works into English from 1648 caused considerable interest in England. Nuttall quoted Muggleton (leader of a contemporary religious sect): ‘Jacob Behmont’s Books were the chief Books that the Quakers bought, for there is the Principle or Foundation of their Religion’ (Lodowick Muggleton, *A Looking Glass for the Quakers*, 5), and ‘there is only little difference betwixt the Bemenists and the Quakers’ (Muggleton, *Spiritual Epistles*, 141), quoted by Geoffrey F. Nuttall, *The Holy Spirit in Puritan Faith and Experience* (Oxford: Blackwell, 1946), 17.

¹⁵ Jones, *Spiritual Reformers*, 159.

¹⁶ J. Boehme, trans. John Sparrow, *Aurora* xix (London 1656), 10-13.

¹⁷ Jones, *Spiritual Reformers*, 177, quoting J. Boehme, *Signatura rerum* xvi (1621), 1.

¹⁸ Durant Hotham, *The Life of Jacob Behmen* (London: H. Blunden, 1654), quoted in Jones, *Spiritual Reformers*, 222.

¹⁹ J. Boehme, *Mysterium Magnum: or An Exposition of the First Book of Moses Called Genesis*, trans. John Ellistone and John Sparrow (London: H. Blunden, 1654), 243, quoted by Ormsby-Lennon, ‘Nature’s Mystick Book’, 44.

²⁰ Boehme, *Mysterium Magnum*, 86.

Ormsby-Lennon considered that, whether for a theosophist like Boehme, or a practising alchemist like Oswald Croll,²¹ as for Paracelsus, the search for the true names of things, that Adam knew, was of critical importance. For Croll, 'naming day in Eden became a present reality, conferring an Adamic pharmacopeia and Apostolic gifts of healing'.²²

Both Barclay and Jones found in the similarities between texts of Boehme and passages in Fox's *Journal* convincing evidence that Fox had read Boehme in translation.²³ Barclay concluded that 'not only was Fox conversant with Boehmen's writings, but appears in his journal to pre-suppose a knowledge of Boehmen's method of stating spiritual experiences'.²⁴ It has been suggested that the warm reception given to Fox by Durant Hotham in 1651²⁵ may provide one of the 'missing links' which have been sought over the years between Behmenism and Quakerism: Hotham's biography of Boehme was published in 1654.²⁶ Nuttall cited evidence that Boehme 'was read' by a few early Quakers, including Thomas Taylor, William Smith, and Benjamin Furly,²⁷ but doubted whether the former had much influence on Quakerism.²⁸ Whilst Fox may have claimed 'intimacy with the botanical signatures of Eden'²⁹ there is no evidence that he wished to emphasise or was interested in the astral influences with which, according to Paracelsus and Croll, they were suffused.³⁰

Ancient Wisdom Traditions

Contemporary evidence for the influence of ancient wisdom traditions on Fox is considerably stronger. At this time, knowledge of the 'Hermetic' philosophy was

²¹ Ormsby-Lennon, 'Nature's Mystick Book', 35.

²² Ibid.

²³ See also Ariel Hessayon, 'Jacob Boehme and the Early Quakers', *Journal of the Friends Historical Society* 60, no. 3 (2005): 191-223.

²⁴ Barclay, *Inner Life*, 237-8, 214-5, quoted by Michael Mullett, 'George Fox and the Society of Friends' in Mullett, ed., *New Light on George Fox* (York: William Sessions, 1993), 5. On the other hand, Jones cited Ellistone, who, in his Introduction to Boehme's *Epistles*, predicted that experiences like those of Boehme and Fox would come to those who receive the inner divine light (Jones, *Spiritual Reformers*, 222-3). 'This knowledge must advance all Arts and Sciences and conduce to the attainment of the Universal Tincture and Signature, whereby the different secret qualities and virtues that are hid in all visible and corporeal things, as Metals, Minerals, Plants and Herbs, may be drawn forth and applied to their right natural use for the curing and healing of corrupt and decayed nature' (Ibid., 10).

²⁵ John L. Nickalls, ed., *The Journal of George Fox* (Philadelphia: Religious Society of Friends and London: Quaker Home Service, 1997), 75-6, 89-90, 94, 118, 533

²⁶ Ormsby-Lennon, 'Nature's Mystick Book', 48-9. Justice Hotham (1619-1691) and his brother, Charles, were keenly interested in alchemy and the 'German Philosophy'.

²⁷ Nuttall, *Holy Spirit*, 16.

²⁸ Ibid., 16-18.

²⁹ Ormsby-Lennon, 'Nature's Mystick Book', 42.

³⁰ Ibid. Croll is quoted here, describing the central importance and the celestial origins of plants in that tradition. 'All Herbs, Flowers, Trees, and other things which proceed out of the Earth are Books, and Magick Signes, communicated to us, by the immense Mercy of God, which Signes are our Medicine... For Plants do as it were in occult words, manifest their excellency, and open the Treasures of hidden things to sickly Mortalls... Stars, according to *Paracelsus*, are the Forms and Matrices of all Herbs; and every Star in the Heavens, is no other, but a Herb prefigured in a spiritual and catholick manner, representing the like of every Vegetable in the Earth ... For the Characters of Nature, and these Natural Signatures, which from the Creation, not with Inke, but with the very finger of GOD are imprinted in all Creatures (indeed every creature is a book of God), are the better part of true literature, by which all occult things are read and understood.' (Oswald Croll, *A Treatise of Signatures* (London, 1670).

widespread, sometimes also referred to as ‘the Egyptian Learning’ after its supposed origins with the Egyptian god Hermes Trismegistus.³¹ This was based on the conviction that everything in nature had its place in the divine order, being held together in ‘That basic commerce kept between God and his creation, though unseen’.³² This was the tradition that Edward Bourne referred to in his account of a conversation with Fox in 1655 (2.1.2), and both Hutchinson and Nuttall pointed to similarities between the Hermetic writers and the first Quakers. Nuttall wrote that ‘the general view among the Hermeticists was that the creation, apart from man, had not been involved in Adam’s fall. Hence, birds and beasts, and trees and herbs are regarded with admiration and envy as still fulfilling the divine purpose of the Creator. Man alone is out of order, out of unity with the creation, restless and ineffectual through his sin’.³³ This was very much the view of the poet, Henry Vaughn, who was Fox’s contemporary,³⁴ whilst the radical puritan and educational reformer, John Webster, reflected the views of many religious radicals when he wrote that ‘every creature understands and speaks this language of nature, but sinful man who hath lost, defac’t, and forgotten it’.³⁵ Yet for those who, in Ormsby-Lennon’s words, ‘believed that paradise was still in the world, the *liber naturae* represented an opening by which the single language of the creatures could still be re-possessed in its full and unfallen brilliance.’ For the alchemist, ‘fluency in the language of the birds...presages the alchemist’s attainment...of the magnum opus.’³⁶

For Plato, the soul of the world was female, and for his followers, nature and matter were seen as feminine, whilst ‘ideas’ were masculine.³⁷ The mystic traditions of which Fox spoke to Edward Bourne consistently posited the equality and necessity of the male and female principals in the world. Such ideas were popular among Renaissance writers like Paracelsus,³⁸ for whom the earth was the ‘mother or matrix

³¹ The Greeks identified the Egyptian divinity of wisdom, Thoth, with their own Hermes, and a considerable body of Greek literature is attributed to the name of Hermes Trismegistus (‘Thrice Great’). This is concerned with astrology and the occult sciences, the secret virtues of plants and stones and the sympathetic magic based on knowledge of these virtues. In addition, a philosophical literature dated mainly AD 100 – 300 and referred to as the *Corpus Hermeticum* was later attributed to the same author. However, contrary to Renaissance belief, this does not date from Egyptian antiquity, but shows gnostic Christian affinities. These include an account of the creation that in parts is reminiscent of Genesis, and a description of a process of divine regeneration of the human soul. (See Francis A. Yates, *Giordano Bruno and the Hermetic Tradition* (London: Routledge & Kegan Paul, 1964), 2-3; also Carolyn Merchant, *The Death of Nature: Women, Ecology and the Scientific Revolution* (San Francisco: Harper & Row, 1989), 17-18, and Charles Webster, *The Great Instauration: Science, Medicine and Reform 1626-1660* (London: Duckworth, 1975), 329).

³² from Henry Vaughn’s 17th century poem, ‘The Stone’.

³³ Geoffrey F. Nuttall, ‘Unity with Creation’: George Fox and the Hermetic Philosophy’, *Friends Quarterly* 1 (January 1947): 138.

³⁴ *Ibid.*

³⁵ John Webster, *Academiarum Examen, or the Examination of Academies* (London, 1654), 27, quoted in Ormsby-Lennon, ‘Nature’s Mystick Book’, 22.

³⁶ Ormsby-Lennon, ‘Nature’s Mystick Book’, 44.

³⁷ Merchant, *Death of Nature*, 10.

³⁸ Theophrastus von Hohenheim (1493-1541) – self-styled Paracelsus – was a key influence on the views of 16th and 17th century spiritual reformers on the physical world. For Paracelsus, alchemy was primarily a quest, not for gold, but for healing: knowledge was to be found not in the books and theories of the ancient scholars such as the Roman Galen (2nd century AD), but in nature and folk medicine; in the practices of ‘barbers, bathkeepers, women, and magicians who pursue the arts of healing’. Apart from his metaphysical speculations about the origins of matter, he was chiefly remarkable for his assertion that specific diseases called for specific remedies, and for championing the practical application of chemistry, in the form of herbal and mineral remedies, to medicine, which he termed ‘iatrochemistry’. In the words of a recent commentator, by the 17th century this was to produce

giving birth to plants, animals and men',³⁹ and also among contemporaries of Fox ranging from the Cambridge Platonist, Henry More, to the mystic and alchemist, Thomas Vaughan.⁴⁰ Although Margaret Fell admitted that Eve was 'more inclinable to hearken' to the serpent,⁴¹ in general, Quaker writings of this period stress equality, not differentiation, between man and woman. Catherine Wilcox remarks on the selectivity with which early Quaker writers quoted from Genesis. Thus they set out to demonstrate the joint creation in God's image of man and woman, their joint dominion over the creation, and therefore their equal potential for restoration into God's image and into unity with the creation.⁴²

Contemporary Influences: Gerrard Winstanley

Various groups of religious seekers of the 1640s held a particularly positive view of the created world, including the Ranters (2.6.3) and the 'Diggers' or 'True Levellers'. The chief exponent of the latter was Gerrard Winstanley (c.1609-1676), who later came to associate with, and may even have joined, the Quakers.⁴³ Espousing a religious message similar in its essentials to that of the Quakers, the Diggers were more radical politically and are chiefly remembered for their short-lived experiment in practical communal living and agriculture. Winstanley appears to have differed from his Quaker contemporaries in his explicit panentheism,⁴⁴ asserting that there was that of God not only in humankind but also, to a lesser extent, in all other creatures:

And this is the Spirit, or Father, which as he made the Globe and every creature; so he dwells in every creature, but supremely in man; and he it is by whom every one lives, and moves, and hath his being; perfect man is the eye and face, that sees and declares the Father, and he is perfect when he is taken up into this spirit, and lives in the light of reason; and there is no man or woman can say that the Father doth not dwell in him, for he is everywhere; there is not a creature in the compass of the creation, but he is in that creature, but disobedient man knows him not...for he either looks abroad for a God, and so doth imagine and fancie a God to be in some particular place of glory, beyond the skies, or some where he knows not, or in some place of glory that cannot be known till the body be laid in the dust.⁴⁵

'a solid body of practical chemical knowledge'. (Philip Ball, 'A Dose of Paracelsus', *Chemistry in Britain* 37 no.5 (May 2001): 40-42).

³⁹ Ormsby-Lennon, 'Nature's Mystick Book', 27.

⁴⁰ *Ibid.*, 17-28.

⁴¹ Margaret Fell, *Womens Speaking Justified, Proved and Allowed of by the Scriptures, All such as speak by the Spirit and Power of the Lord Jesus* (London, 1666), 3.

⁴² Catherine M. Wilcox, *Theology and Women's Ministry in Seventeenth century English Quakerism: Handmaids of the Lord* (Lampeter, UK: Edwin Mellen, 1995), 155-161.

⁴³ David Boulton, *Gerrard Winstanley and the Republic of Heaven*, (Dent: Dales Historical Monographs, 1999), 104-5.

⁴⁴ The term 'panentheism', coined by the German philosopher Karl Christian Friedrich Krause (1781-1832) (John Bowden, *Who's Who in Theology* (London: SCM Press, 1990), 72), describes the view that God includes nature and humanity in his being but transcends both ('God is all reality, but not all reality is God') attributed to Cordovero (I. Epstein, *Judaism* (1959), quoted in J.A. Simpson and E.S.C. Weiner, eds., *Oxford English Dictionary*, 2nd edn (Oxford: Clarendon Press, 1989), xi, 122).

⁴⁵ Gerrard Winstanley, *The Saints Paradiſe or, the Fathers Teaching the only ſatisfaction to waiting ſoules wherein Many Experiences are Recorded, for the comfort of ſuch as are under Spiritual Burning*

Gwyn writes that ‘Winstanley makes several statements of mystical communion with God in nature; but he strives to go beyond this largely aesthetic appreciation.’⁴⁶ Winstanley was clear that whilst God was manifest in the elements of creation, and in the unity of the creation as a whole, the greater vision of God was within the human heart:

To see the Divine power in the Creation-objects is sweet; but to see him ruling in the heart is sweeter: The first sight is at distance far off, as to see him in meat, drink, cloathes, friends, victories, riches, prosperity, to see him in the Sun, Moon, Stars, Clouds, Grasse, Trees, Cattle, and all the Earth, how he hath sweetly cause every one of these to give in assistance to preserve each other Creature: Or rather how he himself gives forth preservation and protection from one another, and so unites the whole Creation together by the unity of himself. But now to see the King sitting in his banquetting-house, to see the Law of Righteousness and peace ruling and dwelling in the heart... This is the Word of God; this is sweeter then the honey or the honey-comb, for this is to see him near at hand, even within the heart ruling and resting there. This is the Kingdome of heaven within you.⁴⁷

Conversely, Charles Webster interprets other of his writings, for example:

To know the secrets of nature, is to know the works of God; And to know the works of God within the Creation, is to know God himself, for God dwels in every visible work or body⁴⁸

as evidence that ‘Winstanley was tempted...to regard natural religion as the only way to attain “actual knowledge of the creator”, rather than as merely a complement to revealed religion.’⁴⁹ Webster describes him as ‘a kind of intuitive Baconian’, ‘championing the “actor” against the “contemplator”’,⁵⁰ particularly in relation to his enthusiasm to educate the young by instruction in practical arts and crafts, that they might ‘learn the inward knowledge of the things which are, and find out the secrets of nature’.⁵¹ Whilst Ormsby-Lennon concludes that ‘Winstanley’s recourse to *esoterica* proved nebulous by contrast with a cult-dream so vibrant and myriad-minded as Fox’s’,⁵² Winstanley engaged with both sides of the creation dialectic in a way that Fox and other early Quakers seem to have been reluctant to do, at least in print. Like Fox, Winstanley described a divinely revealed vision of a return to unity between God, humanity and creation. Becoming part of the divine order of creation was dependent on acknowledging the Creator within and letting divine wisdom rule, a

(London: Giles Calvert, 1648), Preface, in Gerard Winstanly [sic] *Several Pieces Set Forth in Five Books Gathered into one Volume* (London: Giles Calvert, 1649).

⁴⁶ Douglas Gwyn, *Seekers Found: Atonement in Early Quaker Experience* (Wallingford, PA: Pendle Hill Publications, 2000), 144.

⁴⁷ Gerrard Winstanley, *The New Law of Righteousness* (London: Giles Calvert, 1649), 103-4.

⁴⁸ Gerrard Winstanley, *The Law of Freedom in a Platform: or, True Magistracy Restored* (London, 1652), 50, quoted by Webster, *Great Instauration*, 508.

⁴⁹ Webster, *Great Instauration*, 508.

⁵⁰ *Ibid.*, 367.

⁵¹ Winstanley, *Law of Freedom*, 43, quoted in Webster, *Great Instauration*, 367.

⁵² Ormsby-Lennon, ‘Nature’s Mystick Book’, 22.

vision of ‘vastly comprehensive scope’.⁵³ Although the only known surviving reference by an early Quaker to Winstanley is from Burrough who writes in a letter from 1654 that ‘Winstanley says he believes we are sent to perfect that worke which fell in their hands. He hath been with us’,⁵⁴ Gwyn considers that it is ‘almost inevitable’ that Winstanley’s writings were an important part of George Fox’s own synthesis of the many powerful insights from the 1640s.⁵⁵

⁵³ Gwyn, *Seekers Found*, 144.

⁵⁴ Edward Burrough to Margaret Fell, August 1654, Caton MSS., 3/63, Friends House, London.

⁵⁵ Gwyn, *Seekers Found*, 152.

Appendix 2: George Fox's challenge to a Jesuit, 1658.

‘Then I said to him, seeing that he said that the bread and wine were immortal and divine and the very Christ, and that whosoever received it received the whole Christ, therefore let the Pope and some of his cardinals and Jesuits give us a meeting, and we would have a bottle of wine and a loaf of bread and we would divide the wine into basins and the bread into two pieces. And they should consecrate which part they would, and set the consecrated and the unconsecrated into a cellar; and we would have a watch set on it, on each side seven, and seven locks set upon the doors, and if the consecrated bread and wine altered not its property and the bread grew not mouldy and the wine sour, but proved divine and immortal, we would all turn to them. But if the bread grew mouldy and the wine sour and dead, then they should acknowledge their error and turn all to us.

And therefore come forth and let it be tried, for this would bring glory to God and the truth to be manifest, for much blood had been shed about such things, as in Queen Mary's days.

And then the Jesuit said, “Take a piece of new cloth and cut it into two pieces and make garments of it, and put one upon King David's back and another upon a beggar's, and the one garment should wear away as well as the other.”

Said I, “Is this thy answer?”

“Yes,” said he.

“Then”, said I, “ I am satisfied, for you have told people that the consecrated divided loaf and wine were immortal and divine, and now say, ‘It will wear away as well as the other.’ I must tell thee Christ remains, and is the same today as yesterday, and is the saints' heavenly food in all generations and never decays, through which they have life.” So this assertion of his proved erroneous, and he went no farther with it for all people saw his error.’

John L. Nickalls, ed., *The Journal of George Fox* (1952, repr. Philadelphia: Religious Society of Friends and London: Quaker Home Service, 1997), 345.

Appendix 3 : Fox's 'Queries' concerning van Helmont, 1684

- 'Query 1. Whether or no van Helmont, will own all these books that are come forth, and stand to them, that he hath printed and published – among Friends, and make them good, before he goes into the country ?
2. Whether the Serpent was not the first questioner, and by his questins did affirm lies to Eve ?
 3. Whether the Apostles were not troubled with the Doctors about questions and strife of Words ?
 4. Whether van Helmont's questions are Learned or unlearned ? If learned, then he will make them good and stand by them.
 5. And if Learned, whether they are Learned by ye Holy Ghost, or unclean Ghost.
 6. And who are the some that say, the soul of man is a woman's under-petticoat (as V. Helmont said to Mary Foster ; you speak to Mary Forster about it).
 7. And whether such an Expression is not of Ranterisme and Atheisme.'

'Memorandum from George Fox to the Second-day's Morning Meeting, 19 January 1684.'
(London : Friends House Library).

Appendix 4: Extract from Isaac Penington's Letter to the Royal Society, 1668.

‘I have heard that ye are seeking after the excellency of nature and learning. I am not for discouraging any man, in endeavouring after that which is good, useful, and excellent in its kind and place: but it is the advantage of every thing, to know and abide in its place; and to honour and serve him from whom all good gifts and endowments come. Man hath but a moment in this world, and he is here no more; and then the *spirit returneth to God that gave it*, to give an account of the talent which he gave it, and its improvement thereof, to the glory of him that gave it, and to the salvation of its own soul. Now this talent is of an higher kind than nature, and will lead higher than nature, giving a man to partake of that wisdom from which nature came; and teaching him to order all that is natural, to its right end. For God is not an enemy to nature, but to the corruption and disorder of nature. I desire ye might know and partake of the true wisdom, and feel union with God in the principle of his own life; and in the incorruptible and heavenly seed of God receive dominion over the earthly and corruptible. For this end singly, in the love springing up in my heart towards you (as it is often doth, both towards particular persons, and a lover of all; sincerely desiring the good of all, and the right guidance of their souls to happiness), have I proposed these things following more particularly to your view, though they concern others also, that ye thereby might be awakened to search after that which is most excellent in you, and be acquainted with the nature and precious effects thereof, to the full satisfaction and compleat joy of your souls, in that which alone is ably fully to satisfy, and give them ground of durable joy and rejoicing, in that which is not of a perishing nature; but which was, and is, and will be the same for ever.’

Isaac Penington, *Some Things Relating to Religion, Proposed to the Consideration of the Royal Society, so termed*, (1668), in *The Works of the Long-Mournful and Sorely-Distressed Isaac Penington*, (2nd ed., London: Samuel Clark, 1761), 2: 56.

Appendix 5: Robert Barclay on Ideas, 1676

‘For whatever is clearly and Distinctly Known, is known by its proper Idea, [neither can it otherways be clearly and distinctly known]; For the Ideas of all things are Divinely planted in our Souls: for they are not begotten in us by outward Objects, or outward Causes, (as the better Philosophy teacheth) but only are by these outward things excited or stirred up: and this is true, not only in Supernatural Ideas of God, and things Divine, and in Natural Ideas of the natural Principles of humane Understanding, and conclusions thence deduced by the strength of humane Reason; but even in the Ideas of outward Objects, which are perceived by the outward Senses; as that noted Christian Philosopher Boetius hath well observed, to which also the Cartesian Philosophy agreeth: For when I see any outward Object, whether it be a Man, or Horse, or Bird, the outward Object does not treat in my eye, nor yet in my mind, the Idea of those things: For the outward object does nothing but imprint in our sensible Organs a Corporal motion: Now there is nothing in a Corporal motion that can form in us the Ideas of those things; For all Ideas are of a spiritual Nature: Now nothing that is Corporal can produce that which is Spiritual, because the less excellent cannot produce the more excellent; Else the Effect would exceed its Cause, which is against all sound Reason... Therefore all Ideas whether of Natural or Spiritual things, are Divinely implanted in our Minds...’

Extracts from Robert Barclay, *The Possibility and Necessity of the Inward and Immediate Revelation of the Spirit of God...*(1676), (London: T. Sowle ,1703), 15/17

Appendix 6: Letter from Peter Collinson to Joseph Hobson, c. 1742

Esteemed Friend,

I was greatly Delighted with thy Curious account of the amazing Increase from one Mallow seed, 200,000 may be reproduced. Reflecting on this wonderfull production it led Mee to Consider the great & Wise Ends it was Intended for by the Bountifull Hand of the Great Lord of the Universe whose providential goodness & Regard is always overall His Works for their Continuance & Support. This is Evidently Seen by the provision in thy Calculation which is principally Intended for the Subsistance of the Feathered Tribe & perhaps for the Lesser Animals, mice, Insects, etc.

It is observable that all plants whose Seed is of so great use are very Productive which is very Requisite not only for the support of numerous Living Creatures but for other purposes. Many Seeds have other Physical uses which occasions are expensive and Require Large Quantities (consumption), So a great Supply is Necessary and then great allowances are to be made for Seeds that may be spoiled by being troden underfoot by Man & beast, and great Quantities are Lost and never Grow through the Inclemency of the Seasons, from great Droughts or by the Tender young seedling plants that are Carried off by Severe Frosts & many more suffer (great numbers are lost) by their being Exposed for want of protection.

So that if the Bountiful Provider had not given the common Vegetables of the field (that are of such Use and which Dayly exposed to so many accidents & Hazards) an Abundant Increase, their species might risque being near Lost and the Great and Wise Ends of Providence frustrated.

To an unthinking person the (Wonderfull) great Increase from one Mallow Seed may Seem a Needless Superfluity in what is Reputed a Common Weed, where as a grain of our Corn is not near so fruitfull (productive) on which the life of Man so much Depends. But if it is Consider'd the One is a Spontaneous product (& may be of great use) but Dayly Exposed to the Weeders had to be pluckd up & destroyed besides many other accidents that attends it, so it was Necessary to have an Extraordinary Supply whereas the other being Cultivated by Art, tho less productive from one Grain yett from its Immediate Use to Mankind the Greatest Care is taken of its propagation & Increase, and that proves more than Equivalent to the Greater Increase of the other.

These my Good friend are Some Hints that occur'd to Mee but as my Time is mostly Ingrosed by my Business I cannot Study regularity or Methode. If my Correspondents are so kind to Consider this they will candidly I hope over Look all omission.

I shall be glad [if] thee will Favour Mee with any future Observations. They will always be very acceptable, and if I can oblige thee any way it will be a pleasure to they sincere Friend
PC

Peter Collinson to Joseph Hobson [c. 1742], in Alan W. Armstrong, *Forget not Mee & My Garden...': Selected Letters, 1725-1768, of Peter Collinson, F.R.S.*, (Philadelphia: American Philosophical Society, 2002),

Appendix 7

Petition on Lobsters,
1790s

Cruelty to Lobsters.

Man
Not satisfied to prey on all around,
Adds ten-fold bitterness to death, by pangs
Needless, and first torments ere he devours.
Cowper's Task, Book 6th.

THE Publishers of this paper, being persuaded that those whose feelings are unblunted, must observe with pain, the sufferings to which the ANIMAL CREATION are exposed, and that therefore they will unite in considering it a duty, not to aggravate the mass of agony accompanying the destruction of Life, by the addition of superfluous and WANTON BARBARITY, are emboldened to solicit the attention of the Public, to a species of Cruelty practised (without advantage of any kind) on the Western Coast, which does not extend to some other parts of the Kingdom.

LOBSTERS here, have generally Pegs put into their claws, instead of the more humane, and more serviceable, method of Tying them, which is practised on part of the coast that supplies London with Fish. One of the Publishers of this address drew a peg out of the claw of a Lobster, in this Neighbourhood, which was driven through the joint, into the flesh, and its extraction was followed by a considerable effusion of corrupted flesh. What this poor creature must have endured it is difficult to conceive, but it ought to be observed, that its sufferings were wholly needless. This is confirmed by the opinion of a respectable Fishmonger, who asserted that he should prefer the method of tying the claws, as he occasionally found Lobsters thus lacerated by the peg, waste away under their sufferings. Many Thousands of Lobsters are thus yearly put to cruel and useless torture.

Is it asked how can this be prevented? EASILY. It is only for the heads of families to order that no Lobsters are purchased but such as are tied, and to see that the order is obeyed, and the cruelty will cease---the fishermen will find that it is their interest to be humane. Is then a little attention, and possibly, in a few instances, a little self-denial, as to a luxury, too great a sacrifice to Humanity?

The undersigned request the attention of the Inhabitants of Bath, Bristol, and the Western Coast, to the above statement, and for themselves, engage, not to allow the purchase of any Lobsters, but such as are tied.

- | | | | |
|---------------------------------|--------------------------|-------------------------------|---|
| Gen. Garth, at the King's Lodge | Philip Lovell | John Rye | M M Eustace, Bridport |
| Bishop of Salisbury | I. U. Urquhart | U. T. Lane | Jane Fowler do. |
| Edmund Hemming | William Loader | Mr. Cooper | M Robinson do. |
| Charles Buxton, Belfield | E. Thomas | A. Mackey | John Haddon do. |
| Thomas Fowle Buxton | John Harvey | Susanna Carter | Dr Graves do. |
| S. W. Warae | Mr. G. Dunson | C. Buxton, Jun | Samuel Bennett do. |
| W. Mc. Lorg | B. Cracknell | Charlotte Gardiner | Mrs Hodges do. |
| James Bower | William Thomas | Miss Bush, Bradford | G L Roberts do. |
| Dowager Lady Bchester | Richard Clark | Miss Everett | M Margrie do. |
| M. E. Bracebridge | Boswell Beldome | Miss Ryall | Mrs Dally do. |
| Ann Wilmot | George Harvey | Mr. Spencer Passal | Thomas Colfox do. |
| Thomas Evans, Bristol | Captain Ferris | Mr. T. Goldsmith | F Hounsell do. |
| M A Shermanpennick do | W. Danson | Mr. J. Sly | James Keaway, Jun do. |
| F. Bateman, Bath | Mrs. Ryall | Mrs. Wallis | I L Fenner, Surgeon do. |
| Mrs Walsh, do. | W. Drayton | N. C. Daniel, Westbrook House | Tho. Fish Bull Inn do. |
| Mrs & the Miss Hare's do. | T. Draice | Cath. Saxton, Radipole | John Golding, Jun do. |
| Lady Riddle do. | H. Marder | Robert Saxton | S D Robinson Surg. do. |
| I. Parish do. | A. Quirk | Mrs. M. Dorniny | H Saunders, Grey Hd. do. |
| Ann Darrah | E. Bennett | Miss Drane | T Tucker, Golden Lion do. |
| M. C. Blackwell | Charles Bowles | Miss Pickering | H B Way, do Harbour |
| P. M. Aspinwall | Rev. W. Gurton | W. Barrett, Junr | Mr Good, do do. |
| Miss W. Broccatcher | Eliza Grealy | John Taylor | Christ. Cooper, Dorchester |
| Mrs. Scir | Mrs. Payne | Henry Perry | Morgan Yeatman, do. |
| W. H. Rowe | E. Thresher, Curton | T. Abbott, Menckton | George Andrews do. |
| Mrs. Bryman | C. Balston, | B. Jesty | John Stephens do. |
| Mrs. Aldridge | Harriet Penny | Tho. Gilkes, London | H Bartlett do. |
| John Henning | William Richards | John Fuller | Edward Watson, Isle Wight |
| Rev. M. Onslow, Bradford | William Barret | Richard Plumby | Mrs Wray, Dawn Hall, Devon |
| Rebt. Henning, Dorchester | Joseph Fielding | Robert Feckes | Rev T Colmer, Arkerwell |
| R. Beaver | Charlotte Stock, Clifton | W. Foot, Charmingster | Rev G Raymond, Symonshury |
| W. Weston | Rev. W. Elyer | Thomas Green | Rev T Fox, Mapperton |
| Mrs. Humphrys, Ivy House | W. O'Brien, Mansford | Joseph Gale | Mrs Dawe do. |
| Mrs. Richard, Bloxworth House | Rev. C. Digby | S. Devenish | Richard Breaun, London |
| Mrs. Banger, Walsroa | John Parsons, Sherborne | Bennet Biles | John Richardson |
| W. Oakley | James Henning, Wolverton | Joseph Gundry, Bridport | D Cox, beaminston |
| Mrs. Richards | Mrs. H. Merges | N. Dowse do. | A Hardy, Hild |
| Lady Grant | Mrs. Steward | John Golding do. | Rev W Hose Holden, Surton |
| John Dwyer, D. D. | D. Crips | James Tempier do. | R F Roberts do. |
| Thomas Richardson, Wyle | Thomas Nichols, Burton | J. Gundry, Jun. do. | Richard Roberts do. |
| John Swaffield do. | Captain Barret | Mr. Fowler do. | Robert Symes do. |
| GEO. Chamberlaine do. | Governor Peau, Portland | Mr. T. Hounsell do. | Mrs Oke do. |
| Capt. Wilkiness, do. | Joseph Clark, Essex | John Hoso do. | John Henning, Alton Pastern |
| James Cooper, Surgeon | L. Coburn | J. G. Downe, do. | Ann Yeaubles, buckland |
| Richard Bower | Mrs. Jarman | John Tomlyn do. | Newton |
| Dr. Pickford | E. R. Davidge | Frances Way, Mt. Field, do | B White do. |
| John Harvey | W. Sneaks | Rev. T. Howe do. | Catherine-Phelps, South Brent, Somerset |
| George Ellis, Surgeon | Joseph Spriggings | A. Hounsell do. | Ann Bridge |
| George Arden, Solicitor | J. Williams | Mr. Lloyd do. | Sarah Shipley, Shaftesbury |
| Samuel Weston | F. B. Williams | Rev. L. Saltren do. | Hester Thompson, do. |
| John Spencer | D. Davis | W Stephens do. | |
| M. Vinton | T. Owens | E Nicholets do. | |
| J. Johnson | Richard Jerrard | Rev D Williams do. | |
| Edward Luxell | N. U. Clement | Mr G Tucker do. | |
| | M. Johns | Mr I Tucker do. | |
| | | Mrs. Chikait do. | |

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