

This edition published by Thoemmes Press, 2000

Thoemmes Press
11 Great George Street
Bristol BS1 5RR, England

Thoemmes Press US Office
22883 Quicksilver Drive
Sterling, Virginia 20166, USA

<http://www.thoemmes.com>

Vestiges and the Debate before Darwin
7 Volumes : ISBN 1 85506 862 1

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British Library Cataloguing-in-Publication Data
A CIP record of this title is available from the British Library

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INTRODUCTION

'Things must keep their proper places':
Adam Sedgwick responds to *Vestiges*.

'This is a remarkable book, and has had a sudden run of public favour.' So begins an anonymous review of (the equally anonymous) *Vestiges of the Natural History of Creation* that appeared in the July 1845 edition of the *Edinburgh Review*. Following this innocuous statement, the reviewer launches into an attack on the work describing it as a 'monstrous perversion of sound reason' (p. 7). Eighty-five pages later the reviewer charges the author with 'labouring under some strange delusion, whereby he cheats himself, while he is doing his best to cheat others' (p. 85). The irate reviewer was Adam Sedgwick, professor of geology at Cambridge and a leading spokesman for the opposition to evolutionary ideas, be they Charles Lyell's uniformitarianism in the 1830s, Chambers' universal transmutation in the 1840s, or Darwin's theories in the 1860s. In fact, it might be easy to cast Sedgwick as a 'bad guy' within the development of evolutionary theory, but as we will see, this is a somewhat problematic position.

Sedgwick was born in the village of Dent, Yorkshire, in March 1785. The second son of the vicar of the parish, he graduated from Trinity College, Cambridge, in 1808 with a degree in mathematics, before being elected a Fellow of Trinity in 1810. He was ordained in 1817, a year before being elected Woodwardian Professor of Geology, and subsequently began a course of thirty-six lectures in geology offered annually between 1819 and 1871. As a Cambridge professor and ordained Anglican, Sedgwick saw Christianity as the underlying fabric of civilized society, and as Senior Proctor he was responsible for ensuring that the two thousand resident students did not stray from the path of moral and intellectual righteousness. Yet behind this traditionalism lay one of the most prominent educational reformers and Liberals.

Early in his career, Sedgwick became part of what has been termed 'the Cambridge Network' (Cannon 1978, p. 29), a loosely knit group of scholars who were instrumental in transforming Cambridge into a modern educational institution. Prince Albert chose Sedgwick as his secretary upon becoming chancellor of the university, and he would in 1850 be appointed to a Royal Commission examining university reform. Yet nowhere is Sedgwick's involvement in this reform movement more obvious than in his *Discourse on the Studies of the University*, which was of 'considerable importance in defining the new romantic-liberal-scientific stance' of the Network (Cannon 1978, pp. 40, 42).

At Trinity College in the 1820s the undergraduate curriculum was a 'heady combination of historical scholarship, German Idealism and Romantic poetry, along with the best of modern science, and all of this in a Christian context' (Cannon 1978, p. 48). On 17 December 1832 the Faculty and Students met for their annual thanksgiving service. Sedgwick, as chosen preacher, refused the usual path for his sermon and instead presented what would eventually be published due to student demand as his *Discourse*. The work was first published in December 1833 in an edition of 500 copies, to be followed by three editions (of 1000 copies each) with minor changes between February 1834 and May 1835 (Madden 1969). Fifteen years later, a heavily appended volume would appear as the infamous fifth edition that is presented here. Throughout these editions, Sedgwick's central themes remained unchanged, and his apologia for the curriculum at Cambridge remained constant. His aim, simply put, was to put the curriculum into perspective for the undergraduates, demonstrating the compatibility between their studies and their beliefs, and justifying what could be termed a 'sound Christian training' (Ashby & Anderson 1969, p. 8). However, it would be rash to imagine that Sedgwick did not have a more aggressively polemical goal. While stressing the value of science within the curriculum, he also castigated the utilitarian ideas of William Paley and others. Despite his place within the Cambridge curriculum, a sermon against Paley was almost a badge of membership among the clerics of the 1820s and 1830s, and Utilitarianism, whether of the Paleyite or Benthamite flavour, was old-fashioned – an eighteenth-century mode of thought attacked for its 'degrading effect on the temper and conduct of those who adopt it' (Sedgwick 1833, p. vi). This strand within the *Discourse*

was so strong that Robert Southey, the Poet Laureate, would comment that '[i]t is indeed most gratifying to see you employing your sledge-hammer against Utilitarians; and counteracting the mischief which has been done by Locke and Paley' (Clark & Hughes 1890, vol. 1, p. 427).

In *Discourse*, Sedgwick sees the goal of natural science as the decipherment of the records of creation. All parts of the universe are 'knit together by the operation of a common law', which offers a proof of 'beauty, and harmony, and order' (Sedgwick 1833, p. 13). This in turn yields to the argument from design and the Designer – a proof 'so strong that it never has been and never can be gainsaid' (Sedgwick 1833, p. 19). Key to this stand was his belief that it was mischievous to consider an efficient cause as an adequate explanation for a phenomenon while denying the existence of a final cause. Properly interpreted, the facts of science were clear evidence for a mind behind the creation – the Final Cause that was intelligent, benevolent, and clearly evidenced in the world. Above all else, Sedgwick clearly saw that any naturalistic mechanism of transmutation ('a theory no better than a phrenzied dream' – Sedgwick 1833, p. 23) applied to other species must be applied to man, and thus risked nullifying any feelings of morality and personal responsibility that were responsible for social cohesion. This position is remarkably similar to that of modern-day 'Intelligent Design Theorists' (Pennock 1999).

Such views were directly challenged by the universal transmutationism espoused by the anonymous author of *Vestiges*, and in 1845 Sedgwick got his chance to attack a work which he described as 'base, vulgar in spirit... false, shallow, worthless and ... starting from principles which are at variance with all sober inductive truth' (letter to Lyell, 9 April 1845; Clark & Hughes 1890, vol. 2, p. 81). This rhetoric would continue in his review for the *Edinburgh Review*, an essay that was described by Clark and Hughes (1890) as 'one of the most noteworthy of Sedgwick's works' yet was marred by his use of 'savage ferocity instead of calm criticism or good-humoured ridicule' (pp. 81, 88). In spite (or perhaps because) of the aggressiveness of Sedgwick's attack, *Vestiges* continued to be popular with the reading classes. Feeling that another attempt at refutation was warranted, he dusted-off the *Discourse*, and a fifth edition appeared as the bloated offspring of the original sermon – of the total of 766 pages, 650 did not appear in earlier editions and the new Preface alone comprised 434 pages. The original sermon,

trapped between the voluminous Preface and plentiful appendices, remained largely unchanged, and Sedgwick himself would refer to it as 'a grain of wheat between two millstones'. This aspect was picked up by a number of Sedgwick's friends – Henry Brougham would refer to the 'somewhat amorphous – at least oddly-proportioned' book, and Richard Owen to 'the germ of a goodly tree between two fat coryledon leaves'. This aside, Owen felt the work to be 'the best work on the principles of Revealed and Natural Religion extant in our language' and wished the volume to be expanded (!) into a form agreeable with its true nature and importance' (Clark & Hughes 1890, vol. 2, p. 193).

Despite its length, *Discourse* really presents little new in the way of arguments against *Vestiges* beyond those offered in the *Edinburgh Review*. While presenting an extended case for final causes, the majority of the new prefatory material is an attack on German Transcendentalism, Lockean Idealism and the Oxford Movement. As he had before, Sedgwick attacks *Vestiges* using a number of what were, by that time, standard arguments: (i) the invalidity of the Nebular Hypothesis, (ii) lack of evidence for spontaneous generation, (iii) lack of 'progress' within the fossil record, (iv) the occurrence of 'complex' and 'simple' forms together in geological strata, (v) the complexity of many early forms, (vi) constancy of 'types' and the permanence of species within the neontological realm, and (vii) presence of perfection within nature. These are discussed in the introduction to Lynch (2000), but what is interesting to a modern reader is that anti-evolutionists use all of these arguments today, often in ignorance of their roots as a collective argument in opposition to *Vestiges*.

Sedgwick not only objected to Chambers' science, he also took umbrage with his methodology. For Sedgwick, one had to learn the 'severe lessons of inductive knowledge' using 'sober and severe induction' (*Discourse*, pp. xx–xxi). There was little place for systems of thought that were 'intensely hypothetical' (*Review*, pp. 2, 10) as these lead to 'a scheme of nature against common sense, reason and experience' (*Review*, p. 12). The author's 'most imaginative mind' (*Review*, p. 7) had led him astray precisely because he refused to reject his senses and his imagination (*Review*, p. 9). This philosophical praise of inductive logic was similar to his view of Lyell's methodology. In a letter of 16 March 1865 he would state: '[Lyell] is ... not a great field-observer, and during his long geological labours he has never been able to look steadily in

the face of nature except through the spectacles of an hypothesis. His mind is essentially deductive, and not inductive' (Clark & Hughes 1890, vol. 2, p. 412). This criticism came despite Sedgwick's acceptance of Lyell's position on many issues. Science, to Sedgwick, was a sober pursuit of facts laid out in nature – a Baconian endeavour with no place for hypothesis or imagination. While the prevalent model for science in its day, this view radically opposes our modern conceptions of scientific practice.

In some ways, the *Discourse* is symptomatic of Sedgwick's inability to put his best ideas down on paper. Both it and the *Edinburgh Review* essay were never seen in their entirety by their author, with the publishers receiving small sections for immediate typesetting. We are left with sprawling, often confused, works that still manage to present a snapshot of Sedgwick's concerns (and those of the Anglican hierarchy) for the future of Victorian culture and thought. As with his previous defences of design, it is his concern with the social fabric that appears foremost in the *Discourse*. Should the views within *Vestiges* become widely accepted, Sedgwick could 'see nothing but ruin and confusion ... it will undermine the whole moral and social fabric, and inevitably will bring discord and deadly mischief in its train' (*Discourse*, pp. clxx–clxxi). While Sedgwick clearly felt the book to be morally pernicious, it was not the only work attacked because of perceived threats to society. Other works assailed included David Friedrich Strauss's *Das Leben Jesu*, Hegel's *Philosophy of Nature* (which he described as 'one unmixt, unredeemed mass of almost incredible ignorance and blundering'), Locke's *Essay on Human Understanding*, Lorenz Oken's *Physico-Philosophy*, and the Oxford Movement's *Tracts for the Times*. These works give us a clue to one of the underlying reasons for Sedgwick's extended tirade. As a believer in universal design and teleology, he had to reject the transcendental anti-teleological theories of Oken even if modified for British tastes by Chambers or Richard Owen. Sedgwick was deeply hostile to Owen's attempts to bring Oken to Britain, and expressed vocal concern about the eminent anatomist's transcendental leanings (Rupke 1994). Sedgwick was clearly rooted in the Cuverian functionalism of Cambridge, in direct opposition to the Romantic Transcendentalism of Edinburgh and London (see Desmond 1982 and Rupke 1994 for further details on this dichotomy).

1830, he expected to receive little praise from the likes of Sedgwick, who rejected his methodology. Yet he did receive praise in Sedgwick's 1831 address as President of the Geological Society. Sedgwick had originally been a believer in a young Earth and in 'Flood' or 'Mosaic' geology, a view that he recanted in his address. He termed flood geology 'a philosophic heresy' (Sedgwick 1831, p. 313) and felt that Mosaic geologists 'committed the folly and sin of dogmatizing on matters they have not personally examined' (Sedgwick 1833, p. 106). This recantation illustrates his lifelong view that scientists should not use religion as the handmaid of geology or theologians the facts of science to prove their theological premises. Sedgwick became a 'Gap theorist', a believer in a period between the first and second verses of Genesis which corresponded to the geological record as observed. As he said at the 1844 British Association for the Advancement of Science meeting while defending geology against the literalism of William Cockburn, the second verse 'may perhaps describe the condition of the earth after one of the many catastrophes by which its former structure had been broken up, and of which we can, on its present surface, find so many traces' (see Clark & Hughes 1890, vol. 2, pp. 79-80). Conflicts between science and religion were not to be solved by

shifting and shuffling the solid strata of the earth, or dealing them out in such way as to play the game of an ignorant and dishonest hypothesis – not by shutting our eyes to the facts, or denying the evidence of our senses; but by patient investigation carried out in the sincere love of truth and by learning to reject every consequence not warranted by direct physical evidence. (*Discourse*, p. 111)

While his views on the age of the Earth changed radically, his opposition to transmutation remained constant throughout his life. This aside, Sedgwick clearly cannot be seen in the same mould as the Scriptural geologists who opposed scientific investigation, citing the primacy of the Word over observations in the natural world. As he said while clutching a Bible – 'Who is the greatest unbeliever? Is it not the man who, professing to hold that this book contains the Word of God, is afraid to look into the other volume, lest it should contradict it?' (Clark & Hughes 1890, vol. 2, p. 582). Sedgwick did not fear contradictions.

Some of Sedgwick's opposition to these ideas must have come from his fear of the nullification of the traditional ethics and ways of life of his forefathers. (It is worth pointing out that during his lifetime, the traditional lifestyle of his home town of Dent was being steadily eroded, an occurrence that must have pained Sedgwick despite his near-constant presence in Cambridge.) As he noted in the *Edinburgh Review*, '[t]he world cannot bear to be turned upside down; and we are ready to wage an internecine war with any violation of our modest principles and social manners...it is our maxim, that things must keep their proper places if they are to work together for any good' – in short, the very unity of society was threatened by Chambers' 'rank, unbending, and degrading materialism', which has 'annulled all distinction between the physical and the moral' (*Review*, p. 3). For Sedgwick, the debate over *Vestiges* was as much about social values as scientific issues. Human salvation was at stake, and if the book were true, the Bible, and thus humankind's uniqueness, was little more than a comforting lie. As he wrote to Lyell,

if [*Vestiges*] be true, the labours of sober induction are in vain; religion is a lie; human law is a mass of folly, and a base injustice; morality is moonshine; our labors for the black people of Africa were works of madmen; and man and woman are only better beasts! (Clark & Hughes 1890, vol. 2, p. 84)

Sedgwick's worries were, to a certain extent, well founded. As Desmond notes, radicals, late romantics and disillusioned Tractarians discussed and sometimes praised *Vestiges*. In liberal Whig circles, among some Unitarians, dissenting medical men and freethinkers, *Vestiges* was hailed as being like 'a breath of fresh air to the workmen in a crowded factory' (Forbes 1844), an image unlikely to instill good feelings in the Oxbridge elite. Initial positive reviews in medical journals such as *The Lancet* and *British and Foreign Medical Review* were being utilized by atheists within the socialist movement (Secord 1994, pp. xxix-xxx).

Chambers himself noted the religious overtones of Sedgwick's language, which he felt had 'the virulence of a religious fanatic of the lowest school' (letter to John Ireland, 26 July 1845; Secord 1994). One must, however, be careful in painting Sedgwick as a religious opponent of the new geology. When Lyell published the first volume of his monumental *Principles of Geology* in

Radical within Cambridge yet theologically conservative, scientist and Deacon, his writings in this volume represent the confusion (and inherent contradictions) within the mind of many Victorians in the period before Darwin.

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