

Knowledge and truth in John Henry Newman

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John Henry Newman is one of the great thinkers of the nineteenth century and during his three decades in Oxford exerted enormous influence within the city, across the country and indeed throughout the British Empire. He was an undergraduate at Trinity College from 1817 to 1820, became a Fellow of Oriel College in 1822, a tutor in 1826 and vicar of the University Church of St Mary the Virgin in 1828. He resigned from his fellowship at Oriel in October 1845 a few days before becoming a Catholic. Oriel was the most prestigious college in the early nineteenth century and leading the reform of the University. Newman played a part in this, not least by uniting the two tutor systems and thereby providing 'the germ for the modern tutorial system'.¹ He was the leader of the Oxford Movement which sought to reform and revitalise the Established Church, and the sermons he preached at St Mary's are regarded by many as the most inspiring in the English language. In 1852 Newman was invited to become the founding rector of a Catholic University in Dublin and the ten lectures he wrote to pave the way for the foundation comprise the first half of his educational classic *The idea of a university*, probably the most influential book ever written on the nature and purpose of university education. Newman was made a cardinal towards the end of his life, and died in 1890 at the age of 89. Last October he was declared to be a saint by Pope Francis.

Newman is renowned as a preacher, a theologian, a philosopher and a poet; he was a prolific writer who left us forty volumes of his own works, as well as some 25,000 letters which fill another 32 volumes. Some regard him as the finest prose writer in English of the nineteenth century. And he made major contributions to education, both to its theory and its practice, founding not just a new type of university but a new type of school as well. In all his writings, his educational endeavours, and his forty years as the provost of the Birmingham Oratory he was deeply pastoral. Having listened to this catalogue of achievements you are probably thinking Newman had very little interest in science. Indeed most of those who admire Newman would assume so.

¹M. G. Brock, 'The Oxford of Peel and Gladstone, 1800–1833', *History of the University of Oxford*, vol. vi, p. 61.

But Newman *did* have a genuine interest in science. In fact he had a keen understanding and considerable knowledge of the science of his time. He was one of the first to articulate the Christian response to (apparent) difficulties raised by modern science; he was one of the go-to intellectuals in the nineteenth century for those rattled by scientific advances, first in geology, then with the theory of evolution. While an undergraduate at Trinity, Newman read for honours in both Classics and Mathematics (the only two degrees available at the time). For his Finals, in addition to books on mathematics, Newman was examined in three sections of Newton's *Principia*; S. Vince's *Treatise on fluxions* (1818), *Principles of hydrostatics* (1812) and *Elements of astronomy* (1816), and J. Wood's *The principles of mechanics* (1796) and *Elements of optics* (1798; 1818).²

Before gaining his fellowship at Oriel, Newman was able to indulge his wider interests. His diary records that 'The greater part of 1821 I gave myself to Chemistry, to Mineralogy, to Geology,³ to the composition of Music, so as to acquire a smattering in each, and, lastly, with most attention, to the study of the Scriptures'.⁴ He conducted experiments in chemistry, attended lectures on anatomy, as well as those by the leading geologist and palaeontologist William Buckland. About the latter he commented that 'the science is so in its infancy, that no regular system is formed. Hence the lectures are rather an enumeration of facts from which probabilities are *deduced*, than a consistent and harmonious theory of certainties *illustrated* by occasional examples.'⁵

He also continued his mathematical studies, reading further on hydrostatics and optics, and wrote an essay (printed in the *Christian Observer*) on how the mysteries of mathematics prepare the mind for receiving the mysteries of religion.⁶ On applying to Oriel he told his father that 'few have attained the facility and comprehension which I have arrived at from the regularity and constancy of my reading and the laborious and nerve-bracing and fancy-repressing study of mathematics, which has been my principal study.'⁷ Once he gained

² *Letters and diaries of John Henry Newman* (abbreviated to *LD*) ed. C. S. Dessain *et al.* (London: T. Nelson, 1961–72; Oxford: Clarendon Press, 1973–2008) vol. i, p. 94n. Most of these text books, as well as others Newman used, are preserved at the Birmingham Oratory. For more details, see A. D. Culler, *The imperial intellect: a study of Newman's educational ideal* (New Haven: Yale University Press, 1955), p. 278.

³ Newman accompanied the Dean of Trinity College on a visit to Abingdon to view 'a fine collection of minerals', and afterwards decided to 'make various excursions to the British Museum [...] for the sake of the minerals' (Newman to his father, 20 March 1821, *LD*, vol. i, p. 100).

⁴ Diary entry, 1 July 1822, *LD*, vol. i, p. 143.

⁵ Newman to his mother, 8 June 1821, *LD*, vol. i, p. 109.

⁶ 'On the analogous nature of the difficulties in the Mathematics and those in Religion', March 1821, published in *The Christian Observer* (May 1821), pp. 293–5; reprinted with another article as *Two letters addressed to the "The Christian Observer"*.

⁷ Newman to his father, 15 March 1822, *LD*, vol. i, p. 125.

his fellowship at Oriel, he no time to devote to mathematics and science, other than in the summer of 1830 when he started a course on analysis and calculus. Looking back years later on Newman's life at Oriel someone who knew him well commented: 'Newman's mind was world-wide. He was interested in everything which was going on in science, in politics, in literature. Nothing was too large for him, nothing too trivial, if it threw light upon the central question, what man really was, and what was his destiny.'⁸

The university that Newman almost single-handedly set up (now known as University College Dublin or UCD), opened in 1854 and was the second Catholic university founded in the modern era. It is significant that Newman made extensive provision for scientific studies at a time when they were regarded with suspicion and misgivings by the majority of church leaders. It was a time of unprecedented scientific advance and some leading scientists had begun to argue that societal problems would be remedied by science, thereby making religion redundant. Ecclesiastics reacted against this exaggerated view by viewing science with extreme caution. More significantly, ecclesiastics became increasingly cautious when scientific conclusions appeared to cast doubts on Biblical Christianity.

In his Dublin discourses (the ten lectures that form the first part of the *Idea*) Newman stresses the unity of knowledge, arguing that a university 'teaches *all* knowledge by teaching all *branches* of knowledge, and in no other way'.⁹ Theology must therefore be included, he argued against the rationalists of the day, and so must science, against narrow-minded ecclesiastics; and provision was to be made for the new branches of knowledge.

The Catholic University was to have four faculties: arts, medicine, theology and law. Arts was divided into letters and science, where science included logic, metaphysics, ethics, mathematics, physics, chemistry, mineralogy and geology, as well as a subsidiary faculty of engineering. Twenty years before Maxwell opened the Cavendish Laboratory at Cambridge, Newman set about opening a faculty of science in Dublin: he oversaw the establishment of laboratories for chemistry and physics, sent scientists abroad to investigate how science was taught on the continental mainland, ensured that the library was well-stocked with scientific papers and journals, offered valuable scholarships and prizes for those studying science, urged the scientists at the University to undertake research, and helped them do this by

⁸ J. A. Froude, *Short studies on great subjects*, vol. iv (London: Longmans, Green & Co., 1899), pp. 278–9. James Anthony Froude came to know Newman through his brother Hurrell, who was a tutor and close friend of Newman at Oriel. James collaborated with Newman on *Lives of the English saints* (6 vols).

⁹ 'Theology a branch of knowledge', *Idea of a university: defined and illustrated* (London: Longmans, Green & Co., 1873; 1907), p. 166.

starting up an academic journal called *Atlantis*.¹⁰ The chemical laboratory was modelled on German lines and matched the best of its kind in the United Kingdom; it was to be used by medical students, for pure research, and for those studying application of chemistry to industrial processes. When the British Association for the Advancement of Science met in Dublin in 1857, Newman sent delegates to their meetings and welcomed visitors from the conference to the University.¹¹

The Catholic University Medical School opened in 1855, the second year of the university's existence, and was the big success story; when it was merged into the University College Dublin in 1909 it was the largest of the six medical schools in Ireland. In a speech to the medical students in July 1856 Newman told them, 'It has been too much the custom in these countries to maintain that Catholicism has been prejudicial to abstract science and to success in secular pursuits. It has been said to keep the mind in a sort of childish state, to relax and enfeeble it, to impede it in the investigation of scientific truth'. It was this 'great delusion', Newman said, which he hoped to set right.¹² Surprisingly perhaps, the faculties of theology and law failed to get off the ground during Newman's four years as rector, though engineering did.

That brief summary is hopefully sufficient to show Newman's commitment to science. Now I turn to what he says about knowledge and the purpose of university education.

In the first three of his discourses Newman argues that theology is genuine knowledge and as such should not be excluded from the university curriculum. Part of his argument is based on the unity of knowledge.

All that exists, as contemplated by the human mind, forms one large system or complex fact, and this of course resolves itself into an indefinite number of particular facts, which, as being portions of a whole, have countless relations of every kind, one towards another. Knowledge is the apprehension of these facts, whether in themselves, or in their mutual positions and bearings. And, as all taken together form

¹⁰ Under the editorship of the Dean of the Faculty of Science, *Atlantis* provided an outlet for those academics who had few students to challenge and excite them, and it served to raise the academic tone of the University and set its sights high. Published biannually, each number was about 200 pages in length and included articles of a literary and scientific nature, largely the latter.

¹¹ Though the academic input at the BAAS conference was dominated by Trinity College, two scientists from the Catholic University gave papers. In astronomy and meteorology eight out of twenty-seven papers were given by Irishmen, of which five were presented by Henry Hennessy FRS, Professor of Natural Philosophy at the Catholic University; in chemistry three papers were given by W. K. Sullivan, Professor of Chemistry at the Catholic University. Sullivan also acted as conference secretary for chemistry and mineralogy.

¹² *Catholic University Gazette* 55 (7 August 1856), pp. 116–17.

one integral subject for contemplation, so there are no natural or real limits between part and part; one is ever running into another; all, as viewed by the mind, are combined together, and possess a correlative character one with another.¹³

What, then, is the main purpose of a university, according to Newman? To put it at its simplest, it is ‘to teach people to think’. In his discourses, Newman argues that knowledge can be pursued either with a view to the cultivation of the intellect, or for more immediate practical purposes. The cultivation of the intellect, he argues, is a good in itself, and constitutes the primary aim of a university; thus while all subjects tend to the cultivation of the intellect, some are particularly suited to fostering this aim, and a university should concentrate on those subjects above all. Nevertheless, no subject should in principle be excluded from the university.

The effect of a proper university education is ‘enlargement of the mind’. This he describes as, ‘the action of a formative power, reducing to order and meaning the matter of our acquirements; it is a making the objects of our knowledge subjectively our own, or, to use a familiar word, it is a digestion of what we receive, into the substance of our previous state of thought’. This organic, living knowledge – not just of things themselves, but of their mutual relations – enables the intellect to gain ‘a connected view of old and new, past and present, far and near, and which has an insight into the influence of all these one on another; without which there is no whole, and no centre. It possesses the knowledge, not only of things, but also of their mutual and true relations; knowledge, not merely considered as acquirement, but as philosophy.’¹⁴

Acquiring this overview or ‘philosophical habit of mind’¹⁵ is one of the chief goals of a university education. In this way, a lawyer, a geologist, or an economist studying at university, ‘will just know where he and his science stand, he has come to it, as it were, from a height, he has taken a survey of all knowledge, he is kept from extravagance by the very rivalry of other studies, he has gained from them a special illumination and largeness of mind and freedom and self-possession, and he treats his own in consequence with a philosophy and a resource, which belongs not to the study itself, but to his liberal education’.¹⁶

¹³ ‘Bearing of theology on other branches of knowledge’, *Idea of a university*, p. 45.

¹⁴ ‘Knowledge viewed in relation to learning’, *Idea of a university*, p. 134.

¹⁵ ‘Bearing of theology on other branches of knowledge’, *Idea of a university*, p. 51. This elusive concept is explored at length in A. Bottone, *The philosophical habit of mind: rhetoric and person in John Henry Newman’s Dublin writings* (2010).

¹⁶ ‘Knowledge and professional skill’, *Idea of a university*, pp. 166–7.

To illustrate Newman's point, consider, for example, a student of economics, who attends lectures in the subject, works through the reading list he is given, writes essays, and sits exams. If his only reading outside his set books is *The Economist*, and if he only mixes with other economics students, then effectively he has economics for breakfast, lunch and dinner. Such a student will almost certainly lack awareness of other disciplines and therefore of their methods, their starting points, their use of evidence, their modes of argument and their ways of reaching truth; and so he is likely to be affected by the 'extravagance' or bias that Newman speaks of, and to be handicapped in the judgements he makes. But if economics is studied in the way Newman suggests, then that liberal education schools the mind in how to make judgments, and this makes the person better fitted to take on any role.

In arguing that the end of a university is cultivation of the mind, Newman is defending the university against those who would burden it with some other end, such as practical utility or even religious and moral training. Following Aristotle's argument that everything has its own perfection, whether it be intellectual, aesthetical, moral or practical, Newman holds that,

To open the mind, to correct it, to refine it, to enable it to know, and to digest, master, rule, and use its knowledge, to give it power over its own faculties, application, flexibility, method, critical exactness, sagacity, resource, address, eloquent expression, is an object as intelligible [...] as the cultivation of virtue, while, at the same time, it is absolutely distinct from it.¹⁷

In saying this, he is simply proposing what a liberal education is in itself: not what it is worth, nor what use the Church makes of it.

During the four years Newman acted as rector of the Catholic University he delivered ten lectures on 'University subjects' which comprise the second half of the *Idea of a university*. No fewer than three of them are about science: 'Christianity and physical science' and 'Christianity and scientific investigation' were delivered in 1855; 'Christianity and medical science' in 1858. The first two are relevant to my theme. They show that Newman had a keen understanding of the dynamics of science and its need for autonomy, and that he was alive to its growing importance in society.

He asks if the scientist has to actively support Church teaching in all he does, or if he enjoys genuine freedom to go about his work? 'Great minds need elbow-room, not indeed in the domain of faith, but of thought. [...] If you insist that in their speculations, researches, or

¹⁷ 'Knowledge its own end', *Idea of a university*, pp. 122–3.

conclusions in their particular science, it is not enough that they should submit to the Church generally, and acknowledge its dogmas, but that they must get up all that divines have said or the multitude believed upon religious matters, you simply crush and stamp out the flame within them, and they can do nothing at all.¹⁸

The essential harmony between science and religion means that each can proceed using its own methods, without constant concern that this harmony need always be apparent. Ultimately, when our knowledge is complete, there will be perfect agreement, but this will not be the case for all the partial and provisional views arising in the course of discovery. When one truth seems to contradict another, Newman urges us to ‘be patient with such appearances, and not be hasty to pronounce them to be really of a more formidable character. It is the very immensity of the system of things, the human record of which he has in charge, which is the reason of this patience and caution; for that immensity suggests to him that the contrarieties and mysteries, which meet him in the various sciences, may be simply the consequences of our necessarily defective comprehension.’¹⁹

He asks all the different specialists ‘to go on quietly, and in a neighbourly way, in their own respective lines of speculation, research, and experiment, with full faith in the consistency of that multiform truth, which they share between them, in a generous confidence that they will be ultimately consistent, one and all, in their combined results, though there may be momentary collisions, awkward appearances, and many forebodings and prophecies of contrariety, and at all times things hard to the Imagination, though not, I repeat, to the Reason’.²⁰

What will the wise man do? ‘Taking into his charge all sciences, methods, collections of facts, principles, doctrines, truths, which are the reflexions of the universe upon the human intellect, he admits them all, he disregards none, and, as disregarding none, he allows none to exceed or encroach’.²¹

The Christian does not have to live in perpetual fear that sooner or later some discipline will unearth facts which are simply contradictory to revealed truth. He ‘is sure, and nothing shall make him doubt, that, if anything seems to be proved by astronomer, or geologist, or chronologist, or antiquarian, or ethnologist, in contradiction to the dogmas of faith, that point will eventually turn out, first, *not* to be proved, or, secondly, not

¹⁸ ‘Christianity and scientific investigation, a lecture written for the School of Science’, 1855, *Idea of a university*, pp. 473–7.

¹⁹ ‘Christianity and scientific investigation’, *Idea of a university*, pp. 461–2.

²⁰ ‘Christianity and scientific investigation’, *Idea of a university*, p. 465.

²¹ ‘Christianity and scientific investigation’, *Idea of a university*, p. 461.

contradictory, or thirdly, not contradictory to any thing *really revealed*, but to something which has been confused with revelation'.²²

In another lecture 'Christianity and physical science' Newman considers the relation between science and theology by comparing their respective subject matters and methods of enquiry. He begins by observing that broadly speaking knowledge can be divided into the natural and supernatural, science being concerned with the former, theology with the latter. 'By nature is meant', he says, 'that vast system of things, taken as a whole, of which we are cognizant by means of our natural powers. By the supernatural world is meant that still more marvellous and awful universe, of which the Creator Himself is the fulness, and which becomes known to us, not through our natural faculties, but by superadded and direct communication from Him.' These two great circles of knowledge intersect: 'first, as far as supernatural knowledge includes truths and facts of the natural world, and secondly, as far as truths and facts of the natural world are on the other hand data for inferences about the supernatural. Still, following this interference to the full, it will be found, on the whole, that the two worlds and the two kinds of knowledge respectively are separated off from each other; and that, therefore, as being separate, they cannot on the whole contradict each other.' If, then, Theology is the philosophy of the supernatural world, and Science the philosophy of the natural, 'Theology and Science, whether in their respective ideas, or again in their own actual fields, on the whole, are incommunicable, incapable of collision, and needing, at most to be connected, never to be reconciled.'²³

The separation is more marked, Newman says, 'when we contrast Theology, not with Science generally, but definitely with Physics'. This being the case, Theology 'is just what such Science is not. Theology begins, as its name denotes, not with any sensible facts, phenomena, or results, not with nature at all, but with the Author of nature,—with the one invisible, unapproachable Cause and Source of all things. It begins at the other end of knowledge, and is occupied, not with the finite, but the Infinite. It unfolds and systematizes what He Himself has told us of Himself; of His nature, His attributes, His will, and His acts. As far as it approaches towards Physics, it takes just the counterpart of the questions which occupy the Physical Philosopher. He contemplates facts before him; the Theologian gives the reasons of those facts. The Physicist treats of efficient causes; the Theologian of final. The Physicist tells us of laws; the Theologian of the Author, Maintainer, and Controller of them;

²² 'Christianity and scientific investigation', *Idea of a university*, pp. 466–7.

²³ 'Christianity and physical science, a lecture in the School of Medicine', 1855, *Idea of a university*, pp. 430–1.

of their scope, of their suspension, if so be; of their beginning and their end. This is how the two schools stand related to each other, at that point where they approach the nearest; but for the most part they are absolutely divergent.’²⁴

In one of the discourses Newman describes how the theologian ignores the constraints of the laws of nature, on the one hand, and the physical philosopher puts aside the question of the divine, on the other, he ends by saying that ‘physical science is in a certain sense atheistic, for the very reason it is not theology.’²⁵

Having contrasted theology and science because of the nature of their subject matter, Newman now proceeds to contrast their respective methods.

The argumentative method of Theology is that of a strict science, such as Geometry, or deductive; the method of Physics, at least on starting, is that of an empirical pursuit, or inductive. This peculiarity on either side arises from the nature of the case. In Physics a vast and omnigenous mass of information lies before the inquirer, all in a confused litter, and needing arrangement and analysis. In Theology such varied phenomena are wanting, and Revelation presents itself instead. What is known in Christianity is just that which is revealed, and nothing more; certain truths, communicated directly from above, are committed to the keeping of the faithful, and to the very last nothing can really be added to those truths. From the time of the Apostles to the end of the world no strictly new truth can be added to the theological information which the Apostles were inspired to deliver. It is possible of course to make numberless deductions from the original doctrines; but, as the conclusion is ever in its premises, such deductions are not, strictly speaking, an addition; and, though experience may variously guide and modify those deductions, still, on the whole, Theology retains the severe character of a science, advancing syllogistically from premises to conclusion.²⁶

By contrast,

The method of Physics is just the reverse of this: it has hardly any principles or truths to start with, externally delivered and already ascertained. It has to commence with sight and touch; it has to handle, weigh, and measure its own exuberant *sylva* of phenomena, and from these to advance to new truths,—truths, that is, which are beyond and distinct from the phenomena from which they originate. Thus Physical

²⁴ ‘Christianity and physical science’, *Idea of a university*, p. 435.

²⁵ ‘Duties of the Church to knowledge’, *Idea of a university*, pp. 221–2.

²⁶ ‘Christianity and physical science’, *Idea of a university*, p. 441.

Science is experimental, Theology traditional; Physical Science is the richer, Theology the more exact; Physics the bolder, Theology the surer; Physics progressive, Theology, in comparison, stationary; Theology is loyal to the past, Physics has visions of the future. Such they are, I repeat, and such their respective methods of inquiry, from the nature of the case.²⁷

The contrast is no doubt exaggerated for rhetorical reasons. Moreover, both theology and physics have developed using methods Newman attributed to the other: in some senses, theology is inductive; and deduction from general principles is a standard way of proceeding in science. Newman effectively admits that the stark antithesis of induction and deduction to characterise the respective methods of science and theology is inadequate in the *Grammar of assent* (1870) his main philosophical work. There he shows the similarity between assent in religion and in science.

The *Grammar* was the only book Newman wrote that was not a response to an immediate need; he had been grappling with its central theme for forty, if not fifty years. The *Grammar* was effectively the work of a lifetime. It is a profound study of human certitude in general, and about belief in natural and revealed religion in particular. Insofar as it is a philosophy of faith, it about the foundations of faith, and it completes his earlier works on faith and reason. The book addresses many questions that were being asked in the face of the growing de-Christianisation of modern society. Can one talk of religious certitude in the same way as that arising from logical or mathematical propositions or from empirically verifiable statements? Does any individual have as much right on rational grounds to be certain of Christianity as the learned theologian? Indeed, is religious certitude possible? And if so, does it admit of degrees? These and a host of related questions are analysed.

The first part of the *Grammar* seeks to show that it is legitimate to believe what one cannot wholly understand. The second part shows that it is justifiable to believe what one cannot prove.

The first part deals with the difference between assent and inference, the relation of assent to apprehension, notional and real assent, and so on.

In the second part Newman argues that non-logical truths are reached not by direct, simple and sufficient proof, that is, through syllogisms, but by a complex argument consisting of accumulating and converging probabilities and implicit non-verbal reasoning that is not reducible to logic. As Newman explained to one of his readers, 'Formal logic, though the

²⁷ 'Christianity and physical science', *Idea of a university*, pp. 441–2.

science of the laws of thought, is not able to reduce to scientific form the whole process of ratiocination in concrete matters.²⁸ In practice we find there are many truths in concrete matters, which no one can demonstrate, yet everyone unconditionally accepts. This is precisely what Newman examines, first in general, then as applied to religious faith.

It was not long before Newman was accused of being a rationalist himself, though he had explained clearly how his explanation of how we reach certitude in religious matters allowed room for the operation of grace. He was also accused of scepticism, even though he had written ‘the human mind is made for truth, and so rests in truth, as it cannot rest in falsehood’.²⁹

The *Grammar* is also psychological in the way it explains how people react to different types of truth:

This is why science has so little of a religious tendency; deductions have no power of persuasion. The heart is commonly reached, not through the reason, but through the imagination, by means of direct impressions, by the testimony of facts and events, by history, by description. Persons influence us, voices melt us, looks subdue us, deeds inflame us. Many a man will live and die upon a dogma: no man will be a martyr for a conclusion.³⁰

Finally, it is worth noting one point about truth. The longest entry under ‘Newman’ in the index of Ian Ker’s authoritative biography is that for ‘the “real” and “unreal”’. For Newman, saying something is ‘real’ is tantamount to saying it is ‘true’; and saying it is ‘unreal’ as declaring it to be false. In this way truth and reality become almost synonymous: to be true is to be real, and to be real is to be true’.³¹ This is already apparent in his first book *Arians of the fourth century* (1831).

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²⁸ Newman to E. Walford, ? 1872, *LD* vol. xxvi, p. 133.

²⁹ *Grammar of assent* (London: Longmans, Green and Co., 1870; 1903), p. 221.

³⁰ *Grammar of assent*, pp. 92–3.

³¹ Ker, *John Henry Newman: a biography* (Oxford: OUP, 1988), p. 49.