

Robert Boyle: Christian Man of Science

JOHN KAPLAN

ABSTRACT

Robert Boyle as a distinguished scientist made manifold advances in the disciplines of chemistry and physics. His philosophical and theological works are surveyed here. He was an exemplary Christian and an eloquent author — indeed, it is difficult to refrain from quoting his work at length, to permit the reader to savour his genius and meet the man within the scientist. His beliefs in God, the Bible, creation and Christian living are looked at here and allow for a view of the spiritual Boyle whose scientific achievements blossomed from a desire to search out the Creator's handiwork.

INTRODUCTION

Robert Boyle (1627-1691) was born to Richard Boyle, Earl of Cork, and Catherine, daughter of Sir Geoffrey Fenton, in the province of Munster, Ireland. He was educated at Eton College near London, in Geneva, Switzerland, and at home. He relished knowledge and loved to read. He studied several languages including Greek, Latin, Hebrew, Italian and French, becoming quite fluent in the latter so as to be able to pass for a native of France. The only degree he held was an honorary doctorate in physics from Oxford University.

Boyle's contemporaries included scientists Isaac Newton, Robert Hooke and Galileo. Non-scientists included the theologian James Ussher, poet John Milton, naturalist John Ray and materialist philosopher Thomas Hobbes. England endured its civil war during his lifetime.

Even though Boyle's inclinations were virtuous, he had a deepening conversion experience while in Geneva during a frightening thunderstorm. He vowed at that time to serve God and never wavered from this commitment for the rest of his life. He never married, and from 1668 until his death he shared a house in London with his sister Katherine, Viscountess Ranelagh.

Boyle's contributions to chemistry and physics are legion and can be found in the several biographies of his life. He is best known for the law that bears his name. Boyle's Law states that the volume of a body of gas varies inversely with its pressure at a constant temperature, which can be symbolised simply as $PV=k$, where k is the proportionality constant. He helped to establish the Royal

Society of London to collect and improve scientific knowledge, and performed numerous experiments himself. He published works on topics such as the porosity of bodies, the production of corrosiveness, electricity, magnetism, odours, tastes, and many others.

Here, we rather peer into Boyle's Christian beliefs and his devout and charitable lifestyle. Boyle (Figure 1), a



Figure 1. Robert Boyle (1627-1691). (Brown University Library)

prolific and eloquent author, wrote on many philosophical and theological subjects, such as the love of God, mind and consciousness, miracles, immortality, and the relationship between Biblical revelation and human reason. As will be shown below, he was a young-Earth creationist who believed in the six-day creation, the Fall of man, the global Flood, Biblical miracles, the inspiration of Scripture, and the coming salvation and judgment of God.

Some of his most florid and beautiful works were his **Seraphic Love** and his devotional **Occasional Reflections upon Several Subjects**. The former was written to his friend Lindamor to encourage him to seek God's love since losing his lover, and the latter is a very inspiring devotional which takes ordinary events and 'improves' them to spiritual uses. The topics are as varied as 'a fair milk-maid singing to her cow' to a 'glow-worm kept in a crystal vial'.

THE BOOK OF NATURE

Boyle thought it wise to learn from both the book of nature as well as the book of revelation (the Bible). Comparing a man stargazing with and without a telescope he says:-

*'For as though a man may, with his naked eye, see heaven to be a very glorious object, ennobled with radiant stars of several sorts; yet, when his eye is assisted with a good telescope he cannot only discover a number of stars, (fixed and wandering), which his naked eye would never have shown him, but those planets which he could see before will appear to him much bigger and more distinct: so, although bare reason, well improved, will suffice to make a man behold many glorious attributes in the deity; yet the same reason, when assisted by revelation, may enable a man to discover far more excellencies in God and perceive them than he contemplated before, far greater and more distinctly. And to show how much a dim eye, illuminated by the Scriptures, is able to discover of the divine perfections, and how unobvious they are to the most piercing philosophical eyes, that enjoy but the dim light of nature; we need but consider, how much more suitable conceptions and expressions concerning God are to be met with in the writings of those fishermen and others, that penned the New Testament, and those illiterate Christians that received it than among the most civilized nations of the world . . . and amongst the eminentest of the wise-men and philosophers themselves . . .'*¹

VIEWS ON CREATION AND THE FLOOD

Concerning the literal recent creation he states that the 'Angels, who of all the created beings enjoy the uncloudedst light, and the most clear knowledge of their maker, do love him with a constancy so fixed, that in five thousand and some odd centuries of years,

*(effluxed since the creation) they could never see anything, either in God or out of him, capable to seduce them to a change.*²

He adds in another place :-

*'I see no just reason to embrace their opinion, that would so turn the first two chapters of Genesis into an allegory, as to overthrow the literal and historical sense of them.'*³

He held the same literal belief in the destruction of the world by fire at the end of this age:-

*' . . . the present course of nature shall not last always, but that one day this world. . . shall either be abolished by annihilation, or which seems far more probable, be innovated, and as it were transfigured, and that, by the intervention of that fire, which shall dissolve and destroy the present frame of nature: so that either way, the present state of things, (as well natural as political) shall have an end.'*³

REASON AND REVELATION

For Boyle, reason was necessary but insufficient. God's supernatural revelation was the only way to discover unknown truths:-

*' . . . There are divers truths in the Christian religion, that reason left to itself would never have been able to find out, nor perhaps to have so much as dreamed of; Such as are most of those that depend upon the free will and ordination of God, as, that the world was made in six days, that Christ should be born of a virgin, and that in his person there should be united two such infinitely distant natures as the divine and human; and that the bodies of good men shall be raised from death and so advantageously changed, that the glorified persons shall be like or equal to, the angels.'*⁵

VIEW OF SCRIPTURE

Encouraging others to search the Scriptures he notes that there are not

*'any motives accounted fitter to engage a rational man in a study, than that the subject is noble, that it is his duty to apply himself to it, and that his proficiency in it will bring him great advantages; so there is not any of these three inducements that does not concur in a very plentiful measure to recommend to us the study of theological truths.'*⁵

Man is not the result of chance, but God created Adam the first man and Eve was later made from his side, and 'the soul of man had not such an origination as those of other animals, but was God's own immediate workmanship, and was united to the body already formed. . .'⁶

He mentions . . . 'sinful world's ruin . . .'⁷ in the days of Noah, and . . .

'in Noah's time a deluge of impiety called for a deluge

of waters . . . and so when (in the last days) the earth shall be replenished with those scoffers mentioned by St Peter, who will walk after their own lusts, and deride the expectation of God's foretold coming to judge and punish the ungodly, their impiety shall be as well punished as silenced by the unexpected flames. . . that shall either destroy or transfigure the world. For as by the law of Moses the leperous garment which would not be recovered by being washed in water, was to be burnt in the fire, so the world, which the Deluge could not cleanse, a general conflagration must destroy.⁸

The Christian Virtuoso,⁹ which was written to demonstrate that being a Christian and a scientist are compatible, also contains a brief discussion of mind and conceptual thought. Boyle concluded that since matter does not possess these qualities, 'natural religion' (that is, religious truth derived from the study of nature) is adequate to demonstrate the need for a divine origin of thought. In this work he also affirms his belief in miracles and the casting out of demons.

Boyle did not hesitate to acknowledge his belief that God fitted the creation for man, and that man

'alone of the visible world is able to enjoy, use, and relish many of the other creatures, and to discern the omniscience, almightiness, and goodness of their Author in them and return his praises for them'.¹⁰

And

'tis not for themselves that the rubies flame and other jewels sparkle . . . nor is it for their own advantage that fruitful trees spend and exhaust themselves in annual profusions. The light which he diffuses through the world is useless to the sun himself whose inanimate being makes him incapable of delighting in his own splendour which he receives but to convey it to the earth, and other by him illuminated globes . . .'¹¹

God also shows His concern for man by appointing

'the rainbow to preach his goodness to all nations, and fortify the faith of mankind against the fear of a second deluge.'¹²

ARGUMENT FROM DESIGN

Paley's early 19th century design argument, based on the example of a watch pointing to a watchmaker, was preceded by Boyle's in which he contended that if one examines the components of a clock and their integration, he must be coerced to postulate *'the skill of an intelligent and ingenious Contriver'*.¹³ Moreover, the matter which constitutes steel, wood, lead, etc., did not accidentally join together to produce a gun, but it was skilfully designed.¹⁴ Likewise, Wilder-Smith's example of the impossibility of *'the paper writing the book'*¹⁵ came some three hundred years after Boyle wrote :-

'Many things may be performed by matter variously figured and moved which yet would never be performed by it if it had been still left to itself without being, at

first at least, fashioned after such a manner and put into such a motion by an intelligent agent. As the quill that a philosopher writes with, being dipped in ink and then moved after such and such a manner upon white paper, all which are corporeal things, or their motions may very well trace an excellent and rational discourse; but the quill would never have been moved after the requisite manner upon the paper had not its motion been guided and regulated by the understanding of the writer'.¹⁶

SPIRITUAL LESSONS FROM PHYSICAL REALITY

Boyle wrote on various subjects to encourage believers in their faith. Elaborating on the theme of Christians' being refined by God as gold in the fire, Boyle, from his experience with furnaces as a chemist, stated:

'He whose Spirit inspired the prophets is . . . represented as a refiner: and it is not the custom of refiners to snatch the beloved metal out of the fire as soon as it feels the violence of that purifying element; nay, nor as soon as it is melted by it, but they let it long endure the brunt of the active flames, actuated by exciting blasts, until it has stood its due time in the fire and there obtained its full purity and splendour'.¹⁷

'Nor do these crosses that seem do to his anger destroy the immutability of his love, since even that anger is an effect of it, proceeding from a fatherly impatience of seeing a spot unwiped off in the face he loves too well to see a blemish in it; and from a desire to see his child an object fit for a larger measure of his kindness. . . . The furnace of affliction being meant but to refine us from our earthly drossiness and soften us for the impression of God's own stamp and image.'¹⁷

PREFERENCE FOR DEVOTIONAL BOOKS

While attributing value to doctrinal books, Boyle placed a greater value on devotionals because they reach beyond the mind to the heart. Contrasting these two types he notes that it is from

'books of devotion which first allure the reader and then affect him that the devout soul extracts her honey; I mean those celestial pleasures that result from, as well as maintain a free communion with God, which does at once both exercise her devotion and recompense it and afford her, as flowers do the bee, an aliment equally nutritive and delicious.'¹⁸

Devotionals are to be preferred to other works because they *'endear us to God himself'.¹⁹*

In his **Occasional Reflections upon Several Subjects** he dwelt upon ordinary experiences until he derived a spiritual application from them. For example, in considering that the Moon reflects sunlight and does not generate its own light, we should be likewise as ministers

of the gospel and reflect the light of the 'bright Sun of righteousness'.²⁰ Using the Moon again, though it has no native light,

'yet by virtue of that borrowed one which she plentifully receives from the sun she affords more to men than any of the stars which upon the score of their vast distance from the sun are by modern naturalists supposed to shine by their own light, so those illiterate fishermen whom the Sun of righteousness called and made the light of the world, did by virtue of the copious irradiations he vouchsafed them, diffuse far more light to mankind than the greatest philosophers, that being unassisted by divine revelation had only their own native beams to shine with'.²¹

On the constancy of God's love, Boyle wrote:-

'His love is like his essence, immutably eternal, reaching from everlasting to everlasting, it preceded the nativity of time and will survive its utmost period and obsequies'.²²

'God does not desist from blessing us with his love, nor ceases ever from deserving the height of ours. Nor is he only constant in making us the objects of his love, but in bending and inclining us to make him the object of our strongest affections; so that he not only persists in continuing to us both the offer and the value of his love, but perseveres to give us a receptive disposition to welcome it to us, and reflect it up to him'.²³

CHARITABLE WORKS AND THE BOYLE LECTURES

Correspondence between Boyle and other persons reveals his missionary interests and his generosity. In a letter to a Mr Clodius,²⁴ Boyle shows his concern for relieving the poor, for propagating the gospel among the natives in New England and the rest of America, and for translating and printing the Bible in the Indian language. Dr Andrew Sail writing in 1678 from Oxford about Boyle's desire to reprint the New Testament in Irish exclaims:

'I bless God for inspiring to you so holy a zeal, and to those worthies that join with you therein'.²⁵

Boyle established an annual salary of £50 for ministers to preach eight sermons in the year to prove the Christian religion. Several of the earliest participants were Richard Bentley, John Williams, John Harris and Samuel Bradford. Bentley preached a sermon the year following Boyle's death at St Mary-le-Bow entitled 'Matter and motion cannot think: or a confutation of atheism from the faculties of the soul' in which he systematically (and not without some humour) addresses the problem (for the atheist) of the existence of cognisance. Selections during the lectureships by other speakers include 'Scripture the rule of faith' by Williams; 'Immorality and pride the great causes of atheism' by Harris; and 'Apostate men fit objects of divine care and compassion' by Bradford.

HIS VIEW OF WISDOM AND LEARNING

Boyle encouraged the study of God's works as well as His Word, since whatever God has thought worthy of making, man should not think unworthy of knowing.²⁶ He quoted the philosopher Paracelsus :-

'God is very admirable in His works; from the contemplation of which we should not desist night or day, but continually be employed in the inquisition of them: for this is to walk in the ways of God'.¹¹

He dismissed the idea that the study of nature leads to atheism, quoting Sir Francis Bacon,

'a little or superficial taste of philosophy may perchance incline the mind of a man to atheism but a full draught thereof brings the mind back again to religion'.²⁸

Solomon is his example of a Biblical naturalist who taught on plants and animals and whose wisdom was sought out by other people of other nations.

Boyle gives God the praise for allowing man to attain to the level of technology of his day explaining that,

'if Adam were now alive and should survey that great variety of man's productions . . . he would admire to see what a new world'³⁹

it had become through the industry of his posterity. God intended not just to meet our bodily needs but our intellectual needs as well.

'The world is wont to be styled not unfitly by divines, "The Christian's Inne"; but perchance it may be altogether as properly called his ship: for whereas both appellations suppose him a traveller, the Inne, though it refresh him in his journey does not further him in it, but rather retards his progress by detaining him in one place; whereas a ship not only serves the passenger for an Inne when he is weary but helps to convey him to his journey's end. And according to this notion, to suppose that God has placed in the world innumerable things to feed man and delight him and none to instruct him were a conceit little less injurious to God than it were to a wise merchant that sends persons he loves to afar country to think that he would furnish their cabinets with plenty of provisions, soft beds, fine pictures and all other accommodations for their voyage, but send them to sea disprovided of sea-charts and mariners' compasses and other requisite helps to steer their course by, to the desired harbour'.³⁰

The study of nature also leads to new discoveries in medicine. Boyle suggested that plants in the new world would have medicinal value and should be sought out. He wrote a book entitled **Of the Reconcilableness of Specifick Medicines to the Corpuscular Philosophy**³¹ in 1685 and a posthumously published **Medicinal Experiments: or, a Collection of Choice Remedies**.³²

Boyle noted that

'We ought, whenever we speak of God and of His attributes, to stand in great awe'.³³

But God's attribute of wisdom especially should excite our wonder and our admiration. Boyle saw this exemplified by the creation of animals and man. Each type of living creature, the materials appropriate for each (such as feathers, fur, scales) as well as the integration of the systems within each (for example, cardio-respiratory, digestive, reproductive, etc.) and the integration between the animated world should implant in us appreciation for God's infinite wisdom.³⁴

God governs legions of intelligent and active angels, and this also is cause for praising His wisdom. He flawlessly assigns them their differing tasks and oversees His mighty kingdom flourish.³⁵ Boyle gave many other examples of God's wisdom in his writings.³⁶

HIS VIEW OF NATURE

Boyle believed that God created matter and its properties together with the laws of motion to accomplish His wise purposes. He opposed the commonly held conception of 'Nature' as being a goddess or semi-deity acting as a deputy under God. This idea of 'Nature' not only lacked sufficient proof but was unnecessary according to Scripture. Boyle stated:

*'For in the history of the creation, it is expressly said that, "in the beginning God made the heavens and the earth", and in the whole account that Moses gives of the progress of it, there is not a word of the agency of nature.'*³¹

He explained that God saw everything that He had made and that He had rested from all His works and found no place for 'Nature' to assist.

Boyle also looked upon this view of 'Nature' as leading to the, '*polytheism and idolatry of the Gentiles*'.³⁸ Further, it robs God of His due praise,

*'For this erroneous conceit defrauds the true God of diverse acts of veneration and gratitude that are due to him from men, upon the account of the visible world, and diverts them to that imaginary being they call nature, which has no title to them.'*³⁹

He said also that it would be more in line with Scripture to assign angels the role of managing the world for those who feel the need for such a subordinate being to God.⁴⁰ He concluded:

*'The. . . service I hope our doctrine may do religion is that it may induce men to pay their admiration, their praises and their thanks, directly to God Himself, Who is the true and only Creator of the sun, moon, earth and those other creatures that men are wont to call the works of nature.'*⁴¹

He complained of the ambiguous use of the word nature and offered alternative terminology to express one's meaning. For instance, when we use the word nature in a creative sense such as nature made man part material and part immaterial, we should rather substitute the word God for nature. Instead of speaking of 'the nature of a thing'

we could employ the term 'essence'. When we say that if a stone is released in the air it will by nature fall to the ground, we could state the proper cause of this instead.⁴²

HIS EXTRATERRESTRIAL OUTLOOK

On the question of life on other worlds, Boyle cautions that we can never be absolutely certain:

*'if God. . . made other worlds . . . than that which we live in (as who can assure us that he has not?) he may have displayed in some of the creatures that compose them divers attributes that we have not discovered by the help of those works of his that we are acquainted with.'*⁴³

Or, in other words:

*'If the conjectures formerly proposed about worlds differing from ours may pass for probable, then it will be so too, that God in these other systems may have framed a multitude of creatures, whose fabric and motions, and consequently whose properties and operations, must be very differing from what is usually met with in our world.'*⁴⁴

HIS LITERARY TALENT

Another side of Boyle is manifested in his mastery of the English language. He used his gift of writing to extract spiritual truths from ordinary objects and familiar occurrences in his reflections or meditations. He purposed to rekindle the memory of his readers to devotion to God when they recalled similar circumstances. As Boyle dressed these truths up in novelty and variety of verbal expression, people who would not normally read devotionals would perhaps be attracted to them. Boyle considered this approach to be like using baits, hooks and nets to fish for the souls of men.

*'Nor is this indirect way of instructing men unlawful for a Christian or unworthy of him, for in the spiritual warfare, where our adversary is the old serpent, stratagem is as lawful as expedient, and he that gets the victory, whether or not he wins reputation by the manner, is sure to obtain (a greater recompense) glory, by the success.'*⁴⁵

Since Jesus used fictions to teach truths, Boyle does not scruple to use his reflections '*to inveigle men (if I may so speak) into piety and virtue*'.⁴⁶

REVERENCE FOR GOD

We should seek to increase our knowledge of God not out of an idle curiosity, but '*to heighten our reverence and devotion towards him*'.⁴⁷ No one can ever attain to complete comprehension of such a perfect being, but to aspire to know Him better to admire Him more is a worthy occupation. To devoutly contemplate God improves the graces and virtues of our minds and is also

'one of the most delightful exercises that the soul is capable of on this side of heaven'.⁴⁷

*'The pleasure that admiration gives, being usually proportionate to the uncommon nature and endearing circumstances of the thing admired, how can any admiration afford such a contentment as that which has God himself for its object and in him the most singular and the most excellent of all Beings?'*⁴⁷

Boyle finds it a sad thing that men should begrudge spending a few hours now and then contemplating and worshipping God.⁴⁸ Our admiration for material things gradually languishes and ceases, but the more we learn of God the more we want to learn of Him, and He is an eternal and infinite source of joy and contentment.⁴⁹

CONCLUSION

Boyle was a genuine Christian in both word and deed. He wrote many theological works on evangelism, the Holy Scriptures, prayer and other subjects, as well as many philosophical ones, including the uses and boundaries of experience in natural philosophy, the utility of experiments, and spontaneous generation.⁵⁰ His works can be difficult to procure but are most rewarding to read, especially his devotional mentioned above, which not only showcases his literary skill but softens the heart as well.

In closing, Boyle summarises what our attitude should be towards our Creator:

'Whensoever we speak to God or of him, we ought to be inwardly affected (and in our outward expressions appear to be so) with the unmeasurable distance there is between a most perfect and omnipotent Creator, and a mere impotent creature, as well as between a most Holy God and a most sinful man'.⁴⁴

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- Those interested in reading Boyle can find many of his philosophical and theological works in the six volume **Works** listed in Ref. 1. Volume 1 of his **Works** also contains a list of 19 theological and 37 philosophical works that are not included in the **Works** (see pp. ccxxvi-ccxxxviii).

John Kaplan has worked in the respiratory care profession since 1982. He works for a hospital in New England, USA.