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Robertson Smith, Energy Physics and the Second Scottish Enlightenment

Cairns Craig

When William Robertson Smith is mentioned in contemporary histories of Scotland, it is almost always in relation to his dismissal from the Professorship of Hebrew at the Free Church College in Aberdeen in 1881.¹ The shadow of that event casts itself on the historical landscape as an indication of the intellectual backwardness that results when national institutions are dominated by ‘fanatical zealots’.² Christopher Harvie, for instance, notes that while ‘the reformed English universities were gaining momentum in scholarship and research, the Free Kirk was persecuting Robertson Smith, its greatest theologian and a pioneer of social anthropology, for heresy’.³ The irony of the event is certainly striking, for no one, after all, should have been more central to the life and the development of the Free Church than Robertson Smith. His father, William Pirie Smith, was a schoolteacher who had been one of the earliest to be called to the ministry in the new Church (in 1845), and who undertook the education of his children himself, therefore ensuring their grounding in the beliefs of a Free Church. Robertson Smith, born in 1846, was one of the outstanding figures in the first generation that grew up in the ethos of the Free Church, an ethos to which he was so committed that he gave up a promising career in science in order to pursue theological studies. That the Free Church would wish to rid itself of this brilliant product of its own culture, who had been appointed a professor at the age of only twenty-four, would seem to confirm the views of those who saw in the Disruption itself nothing but a symptom of the inherent destructiveness of Scottish culture. As David Craig put it in the 1940s,

Much of the national spirit, often in rabid form, went into the Low Kirk religion, but its spirit. . . was irreconcilable with the cultivated ethos. . . it led directly to the Disruption of 1843. This is another of

¹ See T.M. Devine, *The Scottish Nation 1700–2000* (London, 1999), 384.

² Michael Lynch, *Scotland: A New History* (London, 1991), 398.

³ Christopher Harvie, *Scotland and Nationalism: Scottish Society and Politics 1707–1994* (London, 1994; 1977), 93.

the deep disunities which ran off the energies of 18th century Scotland into dispute and partisan bitterness, anyway characteristic of the race, which made for a stultifying monotony of idiom, religious, political, poetics—an inhumane extreme of partiality, in which positions defined themselves more by violence of opposition than by their positive natures.⁴

The Free Church's treatment of Robertson Smith and his subsequent departure for Cambridge has been taken as confirmation not only that nineteenth-century Scotland 'was irreconcilable with the cultivated ethos' but that it had retreated from the achievements of the Enlightenment which had made eighteenth-century Scotland such a force in world culture. After the successes of the Enlightenment, the depth of nineteenth-century Scotland's failure is, to T.C. Smout, beyond understanding: 'I am astounded by the tolerance, in a country boasting of its high moral standards and basking in the spiritual leadership of a Thomas Chalmers, of unspeakable urban squalor, compounded of drink abuse, bad housing, low wages, long hours and sham education'.⁵

By being driven out of Scotland, however, Robertson Smith did not escape the negative evaluation of the culture in which he grew up. One of Robertson Smith's major achievements was to bring to a successful completion in 1888 the Ninth Edition of the *Encyclopaedia Britannica*, which had started publication in 1875 under the editorship of T. Spencer Baynes of the University of St Andrews, and of which Smith became joint editor in 1881. The Ninth Edition employed such distinguished contributors, and presented work so much at the forefront of contemporary intellectual development, that it is often referred to as the 'Scholar's Edition'. That Ninth Edition, however, was the focus of Alasdair MacIntyre's opening Gifford lecture of 1988 (published as *Three Rival Versions of Moral Enquiry*, 1990), in which he attacks the structure of the *Encyclopaedia* as based on the presupposition that 'substantive rationality is unitary, that there is a single, if perhaps complex, conception of what the standards and the achievements of rationality are',⁶ and that it is the 'characteristic of genuine science, as contrasted with the thought of the prescientific and the non-scientific, that it has a particular kind of history, one of relatively continuous progress'.⁷ This MacIntyre

⁴ *The Voice of Scotland*, Vol. VII, Nos. 3–4 (Oct 56–Jan 57), 28.

⁵ T.C. Smout, *A Century of the Scottish People* (London, 1986), 2.

⁶ Alasdair MacIntyre, *Three Rival Versions of Moral Enquiry* (London, 1990), 14.

⁷ *Ibid.*, 20.

contrasted to ‘our’ cultural situation, in which ‘we inhabit a culture a central feature of which is the presence of, and to some degree a debate between, conflicting, alternative conceptions of rationality’,⁸ conceptions that force us to be aware of the past of science as one of ‘ruptures and discontinuities’.⁹ Robertson Smith is taken to be typical of an ‘encyclopaedism’ which assumes its own superiority over the past precisely because it is itself the outcome of the progress which has made scientific truth possible. Ironically, in MacIntyre’s view, this actually makes it impossible for encyclopaedists to understand the past because they impose on it their own thought-categories, on the assumption that those categories are universally valid. It is for this reason, according to MacIntyre, that Robertson Smith—and, following him, J. G. Frazer—fail to understand the notion of ‘taboo’ in what they took to be ‘primitive’ cultures: ‘it never even occurred to the contributors to the Ninth Edition to enter imaginatively into the standpoint of those allegedly primitive and savage peoples whom they were studying, let alone to enquire how they and their moral and religious theory and practice might be understood from the point of view of those alien cultures’.¹⁰ If this is true of Robertson Smith, it is true also of Scottish intellectual life in general, since the Ninth Edition is the last edition of the *Britannica* directed from Scotland (the tenth was a reprint of the Ninth with a supplement, and the eleventh was published by Cambridge University Press), and since MacIntyre also takes the institution of the Gifford Lectures, founded by Adam Gifford in 1888, as themselves part of that encyclopaedist culture. Such Scottish encyclopaedism is a ‘vanished and vanquished culture’.¹¹ whose values ‘nobody now shares’;¹² it is the last gasp of an earlier ‘Enlightenment’ about to be expunged by the chaos of the twentieth century, and insofar as it achieved anything, it was simply, as George Davie argued in a book cited by MacIntyre, to give ‘a new lease of life to the standards of the Scottish Enlightenment’.¹³ Like those earlier Enlightenments which it continues in an etiolated form, its real destination (and this is MacIntyre’s fundamental reason for challenging its values) was a future in which ‘the Encyclopaedia would have displaced the Bible as the canonical book, or set of books, of the culture’.¹⁴

⁸ Ibid., 23

⁹ Ibid., 24.

¹⁰ Ibid., 182.

¹¹ Ibid., 217.

¹² Ibid., 170.

¹³ George Davie, *The Scottish Enlightenment and other essays* (Edinburgh, 1991), 145.

¹⁴ Ibid., 19.

The inadequacy of these historical and the philosophical accounts of Robertson Smith, and of the Scottish culture of which he was a part, is suggested by comments made by Sir Herbert Grierson, in an interview with Henry W. Meikle in the 1950s.¹⁵ Grierson, Professor of English Literature in Aberdeen from 1895 till 1915, and subsequently in Edinburgh till 1935, was the most distinguished literary critic in Britain in the first thirty years of the twentieth century, and he recalled that in his student days ‘there was a wider interest in religious questions than prevails today – Robertson Smith and biblical criticism revolutionised Scottish religion and thought’.¹⁶ Far from Robertson Smith being ejected from a recalcitrant and regressive Scotland, or being the publisher of an already agreed and undisputed set of ‘truths’, in Grierson’s recollection he represents a revolutionary transformation not only of Scottish religion but of Scottish thought more generally. To see what this might mean we have to recollect Robertson Smith’s connection not with German theology or the beginnings of social anthropology, but his early connections with Scottish science. Peter Guthrie Tait, Professor of Natural Philosophy at the University of Edinburgh, noted in an obituary in 1894 that ‘unfortunately for Science, and (in many respects) for himself, his splendid intellectual power was diverted, early in his career, from Physics and Mathematics, in which he had given sure earnest of success’.¹⁷ So impressed was Tait by Robertson Smith’s potential as a scientist that while Smith was studying theology at New College he was also employed as Tait’s assistant in his new laboratory at Edinburgh. There he carried out experiments to test the theories of electricity and magnetism being developed by James Clerk Maxwell, who had been a friend of Tait’s since their schooldays and a close collaborator in the development of Tait’s work with William Thomson (later Lord Kelvin) of the University of Glasgow. Robertson Smith’s experiments were sufficiently successful to result in a paper in the Proceedings of the Royal Society of Edinburgh entitled ‘On the Flow of Electricity in Conducting Surfaces’ (1870).¹⁸ Even though Robertson Smith decided to pursue a theological rather than a scientific career, Tait and he were to stay close friends till Smith’s death and Clerk Maxwell was

¹⁵ Meikle was the author of *Scotland and the French Revolution* and librarian of the National Library of Scotland. The interview seems to be a radio discussion but the transcript of the interview does not give a date of transmission.

¹⁶ Grierson papers, Aberdeen University Library, MS 2478/8.

¹⁷ Cargill Gilston Knott, *Life and Scientific Work of Peter Guthrie Tait* (Cambridge, 1911), 291.

¹⁸ The paper is collected in John Sutherland Black and George Chrystal (eds), William Robertson Smith, *Lectures and Essays* (London, 1912).

to be the principal scientific adviser to Robertson Smith on the development of the Ninth Edition, to which he also contributed a substantial number of articles.

Robertson Smith was thus very closely connected with one of the most revolutionary developments in British science in the nineteenth century. At the time he was Tait's assistant, Tait had just published, along with William Thomson, their *Treatise on Natural Philosophy* (1867), which had set out to overturn Newtonian physics, replacing 'Newton's *Principia* of force with a new *Principia* of energy'.¹⁹ That displacement of Newton was actually fulfilled, however, by Clerk Maxwell's *Treatise on Electricity and Magnetism* (1873), which, as Einstein himself acknowledged, was 'the most profound and fruitful that physics has experienced since the time of Newton'.²⁰ The work of these three Scottish physicists established a new conception of 'Physical Reality. . . as represented by continuous fields'²¹ and redefined the fundamental structure of the universe as energy in transformation rather than as material atomic particles. The radicalism of this new 'energy physics' in Scotland in the 1860s and 70s can be gauged by comparing their view of the universe with that presented in John Tyndall's famous 'Belfast Address', of 1874, to the British Association for the Advancement of Science, in which he argued for the superiority of scientific rationality over religious belief and for religion's need to submit its assertions about the world to the test of scientific evidence. Robertson Smith was actually present at the address and wrote a letter to the *Northern Whig* to point out the failings of Tyndall's historical knowledge and religious understanding,²² a letter which Tait believed would be 'laid to my charge', so close were their relations.²³ What most angered the Scottish energy scientists about Tyndall's address—and Clerk Maxwell and Thomson were just as outraged as Tait and Smith—was not just what they judged to be his historical misunderstandings but what they believed to be his already outdated conception of the material universe. Tyndall quoted approvingly the words of Democritus to the effect that, *The atoms are infinite in number and infinitely various in form; they strike together, and the lateral motions and whirlings which thus arise are the beginnings of worlds,*

¹⁹ Quoted Crosbie Smith and M. Norton Wise, *Energy and Empire: A biographical study of Lord Kelvin* (Cambridge, 1989), 352, 353.

²⁰ Albert Einstein, 'Maxwell and Physical Reality', in *James Clerk Maxwell, A Commemoration Volume 1831–1931* (New York, 1931), 71.

²¹ *Ibid.*

²² John Sutherland Black and George Chrystal, *The Life of William Robertson Smith* (London, 1912), 162.

²³ *Ibid.*

while Thomson and Maxwell were developing conceptions of atoms as a fluid, spinning in vortices whose rotations produced the ‘flow’ of electricity in the space between them. Instead of the materialism of atomic particles proposed by Tyndall, they were proposing a universe in which, in the words of Macquorn Rankine, another of their collaborators, ‘all forms of physical energy, whether visible motion, heat, light, magnetism, electricity, chemical action, or other forms not yet understood, are mutually convertible; that the total amount of physical energy in the universe is unchangeable, and varies merely its condition and locality, by conversion from one form to another, or by transference from one portion of matter to another’.²⁴ In this universe matter was simply the transient form of an energy which was in continual flux: whereas ‘matter is always the same, though it may be masked in various combinations, energy is constantly changing the form in which it presents itself. The one is like the eternal, unchangeable Fate or *Necessitas* of the ancients; the other is Proteus himself in the variety and rapidity of its transformations. . .’²⁵

Far from Scotland in the 1860s and 70s being a society turned inward in a parochial obsession with the aftermath of the Disruption, it was the source of the single most important development of the nineteenth-century physics: Tait’s estimate in his review of Maxwell’s *Treatise* in 1873—which described his friend as having ‘a name which requires only the stamp of antiquity to raise it almost to the level of that of Newton’²⁶—is a view which has been upheld by history. As Bruce J. Hunt puts it, ‘by the 1890s the four “Maxwell’s equations” were recognized as the foundation of one of the strongest and most successful theories in all of physics; they had taken their place as companions, even rivals, to Newton’s laws of mechanics’.²⁷ Indeed, unlike Newton’s laws, they survived the arrival of Einsteinian physics entirely unchanged. As Maxwell’s recent biographer, Basil Mahon puts it, ‘Maxwell’s equations were *the* basic laws of the physical world’ because ‘Einstein’s axiom that the speed of light was an absolute constant. . . was completely determined by Maxwell’s theory’.²⁸ As Mahon’s title puts it, Maxwell was ‘the man who changed everything’—except

²⁴ William Maquorn Rankine, paper read to the British Association for the Advancement of Science, 1852, subsequently published in the *Philosophical Magazine*, quoted in Crombie Smith, *Science of Energy: a cultural history of energy physics in Victorian Britain* (London, 1998), 142.

²⁵ Peter Guthrie Tait and Balfour Stewart, *The Unseen Universe or Physical Speculations on a Future State* (London, 1875), 82.

²⁶ P.M. Harman, *The Natural Philosophy of James Clerk Maxwell* (Cambridge, 1998), 2.

²⁷ Bruce J. Hunt, *The Maxwellians* (Ithaca and London, 1991), 1.

²⁸ Basil Mahon, *The Man Who Changed Everything* (Chichester, 2003), 181.

that he did it not on his own but in conjunction with a group of Scottish scientists which happened to include the theologian William Robertson Smith.

Such a radical rethinking of the nature of reality was nothing if not a ‘rupture’, a ‘discontinuity’, involving ‘conflicting, alternative conceptions of rationality’. Indeed, even between these scientists themselves ‘conflicting, alternative conceptions of rationality’ emerged, driven by one of the most famous thought-experiments in science, which came to be known, thanks to Thomson, as ‘Maxwell’s demon’. The demon has lived an extraordinary life in modern science,²⁹ but it began as an effort to confront, and to understand, one of the consequences of Thomson and Tait’s analysis of energy, which involved both the irreversibility of transformations of energy, and the inevitable loss in all transformations of some energy into unusable forms. The inevitability of this dissipation of energy would lead, in the end, to a universe without any differential in temperature and in which no activity will be possible. ‘The result’, as Thomson put it, ‘would inevitably be a state of universal rest and death, if the universe were finite and left to obey existing laws’.³⁰ To Thomson, this was entirely consistent with his Calvinist faith and with Biblical authority,³¹ but in the form of the demon Maxwell challenged the nature of Thomson’s basic conception of the laws of physics. Maxwell’s demon is a molecule-sized creature who sits between two containers of gases, one hotter than the other. The temperature of the gases is a function of the velocity of the particles of which it consists, but in any gas there will be particles which are faster (hotter) or slower (colder) than the overall average. The demon operates a shutter which allows particles to pass between the two containers but only allows the fastest from the cooler container and the slowest from the warmer container to be exchanged. As a consequence, heat (the average speed of particles) ‘flows’ from the cooler to the warmer chamber, reversing the apparent necessity of the second law. What Maxwell’s demon implied was that the second law of thermodynamics, which requires that heat flow from hotter to colder substances, is not, as Kelvin believed, a necessary outcome of the nature of the universe but simply a statistical probability which, given the statistically vast scale of the universe, sometimes would not happen. This is the beginning of what we now know as the study of stochastic systems, or ‘chaos

²⁹ See Harvey S. Leff and Andrew F. Rex, *Maxwell’s Demon: Entropy, Information, Computing* (Bristol, 1990).

³⁰ William Thomson, ‘On a universal tendency in nature to the dissipation of mechanical energy’, *Philosophical Magazine* (series 4), 4 (1852), 304–6; quoted in Smith and Wise, *Energy and Empire: A biographical study of Lord Kelvin*, 500.

³¹ See Smith and Wise, *Energy and Empire: A biographical study of Lord Kelvin*, 535.

theory'. What was significant, however, was that this was science in the form of a fairy-tale, using the imagination as a conceptual tool to turn inside-out the most fundamental presumptions about the nature of the universe—which was why, to Thomson, it was demonic.

That Robertson Smith was aware of this aspect of Maxwell's thought is clear from his involvement in another co-authored publication by Peter Guthrie Tait, an enormously successful and influential book entitled *The Unseen Universe* (1875), written in conjunction with another Scottish scientist, Balfour Stewart. Tait and Stewart used Maxwell's demon to suggest a similar reversibility between physical and psychical energy: if the universe consisted only of energy in transformation, then some of that energy must be psychic as well as physical, because just as the 'law of gravitation assures us that any displacement which takes place in the very heart of the earth will be felt throughout the universe' so, they argued, 'we may even imagine that the same thing will hold true of those molecular motions which accompany thought'.³² The consequence is that all past mental acts are in some fashion stored up as spiritual energy in another, unseen dimension of the universe, a dimension which holds out the possibility of personal immortality. *The Unseen Universe* was first published anonymously but when its striking success rapidly required a second edition Tait and Stewart accepted that they should be acknowledged as authors. At the same time, Tait wrote to Robertson Smith to ask if he too should be acknowledged as one of the 'aiders and abettors' of the book.³³ What *The Unseen Universe* suggested was both a very different conception of the universe from Tyndall's but also a very different conception of science, one in which science and religion were not only *not* in conflict but were, in fact, two different ways of conceptualising the same truth. Which is why the book began with a long prologue providing an account of ancient 'myths' that pointed to the immortality of the soul. Those myths, which Robertson Smith had helped compile, suggested that the knowledge achieved by 'primitive' peoples might contain forms of the truth that would be uncovered in a different fashion by science. Science was not, as MacIntyre would have it, a progress from primitive ignorance to modern knowledge, nor a process that began from 'the data, the facts' and developed by 'the unifying synthetic conceptions which order the facts by making them intelligible as exemplifying laws';³⁴ science, for Maxwell and his collaborators, worked in precisely the opposite way:

³² Tait and Stewart, *The Unseen Universe*, 156.

³³ Black and Chrystal, *Life of William Robertson Smith*, 166.

³⁴ MacIntyre, *Three Rival Versions of Moral Enquiry*, 20.

We are accustomed to consider the universe as made up of parts, and mathematicians usually begin by considering a single particle, and then conceiving its relation to another particle and so on. This has generally been supposed the most natural method. To conceive a particle, however, requires a process of abstraction, since all our perceptions are related to extended bodies, so that the idea of the ALL that is in our consciousness at a given instant is a mathematical method in which we proceed FROM THE WHOLE TO THE PARTS instead of from the parts to the whole.³⁵

As a consequence, it is not from data that one begins but from a synthetic model:

The conception of a particle having its motion connected with that of a vortex by perfect rolling contact may appear somewhat awkward. I do not bring it forward as a mode of connexion existing in nature, or even as that which I would willingly assent to as an electrical hypothesis. It is, however, a mode of connexion which is mechanically conceivable, and easily investigated, and it serves to bring out the actual mechanical connexions between the known electromagnetic phenomena: so that I venture to say that any one who understands the provisional and temporary nature of this hypothesis, will find himself rather helped than hindered by it in his search after the true interpretation of the phenomena.³⁶

It is the conceptualisation of a model system that makes it possible to find ‘the true interpretation of the phenomena’, where the objectivity of the word ‘true’ is balanced, as it was in Robertson Smith’s account of Biblical truth, by the subjectivity of the word ‘interpretation’.

That this highly provisional way of approaching scientific truth was general in Robertson Smith’s circle can be seen in the work of Robert Louis Stevenson and J.G. Frazer. Stevenson was one of the students whose work Robertson Smith had to oversee in Tait’s laboratory, and in his ‘Humble Remonstrance’ of 1884 he argued against realism in fiction because, ‘a proposition of

³⁵ James Clerk Maxwell, *A Treatise on Electricity and Magnetism* (Oxford, 1881), Vol. 2, 164.

³⁶ James Clerk Maxwell, ‘On Physical Lines of Force’, *Philosophical Magazine* (March 1861); quoted in Mahon, *The Man who Changed Everything*, 104.

geometry does not compete with life; and a proposition of geometry is a fair and luminous parallel for a work of art. Both are reasonable, both untrue to the crude fact; both inhere in nature, neither represents it'.³⁷ For Stevenson, realists not only mistake the nature of art but, from the point of view of energy science, they also mistake the nature of the 'real', since material reality is an illusion that conceals rather than reveals the truth. That this theory of art was at one with the energy science which Stevenson encountered in Tait's laboratory is clear from *The Strange Case of Jekyll and Hyde* (1886), which is both an 'unrealistic' thought experiment—along the lines of Maxwell's demon—and an analysis of the consequences of the new physics of energy. The 'dissipation' to which Jekyll succumbs when transformed into Hyde mirrors not only the dissipation produced by the effort to reject a repressive Victorian Puritanism but the 'dissipation' of energy in Thomson and Tait's physics. It is this entropic universe that Jekyll inhabits, as is vividly presented in the cityscapes through which the characters move:

Mr Utterson beheld a marvellous number of degrees and hues of twilight; for here it would be a glow of a rich, lurid brown, like the light of some strange conflagration; and here, for a moment, the fog would be quite broken up, and a haggard shaft of daylight would glance between the swirling wreaths. The dismal quarter of Soho seen under these changing glimpses, with its muddy ways, and slatternly passengers, and its lamps, which had never been extinguished or had been rekindled afresh to combat this mournful reinvasion of darkness, seemed, in the lawyer's eyes, like a district of some city in nightmare.³⁸

The city is decaying towards entropy's 'indistinguishable equilibrium of ruin' (as David Masson, Professor of Rhetoric and English Literature at the University of Edinburgh had described it³⁹) and the energy it expends on lamps will only hasten the 'reinvansion of darkness'. Stevenson's story involves an apparent defiance of the irreversibility of energy transformations proposed by the new science, since Jekyll is able to undo his transformation into Hyde and escape

³⁷ Glenda Norquay (ed.), *R.L. Stevenson on Fiction: An Anthology of Literary and Critical Essays* (Edinburgh, 1999), 85.

³⁸ Robert Louis Stevenson, *Markheim, Jekyll and the Merry Men* (Edinburgh, 1995), 247.

³⁹ David Masson, *Recent British Philosophy, A review with criticisms, including some comments on Mr. Mill's answer to Sir William Hamilton* (London, 1867; 1865), 151–2; as editor of *Macmillan's Magazine*, Masson had published accounts of the consequences of the energy science by Kelvin and Tait.

the consequences of Hyde's crimes. Such reversibility, however, is an illusion and those who break into his locked chamber on the final night hear that 'the kettle with a startling noise boiled over',⁴⁰ symbolically announcing energy's inevitable dissipation. Transformed into Hyde, Jekyll can provide himself with access to immediate energy greater than his own, but with each expenditure of Hyde's energy Jekyll's future energy resources are being consumed. That is why, towards his end, Jekyll comes to think of 'Hyde, for all his energy of life, as of something not only hellish but inorganic', as though 'the slime of the pit seemed to utter cries and voices; that the amorphous dust gesticulated and sinned; that what was dead, and had no shape, should usurp the offices of life'.⁴¹ To resist being transformed involuntarily back into Hyde, Jekyll requires not only 'a double dose' of his potion but 'a great effort as of gymnastics'.⁴² The energy which Hyde expends leaves Jekyll 'a creature eaten up and emptied by fever, languidly weak in both body and mind',⁴³ because he has reached an entropic state in which he cannot sustain himself.⁴⁴

In Frazer's case, he begins his Gifford Lectures on *The Worship of Nature* by describing how,

every one of us is perpetually, every hour of the day, implicitly constructing a purely imaginary world behind the immediate sensations of light and colour, of touch, of sound, and of scent which are all that we truly apprehend; and oddly enough it is this visionary world, the creation of thought, which we dub the real world in contradistinction to the fleeting data of sense. Thus viewed, the mind of man may be likened to a wizard who, by the help of spirits or the waving of his magic wand, summons up scenes of enchantment which, deceived by the very perfection of his art, he mistakes for realities.⁴⁵

It is not the 'real' which we deal with, but a visionary representation of it. That Frazer's world is also tied to the new energy science—Frazer attended Thomson's lectures on natural philosophy at Glasgow University—is clear from the conclusion of *The Golden Bough*:

⁴⁰ Stevenson, *Merkheim, Jekyll and the Merry Men*, 268.

⁴¹ *Ibid.*, 292.

⁴² *Ibid.*, 292.

⁴³ *Ibid.*, 292.

⁴⁴ See Allen MacDuffie, 'Irreversible Transformations: Robert Louis Stevenson's *Dr. Jekyll and Mr. Hyde* and Scottish Energy Science', *Representations*, 96 (Fall 2006), 1–20.

⁴⁵ J. G. Frazer, *The Worship of Nature* (London, 1926), 2.

The dreams of magic may one day be the waking realities of science. But a dark shadow lies athwart the far end of this fair prospect. For however vast the increase in knowledge and of power which the future may have in store for man, he can scarcely hope to stay the sweep of those great forces which seem to be making silently but relentlessly for the destruction of all this starry universe in which our earth swims as a speck or mote. . . Yet the philosopher who trembles at the idea of such distant catastrophes may console himself by reflecting that these gloomy apprehensions, like the earth and sun themselves, are only parts of that unsubstantial world which thought has conjured up out of the void, and that the phantoms which the subtle enchantress has evoked to-day she may ban to-morrow. They too, like so much that to common eyes seems solid, may melt into air, into thin air.⁴⁶

Stevenson and Frazer were both contributors to the Ninth Edition and their shared sense of the necessary *unreality* required in order that the ‘truth’ of the science can be represented in any human communication is evidence of the culture’s anti-realist, anti-objectivist conception of our relation with the world. Far from conceiving progress as the development of history towards their own ‘timeless truths’, as MacIntyre describes them,⁴⁷ they saw their ‘truths’ as personal constructions that sketched the provisional outline of a universe as yet unseen, and perhaps unseeable.

This is no less true of Robertson Smith’s conception of the history of religion, which is not the unfolding of a steady spiritual progress but rather one of dramatic loss and subsequent recovery—in the form, for instance, of the Reformation’s recovery of the principles of an earlier Christianity, and of the Free Church’s subsequent recovery of those Reformation principles. Far from representing a smoothly objective uncovering of a timeless truth, Robertson Smith presents the history of religion as a profoundly personal engagement with a God whose revelation was always relative to the psychological and historical circumstances of its recipient. What was true in the past—‘God accommodated His work of revelation and grace to the laws of limited human nature, that He unfolded His plan under the conditions of historical development’⁴⁸—was equally true in the present, and what was religiously important

⁴⁶ Frazer, *The Golden Bough* (London, 1922), 713.

⁴⁷ MacIntyre, *Three Rival Versions of Moral Enquiry*, 27.

⁴⁸ ‘On Prophecy’ (1876), in Black and Chrystal (eds), *Lectures and Essays of William Robertson Smith* (London, 1912), 346.

was not the achievement of a timeless universality of ultimate truth but of a *personal* relationship with God:

We are to seek in the Bible, not a body of abstract truth, but the living personal history of God's gracious dealing with men from age to age, till at length in Christ's historical work, the face of the Eternal is fully revealed and we by faith can enter into the fullest and freest fellowship with an incarnate God.⁴⁹

It is not universally 'abstract truth' which Robertson Smith sought but the personal 'fellowship with an incarnate God'; and this is a truth which can as easily be lost as found, as the history of religion testifies. History may exhibit progress but far from being guaranteed, progress is dependent on the courageous individualism which was exhibited by the prophets of the Old Testament in their refusal to accept the values of their own society, and by their engagement with 'a new and living power, the utterance of a new life, which because it is a new life, can spring only from the infinite source of all life'.⁵⁰ Moral truth is not something that can be discovered by abstract reasoning and if its history has proved progressive it is not because of the unopposed unfolding of historical necessity: rather, it is the result of the courageous commitment of individuals to discovering the meaning of a profoundly personal relationship between humanity and God. If there is indeed an evolutionary and 'organic development of history' it is one that can only be known because it has been 'worked out in and through human personality, by a personal redeeming God'.⁵¹

Here Robertson Smith's work is closely aligned with that of another contributor to the Ninth Edition, Andrew Seth, whose philosophy focused on the importance of the 'personal' and on the significance of 'personality' in our understanding both of the world and of God—most importantly in his book on *Hegelianism and Personality* (1887). Far from accepting, as MacIntyre suggests, that 'the data' of the sciences 'present themselves and speak for themselves', producing the 'belief in the wrongheadedness of imposing any test of commitment to any theoretical or doctrinal standpoint upon those who are to consider such data',⁵² what Seth suggests in his article on 'Philosophy' in the Ninth Edition is that, 'the world is not a collection of individual facts

⁴⁹ 'What History Teaches', Black and Chrystal (eds), *Lectures and Essays*, 229–30.

⁵⁰ 'On the Question of Prophecy', Black and Chrystal (eds), *Lectures and Essays*, 189.

⁵¹ *Ibid.*, 165.

⁵² MacIntyre, *Three Rival Versions of Moral Enquiry*, 16.

existing side by side and capable of being known separately. A fact is nothing except in its relations to other facts; and as these relations are multiplied in the progress of knowledge the nature of the so-called fact is indefinitely modified. Moreover, every statement of fact involves certain general notions and theories, so that the facts of the separate sciences cannot be stated except in terms of the conceptions or hypotheses which are assumed by the particular science'.⁵³ Seth here effectively anticipates MacIntyre's assumption that 'there are always at least two modes of conceptualising and characterizing the data which constitute its subject matter, a pre-theoretical (although not of course preconceptual) prior-to-enquiry mode, and a mode internal to that particular type of enquiry'.⁵⁴ This was the lesson that had been impressed on Robertson Smith's generation in the emergence of experimental psychology (led, in Britain, by Alexander Bain), for experimental psychology engaged with elements of what had previously been treated as part of the fundamental business of philosophy—the nature of consciousness. What continues to make psychology and philosophy different, for Seth, despite their shared territory, is that psychology aspires to the objectification by which science limits its field of enquiry, thus making the identification of 'facts' possible, while philosophy as a discipline refuses to ignore that all such objectifications are possible only on the basis of subjectivity, on the basis of the personal, which the other sciences must exclude from their account: 'The sciences, one and all, deal with world of objects, but the ultimate fact as we know it is the existence of an object for a subject'.⁵⁵ For this reason we have to accept that we never discover ultimate truths but have to be satisfied with 'the conception of degrees of truth or adequacy'.⁵⁶

Those 'degrees of truth or adequacy' of value are not, for Seth, the introduction of an unstoppable relativity that leads inevitably to scepticism, because human beings are not passive reflectors of the world of facts but are required to act in the world to transform them. However 'scientific' and 'evolutionary' Robertson Smith's account of the development of religion might be, its 'truths' would have been meaningless without its more important concomitant—the transformation of Christian ethics as *action* in the present. As George Adam

⁵³ <http://www.1902encyclopedia.com/P/PHI/philosophy-02.html> [accessed 18 September 2008].

⁵⁴ MacIntyre, *Three Rival Versions of Moral Enquiry*, 17.

⁵⁵ <http://www.1902encyclopedia.com/P/PHI/philosophy-02.html> [accessed 18 September 2008].

⁵⁶ A. Seth Pringle-Pattison, 'The Venture of Theism', *Man's Place in the Cosmos and Other Essays* (Edinburgh, 1902), 243.

Smith noted in his *Modern Criticism and the Preaching of the Old Testament*, the ‘revival of the Prophets in the Scottish pulpit’ as a result of Robertson Smith’s historical account of them combined with the advent of socialism: ‘Every department of religious activity felt its effects. Sermons became more ethical: the studies of Bible classes in the Old Testament, instead of being confined to the historical books, were extended to the prophetic; and a considerable body of popular literature had appeared, which expounds the teaching of the Prophets and in many cases applies it to modern life’.⁵⁷ A truth which was ‘personal’ and which was evidenced in ‘action’ is very different from the kind of neutral ‘rational superiority’⁵⁸ that MacIntyre attributes to Robertson Smith and to Frazer. MacIntyre, in effect, attributes to Robertson Smith the very theory of an objective scientific rationality which Clerk Maxwell’s ‘demon’, as an imaginative mind-experiment, refutes, and therefore attributes to the whole project of the Ninth Edition a theory of knowledge which its most prominent contributors—Frazer as much as Clerk Maxwell—set out to challenge. Precisely because they took seriously the *historical* understanding of the evolution of knowledge they saw their own knowledge as hypothetical rather than certain, as provisional rather than conclusive, and as inevitably subject to future revision in the light of the action which flowed from it.

Far from being a ‘vanished and vanquished culture’, irrelevant to the concerns of our modern world, it is precisely in the intersection of science, religion, anthropology and philosophy in late nineteenth-century Scotland that the crises of incommensurable and untranslatable realms of knowledge—which MacIntyre takes to be typical of our ‘modern’ predicament—are brought into focus. And far from being a culture in a kind of entropic decline, late nineteenth-century Scotland is just as central to developments in international thought as its eighteenth-century predecessor. Alasdair MacIntyre describes this period, with the intention of *reducing* its significance, as ‘a second Scottish Enlightenment’: the term ‘Enlightenment’ might no longer be relevant to its concerns but as a period in which the nation’s intellectual achievements were as significant as in the period usually described as the Scottish Enlightenment, it is, in fact, only too appropriate. And Robertson Smith, because of his strategic placing in relation to Scottish physics, Scottish theology and the emergence

⁵⁷ George Adam Smith, *Modern Criticism and the Preaching of the Old Testament* (London, 1901), 221–2. Quoted in Gillian M. Bediako, *Primal Religion and the Bible: William Robertson Smith and his Heritage, Journal for the Study of the Old Testament*, Supplement Series 246 (Sheffield, 1997), 261.

⁵⁸ MacIntyre, *Three Rival Versions of Moral Enquiry*, 181.

of the discipline of anthropology, was at the heart of the reconfiguration of the intellectual landscape that this Enlightenment brought about. And because of his role as editor of the Ninth Edition he was also the communicative centre through which a Scottish intelligentsia, dispersed across the United Kingdom and across the Empire, were brought into contact with each other. From John Muir in California (who wrote the entry on California) to Robert Louis Stevenson in Samoa (who wrote in defence of the rights of Polynesian peoples in a way that challenges MacIntyre's assumptions about the relation Scots to the 'primitive'); from Clerk Maxwell in Glasgow (providing articles on atoms), to Hugh F.C. Cleghorn in Madras (commissioner for the conservancy of forests and author of the entry on arboriculture), Robertson Smith was the centre around which this second Scottish Enlightenment developed, linking physicists and theologians, novelists and ecologists, historians and philosophers. As Wellhausen, the German theologian acknowledged, in a letter celebrating the conclusion of the Ninth Edition, what was remarkable was that it seemed as though Robertson Smith had been 'predestined to hold together literature and science in combination':⁵⁹ he went on to add that he doubted 'if anything of the same kind could be achieved anywhere else than in England',⁶⁰ but he should of course have written 'Scotland', a country whose generalist traditions encouraged the degree of interdisciplinarity that could turn a physicist into a theologian, a classicist into a philosophical anthropologist and a novelist into the creator of a myth which recorded the outcome of the new physics. Not a culture in decline, but a nation of considerable energy.

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⁵⁹ Sutherland and Chrystal (eds), *The Life of William Robertson Smith*, 500.

⁶⁰ *Ibid.*