

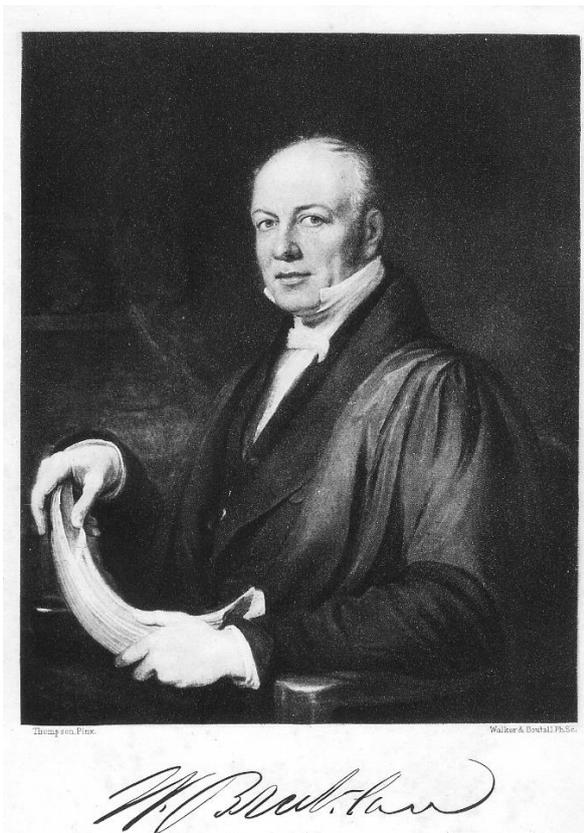
Dr William Buckland: A Short Biographical Note

Summary

William Buckland, geologist and ordained Anglican priest, was born at Axminster in 1784. Although not the first English geologist, he did as much as anyone to channel the emerging knowledge into a scientific framework which, a generation before Darwin, rendered a literal reading of the bible untenable. In 1819 he was appointed professor of geology and mineralogy at Oxford, and in 1824 was elected president of the Geological Society.

He was inquisitive, rigorous and collaborative (a rare combination in a leading scientist) and a noted communicator, via lectures, sermons, books and scientific papers. The list of his contacts ranged from the untutored but brilliant fossil-finder Mary Anning at Lyme Regis (whose achievements he championed) to Alexander von Humboldt, arguably the most famous scientist in Europe at a time when scientific knowledge was exploding.

Buckland's knowledge and interest was directly fostered by his childhood observations of the rocks and landforms around Axminster, and although he left the town as a young man, he returned frequently, not least to visit his friend Rev W D Conybeare (himself no mean geologist) when he was the vicar of Axminster. Indeed, the Bucklands were staying with the Conybeares at the time of the 1839 Axmouth landslip, allowing them to make first-hand observations, illustrated by Buckland's wife Mary, whose career as an internationally-known scientific illustrator pre-dated their marriage in 1825.



Dr William Buckland, painted in about 1845

In 1845 he was recommended by Sir Robert Peel (the Prime Minister) to the post of Dean of Westminster, where his energetic reforms and improvements to the Abbey and to Westminster school caused Sir Robert to describe this as the appointment of which he was most proud.

Unfortunately in 1848 Buckland and two of his daughters fell ill with typhoid when the drains at Westminster were disturbed by workmen. Although he recovered, it was not long thereafter that he started to suffer from debilitating depression, making his final years uncharacteristically unproductive. He died in 1855, a year before the publication of Charles Darwin's 'On the Origin of Species'.

Detail

The main source for the following account is 'The Life and Correspondence of William Buckland DD FRS, sometime Dean of Westminster, twice President of the Geological Society, and first President of the British Association'¹. All quotes below are from that source unless otherwise specified.

William Buckland was born at Axminster on 12 March 1784, the eldest son of Rev Charles Buckland and his first wife Elizabeth (née Oke). In 'The Book of the Axe' George Pulman identifies the house where his parents lived as "... *the house which stands on the eastern side of the entrance to Stony Lane on the Lyme Road opposite Lea Combe House and Terrace Lodge*"². Charles Buckland was the curate of Colyton (from 1776 to 1789), rector of Templeton (near Tiverton, 1776), rector of Trusham (near Chudleigh, 1793), and rector of West Chelborough (near Beaminster, 1795). All his married life he lived at Axminster. His father-in-law John Oke was a landowner at Combyne, where his family had been established for several generations³.

Charles Buckland used to take his son on walks through the countryside around Axminster, and together "... *they ransacked the lias quarries, collecting ammonites and other shells, which thus became familiar to the lad from his infancy*". Charles Buckland died in January 1821 and was buried at Axminster, having been blind for the last 22 years of his life.

William Buckland's friend Rev William Daniel Conybeare, writing many years later, observed that "... *all the circumstances of Buckland's early life were calculated to impress that character of mind which so peculiarly qualified him to become the pioneer of the rising science of Geology, which began to unfold itself during the very period when his powers first developed mature development*". He identified the importance of Axminster and its setting to Buckland's development, being "... *situated in a valley based on that peculiar rock formation, the lias, which is most rich in organic remains, and exhibits so many of their most striking and interesting forms. Axminster is within a few miles of the most illustrative of those coast sections exposing the structure and contents of that rock ...*". By 'organic remains', Conybeare means fossils, for which Lyme Regis became particularly famous thanks to the work of Mary Anning and Henry de la Bêche, another pioneering geologist who lived at Lyme and who made the scientific drawings of many of Mary Anning's finds which contributed to their renown.

When he was 13 William Buckland was sent to Blundell's school at Tiverton, but a year later he moved to Winchester. 'The Life and Correspondence of Dr Buckland' says that "... *Mr Pole Carew, Speaker of the House of Commons, obtained for him ... a nomination at Winchester*". In point of fact while Reginald Pole Carew, fourth son of Sir John Pole of Shute, was a Cornish MP at the time, he was not the Speaker. Nevertheless, any such intercession illustrates the influence and contacts of 'the parson and the squire' at this time.

In 1801 Buckland "... *was elected Scholar of Corpus Christi, Oxford. He gained his BA in 1804, but along the way he had attended classes in geology ... with Mr Broderip, who knew much of fossil shells and sponges from Mr Townsend, the friend and fellow-labourer of William Smith, 'the Father of English Geology'*." He also started the collection of fossils and

¹ This was written many years after his death by one of his daughters, Mrs Gordon, and published in 1894 by John Murray of Albermarle Street, London.

² Source: page 691 of the 4th edition (1875), republished in 1969 in a facsimile edition by Kingsmead Reprints, Bath.

³ Further details of the Oke family are accessible on-line via the archive.org website and 'Devon & Cornwall Notes & Queries' Vol.XI, 1920/21.

samples which subsequently passed to the Oxford Geological Museum. He remained at Oxford, and in the interval between his BA and his MA attended the lectures of Dr Kidd on mineralogy and chemistry. In 1809 he was elected a Fellow of Corpus Christi and ordained a priest. It was also at this time that he met William Daniel Conybeare, who remained a life-long friend. Whereas Buckland became a professional geologist who was also an ordained priest, Conybeare devoted his life to the Church, whilst simultaneously being a talented amateur geologist.

During Buckland's time at Oxford he often spent his vacations at Axminster and Lyme Regis, where he went fossil hunting with Mary Anning, and could often be seen "... *wading up to his knees in search of fossils in the blue lias*". The breakfast table at his lodgings was described as "... *loaded with beefsteaks and belemnites, tea and terebratula, muffins and madrepores, toast and trilobites, every table and chair as well as the floor occupied with fossils whole and fragmentary, large and small, with rocks, earths, clays and heaps of books and papers, his breakfast hour being the only time that the collectors could be sure of finding him at home, to bring their contributions and receive their pay ...*".

In 1813 Buckland and Conybeare made a tour in Ireland, and together they wrote a paper 'On the Coasts of the North of Ireland' which counts as Buckland's first important scientific paper. During their travels they turned up at an out-of-the-way hut one night "... *tired, hungry and covered with mud and dirt*". The old woman who served them saw their fossil bags and heard their conversation. As she placed their food on the table she exclaimed "*Well, I never! Fancy two real gentlemen picking up stones! What won't men do for money?*".

Three years later Buckland and Conybeare travelled together through Germany; one of several foreign tours at around that time which he made with different companions and collaborators. The purpose was to study continental European geology the better to understand what was being discovered in England. At around this same time Buckland was making observations at Sidmouth (and no doubt elsewhere in the vicinity of Axminster). He also noted in one letter how "... *passing yesterday over Kilmington Common on my way to Exeter, I was at a loss to find a reason why a small portion of that common is the only spot in England on which the Lobelia urens (Heath lobelia) has ever been found native. ... This is one of those curious questions relating to the geography of plants for which I despair of obtaining a satisfactory solution ...*". (In point of fact, while rare, Heath lobelia is found at a small number of other locations in the UK.)

In 1813 Buckland was appointed Reader in Mineralogy at Oxford. His lectures, however, "... *were not confined to Mineralogy, but embraced the latest discoveries and doctrines of Geology. His courses attracted ... the attention and admiration of the University, and ... contributed to the public recognition of Geology as a science*". In 1819 a new Professorship of Geology was created at Oxford, to which Buckland, still in his mid-30s, was appointed. Cambridge had had a chair in geology for almost 100 years by then, but the man generally described as the 'father of English geology', William Smith, was not an academic at all, but a surveyor whose ground-breaking 1815 geological map of England influenced all of the up-and-coming geologists of the time.

Over this period Buckland paid regular visits to Axminster (according to his daughter he rode from Oxford to Axminster once or twice every year between 1812 and 1824), stopping along the way to investigate quarries and to hunt for geological evidence and specimens. His horse was attuned to the regular stops, and the weight of his sample bags and hammers, and even if someone else was riding her, she would apparently stop at any quarry she saw, obliging the rider to dismount and feign interest before re-mounting.

Buckland's professorship and its accompanying public recognition helped him both to promote knowledge of geology, and to network with a wide range of other scientists. One of his most notable characteristics was his ability to get on with, and cooperate with, a really wide range of persons, and then to explain to both students and the wider public what the emerging understanding of earth sciences meant. He was generally acknowledged to be a wonderful lecturer and preacher, able to use humour to get his serious points across. He also recognised that his understanding of geology was changing at such a pace that he needed to avoid cleaving dogmatically to positions which might suddenly be overturned by new evidence.

In 1822 he published a paper reporting on investigations which he had made in a 'bone cave' which had been discovered by quarrymen at Kirkdale, about 25 miles due north of York. The remains that he found there demonstrated that hyenas had lived in the Yorkshire Wolds, together with a whole ecosystem of prey animals, some of them more normally associated with warm climates. In all he found the remains of 23 different animals "... among them tiger, bear, wolf, elephant, rhinoscerous, hippopotamus, horse, ox, three species of deer, hare, rabbit, water-rat, mouse. Of birds' remains he also found raven, pigeon, lark, snipe and a small species of duck ...".

His friend William Daniel Conybeare celebrated the discovery by producing a cartoon:



BUCKLAND ENTERING THE KIRKDALE CAVERN. FROM A CARICATURE BY THE REV. W. CONYBEARE.

Over the years Buckland explored several other 'bone caves', including at least two in Devon (one being at Chudleigh, on Lord Clifford's land).

A year after his Kirkdale paper, in 1823, he also discovered and investigated the Goat's Hole cave at Paviland on the Gower peninsula where he found a skeleton which he called 'the Red Lady of Paviland'. He thought the skeleton was probably Roman, but modern analytical techniques now show it to have been male, and more like 33,000 years old, and therefore the oldest known human remains yet found in the British Isles (see the bradshawfoundation.com website for details).

In 1823 he also published 'Observations on Organic Remains Attesting the Action of an Universal Deluge', the object of which was "... *to show that the study of Geology, so far as being irreligious or atheistic in its consequences, had a tendency to confirm the evidences of Natural Religion; and that there could be no opposition between the works and the word of God; and that the facts developed by it were consistent with the account of the Creation and the Deluge as recorded in the book of Genesis*". Buckland was far from alone in promoting a non-literal reading of the Old Testament, and at times the arguments that he deployed sounded quite like the approach now known as 'intelligent design'.

Not everyone was convinced, and despite the fact that he was an ordained priest and (from 1825) a Canon of Christ Church, Oxford, he faced opposition and hostility from biblical literalists. Unfortunately, from his point of view, the gap between the scientific and traditionalist viewpoints was getting wider. Not only were geologists finding ever-stronger evidence that the world was much older than the bible suggested, but they were finding the fossil remains of whole species of animals that had clearly died out. Squaring this last point with the concept of intelligent design was very difficult: if all creatures were created by God, why would he have bothered to create species which he then destroyed? It required an admission of fallibility which many in the Church were not prepared to contemplate.

In 1824 Buckland and others had secured a Royal Charter for the Geological Society (which had been founded in 1807), and he was appointed its first post-Charter President. At the first meeting over which he presided his friend William Daniel Conybeare gave a paper on the recently discovered *Plesiosaurus dolichodeirus* which had been found at Lyme Regis by Mary Anning. Buckland had spent many hours fossil hunting at Lyme with Mary Anning over the years, and he had the highest regard for her skills and knowledge, and did much to have her achievements recognised. An indication of her dedication can be gleaned from the fact that "... *it took Miss Anning ten years to extract the entire skeleton of the Plesiosaurus from its watery grave in the lias rocks, only accessible at low water*". In 1811 she had "... *made her first great discovery of the Ichthyosaurus, which, with the vertebrae of a fish, partook partly of the character of the crocodile, but differed materially from any existing reptile of the lizard kind*". 'Remarkable Creatures'⁴ tells the story from Mary Anning's side. It also recounts how Buckland saved her life by fetching help when she was buried in a mudslide on the beach between Lyme and Charmouth when they were fossil hunting together. Later in life he also "... *succeeded in obtaining an annuity for her*".

On 31 December 1825 Buckland married Mary Morland. She had been brought up in Oxford, and before meeting Buckland she had gained a reputation as an excellent fossil geologist and artist, having drawn beautiful illustrations of fossils for the publications of George Cuvier, a leading French naturalist and palaeontologist who Buckland had met in Paris in 1820, and with whom he had corresponded since. Their honeymoon comprised an extended geological tour of Europe, during which they called on many scientists, including Cuvier and Alexander von Humboldt, the most celebrated scientist of his day, whose conclusions on geology

⁴ A novel by Tracy Chevalier (Borough Press, 2014).

closely matched (and influenced) those of Buckland. They also spent time with the physicist, François Arago.

On 21 January 1829 Buckland attended the celebrations for the coming-of-age of John George Pole, heir to the Shute baronetcy. The occasion was marked by a huge ox-roast to which large numbers of people were invited. One of the guests was W H Merle, who made a sketch of the ox-roast and wrote an extended humorous poem to commemorate the event⁵. He specifically mentions Buckland riding his horse Rose alongside Pole, and then later in the poem he includes the following lines.

*“... As a pig was let loose, and squeaked louder than loud,
Then the Canon of Christchurch, - professor of stones,
Scrambled into a hedge, to escape broken bones,
For the greasy-tailed pig, sure the devil was in him,
Ran a tilt at the Doctor, as though he would pin him, ...”*

In 1832, just 13 years after Oxford University had acknowledged the importance of geology by creating the professorship that he held, Buckland was elected President of the newly founded British Association, which brought together all of the main scientific bodies in the country.

Two years earlier, in 1830, Buckland had been asked by the Trustees to the will of the Earl of Bridgwater to write one of a series of “... *eight treatises designed in accordance with the Will to 'justify the ways of God to man'*”. Buckland's topic and title, ‘Geology and Mineralogy considered in reference to Natural Theology’, was always likely to bring him into further conflict with many of his fellow churchmen, and it took him six years to complete what became a 2-volume book with hundreds of illustrations. It was published in 1836 to decidedly mixed reviews. In it he argued “... *that the Bible was not written to teach scientific truth, but to reveal God and to instruct us in the Divine Life. ... if the Bible had been made an adequate text-book of science, men would have found it a source of perplexity and not of enlightenment*”. The ‘Bridgewater Treatise’, as it was known, cemented Buckland's scientific reputation, but its reception among parts of the church and many parts of the wider public must have weighed heavily on Charles Darwin when, some 20 years later, he was hesitating over the publication of ‘On the Origin of Species’.

In the mid-1830s there was great concern that Axminster would suffer badly as a consequence of the bankruptcy of the Whitty family's carpet-making business. In ‘The Book of the Axe’⁶ George Pulman tells how Buckland took a strong personal interest in the ‘joint stock company’ which was set up to explore the possibility of taking over the business.

At Christmas 1839 the Bucklands were staying at Axminster with William Daniel Conybeare (by then vicar of Axminster) and his family, when they learned of the major landslip between Axmouth and Lyme Regis. While the men appraised the situation with geologists' eyes, Mary Buckland made a series of sketches⁷.

Buckland's continual dialogue with academics from other disciplines, with politicians and with other ‘practical men’ kept him alert to the economic importance of geological knowledge, not

⁵ This is reproduced in full in an article in ‘The Western Antiquary’ Vol.XI pages 18-21 (1893) by WHH Rogers, entitled ‘Coming of Age, and Ox-Roasting in Devon’. This is accessible on-line via the archive.org website, but can be hard to find. To do so, put “w h merle” “western antiquary” into an internet search engine.

⁶ Source: page 691 of the 4th edition (1875), republished in 1969 by Kingsmead Reprints, Bath.

⁷ Buckland's account, and two of his wife's sketches, can be found in the ‘Events’ section of the axminsterheritage.org website.

just as regards mining and quarrying, but also in relation to the importance of maintaining the fertility and good drainage of agricultural soils. In 1840 he became the first honorary member of the newly-Chartered Royal Agricultural Society of England, one of many such invitations which he accepted from a wide range of scientific and engineering bodies. The last of his major papers, published in 1849, concerned the availability and importance of phosphates in maintaining soil fertility.

The portrait below dates from 1843, and shows Buckland with his blue specimen bag, which was such a feature of his daily life that it featured regularly in cartoons of him.



William Buckland
From a Picture painted about 1843.

He was aware of the bag's capacity for giving the wrong impression. One day he had been invited to call on Sir Humphry Davy, but each time he called he failed to find him at home. "At last Sir Humphry asked his servant 'Has Dr Buckland not called today?' 'No Sir; there has been nobody here today but a man with a bag, who has been here three or four times, and I always told him you were out'."

It was also in 1843 that Buckland first met the Swiss-American scientist Jean Louis Rodolphe Agassiz, whose observation of glaciers in Switzerland encouraged Buckland to look critically at the evidence on the ground for historic glaciation in Britain; something that had previously not been considered. Buckland and other leading geologists, such as Sir Charles Lyell, were convinced by what they found, and the idea entered the mainstream.

His home and family life, which was universally considered to have been very happy, despite the early death of more than one child, also showed evidence of his exuberance and eccentricity. The following description is taken from 'The Life of Frank Buckland' by George C Bompas (1855), as quoted in 'The Life and Correspondence of William Buckland'.

"In his early home at Christ Church, besides the stuffed creatures which shared the hall with the rocking-horse, there were cages full of snakes, and of green frogs, in the dining room, where the side-board groaned under successive layers of fossils, and the candles stood on ichthyosauri's vertebrae. Guinea pigs were often running over the table; and occasionally the pony, having trotted down the steps from the garden, would push open the dining-room door, and career round the table, with three laughing children on his back, and then, marching through the front door and down the steps, would continue his course round Tom Quad. In the stable yard and large wood-house were the fox, rabbits, guinea pigs and ferrets, hawks and owls, the magpie and jackdaw, besides dogs, cats, and poultry, and in the garden was the tortoise (on whose back the children would stand to try its strength), and toads immured in various pots, to test the truth of their supposed life in rock-cells."

John Ruskin, the famous Victorian art critic, was an undergraduate at Oxford when he met the Bucklands. In his book 'Praeterita' he wrote how, at their breakfast table, he met "... *the leading scientific men of the day, from Herschel downwards, and often intelligent and courteous foreigners ... Every one was at ease and amused at that breakfast table, the menu and science of it usually in themselves interesting. I have always regretted a day on unlucky engagement on which I missed a delicate toast of mice; and remember with delight being waited upon one hot summer morning by two graceful and polite little Carolina lizards, who kept off the flies*"⁸.

A letter from Lord Playfair to Mrs Gordon is quoted in 'The Life and Correspondence of William Buckland', telling how "... *I recollect various queer dishes which he had at his table. The hedgehog was a successful experiment, and both Liebig and I thought it good and tender. On another occasion I recollect a dish of crocodile, which was an utter failure*". The habit of eating all sorts of animals was later taken to much greater extremes by Buckland's son Frank⁹.

Buckland's final major public appointment was as Dean of Westminster. This appointment was made in 1845, on the recommendation of Sir Robert Peel (the Prime Minister). His energetic reforms and improvements to the Abbey and to Westminster school caused Sir Robert to describe this as the appointment of which he was most proud. In 1847 he became a Trustee of the British Museum, and in February 1848, in what proved to be one of his final public appearances, he was awarded the Geological Society's Wollaston Medal, which was presented to him by his old friend Sir Henry de la Bêche.

Three months later, in May 1848, Buckland and two of his daughters fell ill with typhoid when the drains at Westminster were disturbed by workmen carrying out some of the necessary improvements to the buildings. Although he recovered, it was not long thereafter that he started to suffer from a debilitating illness, the symptoms of which sound very much like depression, making his final years uncharacteristically unproductive. He died on 14 August 1855, a year before the publication of 'On the Origin of Species'. He was buried at Islip, and a tablet was erected in his memory in Westminster Abbey.

After his death the cause of his final illness was discovered. In a footnote to his sister's 'Life and Correspondence of William Buckland' Frank Buckland, a well-known naturalist, wrote that his father's brain was examined, and found to be "... *perfectly healthy in every respect; but the portion of the base of the skull upon which the brain rested, together with the two upper vertebrae of the neck, were found to be in an advanced state of caries, or decay*". This was judged "... *sufficient cause to give rise to all the symptoms; this irritation being considerably augmented by continuous and severe 'exercise of the brain in thought'*." Although he does not say when, he explains that his parents "... *when travelling to a scientific meeting in Berlin, met with a severe accident; the diligence was overturned, my father fell from the top and was stunned, and unable to render any assistance to my mother, who received a deep cut on her frontal bone*". Not only did Buckland's injury to his vertebrae ultimately cause his death, Frank Buckland reports that "... *a bony tumour was discovered to have formed at the back of the cut on Mrs Buckland's frontal bone, which, for the last two years of her life, occasioned attacks of unconsciousness, in one of which she died*". She died on 30 November 1857, having been working on a microscopical inspection of rare marine sponges only the day before her death.

⁸ This quotation is also reproduced in 'The Life and Correspondence of William Buckland'.

⁹ See Richard Girling's recent biography of Frank Buckland: 'The man who ate the Zoo' (Penguin, 2016).