

In June 1693 Jeremiah Horrocks, a young curate of Hoole and a self-taught astronomer, visited his old friend William Crabtree, a draper at Broughton, near Manchester, and acquired a copy of Galileo's *Astronomical Dialogues*. He had predicted the Transit of Venus across the Sun for November 24th and told Crabtree about it. Horrocks might never have made his world-renowned observation, had not Crabtree corrected his outdated tables of calculation and kept watch on that cold winter Sunday while Horrocks was on duty in church, until the Transit occurred at 3.30 pm, conveniently between Matins and Evensong.

The qualities of mind, curiosity and judgment, that we all know and value appeared in yet another curate and cousin, Henry Crabtree, whose famous book on Yorkshire Astrology *Merlinus Rusticus* achieved a certain notoriety in 1685. Over the years, the conflicting Demands of Drapery and the Calling of the Cloth became separated; and it was a descendant of the former, an itinerant clothing merchant whose wanderings took him from Manchester to the Welsh Marches, progenitor of Fluellen Crabtree, the cobbler of Chipping Sodbury, who fathered Joseph William.

Now the Transit of Venus was to play an important role in Crabtree's formative years as it had done for his forebear. His personal and precocious Transit took place in 1763, during the celebrations at the end of the Seven Years War. Four years later and on a more public platform, the Royal Society planned an expedition to measure the Transit in 1769, and so it was that the Royal Society Voyage to the South Seas was mounted, with James Cook as Captain of the *Endeavour* and Joseph Banks as Naturalist and Observer. As we know, Banks took with him two flute boys — Joseph Crabtree and his younger brother George — and there is no doubt that this early contact with Banks kindled Crabtree's interest in the natural world and continued his personal biological education.

On arriving at Rio de Janeiro in November 1768, the Viceroy forbade Cook to land. Banks was furious and determined to collect specimens, so on November 26<sup>th</sup> he took the two boys, lowering them on a rope from a cabin into a boat, and went ashore in the dark to collect plants. Thus Crabtree was involved in the first and possibly the last recorded Commando raid undertaken by a biologist. The *Endeavour* sailed on and landed at Tahiti to observe the Transit of Venus, which had been predicted for June 3<sup>rd</sup> 1769. On Tahiti the Promotion of Natural Knowledge seems to have been a continual battle between the scientists, the flies and the Tahitian ladies. In the woods and on the shore, Mrs. Boba, Mrs. Eteree and Mrs. Toaro were prominent in the lives of Banks' colleagues. One by one (and even two) they all succumbed to their charms. 'Yes even Shyboots Parkinson ...', as the botanist Solander recalled to Charles Blagden ten years later.

Young Crabtree learned much from his elders during the voyage which he was to deploy again at Oxford. Later, in 1772, Cook had asked Banks to accompany him on his second voyage but stipulated 'no flute boys'. Banks countered by proposing to take two horn players instead. Cook retorted that, good sailor as he was, he had no intention of sailing that close to the euphemistic wind, and they parted company. Released from having to learn the intricacies of the French horn, Crabtree went up to Oxford instead, but was sent down again almost immediately for offending his tutor. Whilst I naturally sympathise with the tutorial view, the *Town and Country Magazine* of the year recorded it rather differently:

To relate his juvenile feats of gallantry while still at the University would carry us beyond the lines we prescribe for these memoirs. Oxford echoed with his amours, and the bedmakers of The Queen's College have given the world some testimonials of his vigour.

Unable to afford a full Tour to the Continent and being determined to meet Carl Linnaeus before he died, Crabtree set out on a tour of the Low Countries and Sweden in 1776. Half a century earlier, the imagination of the adolescent Linnaeus had been vividly struck by the sexuality of plants, having been lent Vaillant's *Sermo de Structura* by his local doctor, whom he had approached for more practical advice. Crabtree had come across Linnaeus' *Sexual System of Plants* with its startling classifications (*Diandria* — two husbands in the same marriage; *Polandria* — twenty males in the same bed with the female, a state of affairs enjoyed by the Poppy and the Lime).

Crabtree visited Linnaeus in Uppsala in the summer of 1776. Linnaeus was aged and infirm after two strokes

and even described himself as 'decrepid and broken'. Even so, Fru Linnea had persuaded him to act as Dean of the Faculty of Medicine for the Autumn Term. And so it was that when Crabtree arrived bearing as a present a model of that unmistakably shaped fungus, the Stinkhorn *Phallus impudicus*, Linnaeus was out, but his youngest daughter Sophie was in, and able to entertain him. Freeman claimed that Linnaeus was 'gaga' at the time and couldn't communicate coherently. No, Sirs, the apoplexy was caused when Linnaeus, returning home exhausted by Faculty business, found Crabtree in his kitchen, cack-handed as ever, waving that lewd, erect vegetable at his daughter. We owe our boiled turnips tonight to the first pair Linnaeus found in his rage to hurl at the young Englishman. The blushing Crabtree accepted them as a compliment and beat a hasty retreat, taking them as a gift returned in exchange for his *Phallus*.

On returning to England, he recognised the importance of re-establishing his connection with Banks, who by now was Sir Joseph Banks, President of the Royal Society and creator of a personal Interdisciplinary Research Centre at his home, 32 Soho Square. Not only had Banks amassed his own very large natural history collection and library, but it was constantly being enlarged by donations from other naturalists and travellers. In 1780 Banks received a letter from a man offering him a pair of unicorn horns. Who else, gentlemen, could it have been but Crabtree, who knew that it would not only secure a speedy reply but perhaps an invitation to Banks' famous early morning Thursday breakfasts at Soho Square.

Banks welcomed Crabtree to his table, not as the ambitious but frequently flat flute boy on the *Endeavour*, but because he was one of the few men in England who had actually met Linnaeus, and recently at that. His botanical secretary, Solander, who had toted his famous 'Solander Botanical Collecting Case' all round the South Seas with Banks, had of course been Linnaeus' favourite pupil, but that was years before and the link had been lost. I bring this to your attention tonight because of Crabtree's unrecognised but pivotal role in abducting the Linnean Collections from Sweden and which led to the formation of the Linnean Society of London in 1788.

In 1783 Crabtree was in Orléans, but he returned to London for Christmas, bringing with him some pressed plant specimens for James Edward Smith (another failed medic from Edinburgh but a budding Botanist and future President of the Linnean). Thus it was that both Smith and Crabtree were seated at Banks' breakfast table on 23<sup>rd</sup> December 1783, when a letter arrived from Dr. Acrel in Uppsala announcing that Linnaeus' son had died and that the Collections were now offered for sale. Banks sorely wanted some of Linnaeus' books but, being rich and well known, was reluctant to enter the bidding in person, and suggested that Smith should make an offer himself. Smith, aged only 22, saw his chance for fame and Crabtree, with his natural prescience, joined him in the plot which followed, knowing the success it would bring them both. Eventually the money, 1,000 guineas, was put up by Smith's father, who was very reluctant to lend it and made every excuse not to.

Now the acquisition of the Collection took on many of the features of a plot, and we may be certain that Crabtree was involved. First there was the Navy. Admiral Sir John Jervis helped him persuade the Treasury to allow the collection to be imported without Import Duty. Then, despite serious claims from Germany, Austria and Sweden, all 25 cases of the Collection were loaded aboard an English brig, the *Appearance* on September 17<sup>th</sup> 1784, which promptly disappeared bound for Norwich, Smith's home city. What then was Crabtree's involvement? As Cadwallader has revealed, he had the acquaintance of one Jonas Hanway, who ran a Maritime School or Agency which prepared and trained boys for the rigours of naval service. It was this connection which enabled Crabtree to meet and furnish a crew for the aptly named brig. And so it was that Crabtree left Stockholm aboard the *Appearance* pursued by a Swedish frigate on command of King Gustav who, like Linnaeus, had carelessly been out (in Italy) when Crabtree bore his prize away. Gentlemen, you will I am sure have noticed the unmistakable stamp of Crabtree upon this affair. The Captain of the brig had a thinly disguised name for the occasion, Axel Sweder. The brig was flying an unidentifiable flag, certainly not the Red Ensign, unlike the Swedish man-of-war with its huge national flag. And even the Linnean Society now claims the event to be apocryphal, despite the delightful evidence of the engraving held in its own Library, made in 1800.

However, this episode was to have a more lasting effect on Crabtree than he had supposed when he set out, for it stimulated his curiosity about Natural History and Natural Philosophy and led almost directly to an association with plants and with minerals that can only be described as sinister, and which led, I venture to suggest, to Coleridge's early poetic success on the one hand, and to the ignominious defeat of Nature Philosophy on the other. But which hand was which has yet to be revealed.

Banks had not forgotten the agile youth of the Tahitian days who could climb trees and crags to collect any remotely curious plant and especially those with certain pharmacological properties. Even during his brief sojourn in Oxford, Crabtree had read Dr. Jones' *The Mysteries of Opium Reveal'd*, which mentioned certain effects that he had already experienced and made good use of. Now Banks had established a large conservatory

and garden at his country house, Spring Grove, at Hounslow, where his head gardener, John Smith, was adept at cultivating rare plants with unusual properties. This contact enabled Crabtree to establish what has remained a clandestine relationship with the Romantic Poets and their publisher Joseph Cottle in Bristol.

Coleridge, a known enthusiast for pharmacology and keen to establish his 'Pantisocracy' in rural seclusion where he could write poetry and grow unconventional vegetables, had selected a veritable Golden Triangle in Somerset, bounded by Alfoxden, Nether Stowey and Adcombe. He proposed to Poole that he should live in a beautiful country where:

Sublime of hope I seek the cottaged dell  
Where Virtue calm with careless step may stray  
And dancing to the moonlight Roundelay  
The Wizard passions weave an Holy Spell.

Clearly it was Coleridge's intention to cultivate Indian hemp for the flighty Pantisocrats which he had already begun to receive through Joseph Cottle, with whom Crabtree had established the beginnings of a retail outlet in the Bristol Docks as early as 1784.

By 1796 Crabtree was back in England after his exhausting sojourn in France at Mme. de Staël's stud farm in Carcassonne. He had invented his now famous 'Butter Compound' as a specific against the attention of *Pediculus pubis*. Members of the Foundation will perhaps be relieved to know that Crabtree's encounters with flies in Tahiti and lice in Bristol are his only entomological connections that I have been able to establish. I except his *Ode to a Coral Insect* of 1837, which, as you all know, is a Coelenterate and not an Arthropod, on the grounds that he was 83 at the time and his experience of collecting in the South Seas was 68 years behind him. Crabtree's lethal unguent was also to be retailed through Cottle's back door and it must have been then that he first made the acquaintance of Coleridge, for in April of the same year Coleridge had moved to Kingsdown, Bristol, and started work in Cottle's shop as editor and proof reader of *The Watchman*. Seeing a ready opportunity to expand his trade and to maintain his link with Banks, Crabtree was all too willing to comply with Coleridge's requirements. Coleridge later told Poole that 'I took Laudanum almost every night to sleep, when worrying about Sarah's threatened miscarriage, but also on the problem of Evil in the world'.

In February 1803 Coleridge wrote to Banks directly for a large supply of Indian hemp from the Hounslow garden, and it arrived at Nether Stowey via one 'Samuel Purkis', an alias new I think to Crabtree's burgeoning collection of pseudonyms. Coleridge was delighted and wrote, 'We will have a fair trial of it. Do bring down some of the Hyoscyamine pills, and I will give you a fair trial of Opium, Hensbane and Nephenthe'. His interest in chemistry, it seems, was purely medicinal, although Coleridge enthusiastically compared the chemist to the poet 'as one searching through a multiplicity of forms for unity of substance'.

Crabtree's encounter with Linnaeus' collection of minerals was to lead, I would suggest, to the argumentative paths of Nature Philosophy and to its demise in Paris in 1830. It is, gentlemen, an involved story and a tortuous route which has taken me through the collections of minerals, to learned libraries in London and Edinburgh and to the Proceedings of the Académie Française.

In 1806 Crabtree was the guest of Banks at the Royal Society to hear Davy's lecture. This rekindled his interest in conventional chemistry and also in what was rapidly becoming socially fashionable, mineralogy. He was already acquainted with Werner's *A Treatise on the External Character of Fossils*, which held that all rocks had originally been laid down in water, and thus adherents to this view were known as 'Neptunists'. James Hutton in his *Dissertations on Different Subjects in Natural Philosophy*, 1794, invoked volcanic action and headed the opposing band of 'Vulcanists', claiming that geology revealed no vestige of a beginning to the world, nor prospect of an end, a continuum which alarmed the Clerics as much as it delighted Crabtree.

Crabtree's own interest in Vulcanology and crystal formation had been sparked off during his visit to Naples in 1787 with Goethe, as Larrett has related. When they ascended Vesuvius, Crabtree found its powerful effluxion reflected his recent encounter in town with Sir William Hamilton and especially with Emma Harte. Curiously Larrett omits to tell us that Crabtree and Goethe travelled on to Sicily to inspect Mount Etna together. This event is recorded by Spallanzani in his *Travels in the two Sicilies*, where he illustrates the two philosopher poets together on the very rim of the volcano, peering into the abyss. You will be intrigued to know that on this occasion Crabtree let his cloak of anonymity fall for a moment, for one figure is labelled on the engraving 'G' and the other, unmistakably 'C'. Aflame with the recollection of fusion in Naples and eruption on Etna, Crabtree was keen to pursue his new-found love and therefore examined Hall's crystals minutely at a meeting of the

Wernerian Natural History Society, to which he had been introduced by its founder, Professor Jamieson, in Edinburgh in 1802. There he recognised that some of the quartz crystals exhibited could take two forms, left and right handed — palpably the same but mirror images, the one of the other. At once he seized on its implications. If a crystal could take on one of two forms, it could change and therefore evolve... thus confirming at a stroke the Romantic Philosophy of Evolution in the tradition established in Germany by Oken and Goethe and in Paris by Lamarck and Geoffroy.

This was but a natural step for Crabtree for he was, as I have only lately recognised and can reveal this evening, left-handed. Small wonder, Mr. President, that only fragments of his poems are left to us. 'The moving finger writes, and having writ moves on...' only to smudge the immortal lines with the fustian Georgian cuff.

It has long been recognised that Crabtree's gift for prescience far outstripped his proficiency in the scientific method. Thus, while the left hand is a mirror image of the right, they cannot be superimposed except in a mirror. This then I suggest was the foundation of his genius, by which he was able to induce the truth from alternatives, a dangerous propensity which enabled him to anticipate events and reveal the truth, but only by destroying those with whom he associated in the process. His dispute with Benjamin Franklin, despite their mutual interest in hot-air balloons in Paris and the feasibility of manned gliders which he later witnessed with Sir George Cayley in Yorkshire in his last year, his brush with Coulomb over the Inverse Square Law and his deliberate frightening of Wheatstone as an old man in 1846 are all examples of this.

It was Goethe's renewed interest in Geoffroy St. Hilaire's ideas and in the growing disagreement with Cuvier in Paris, together with a fascination with Serres and Geoffroy's work on the *Philosophy of Monsters* and its evolutionary implications that drew Crabtree to Paris early in 1830.

The connections with Lamarck and Geoffroy were actually of long standing. Lamarck had led a Bohemian life in Paris from 1778-93, where he had almost certainly met Crabtree when he broke his journeys to Orléans for refreshment on the Rive Gauche. After the Revolution, the National Convention created two professorships in Zoology in Paris. One was given to Lamarck, the other was given to Geoffroy St. Hilaire, aged 22, who had made a large collection of minerals which obviously qualified him to take responsibility for the harder animals, the vertebrates. The older man and his younger disciple rapidly developed the *Philosophie Zoologique*, which was to have a seminal effect on Nature Philosophy. Lamarck's famous *Theory of Life Fluid* naturally appealed to Crabtree with what was described as 'l'orgasme vitale', which maintained the molecules of the soft parts of the body in a definite position and thus enabled the organs to expand and contract.

Cuvier was of a different mould. As tutor to a Protestant family in Normandy, he found his only intellectual stimulation in marine biology on those bitter shores. Then, on the strength of his zoological drawings alone he, was appointed Professor of Comparative Anatomy in Paris. As one who later insisted that the 'object of Science is to be an exact knowledge of natural phenomena', he was unsympathetic to Geoffroy's Fluid Philosophy. Crabtree, taking the opportunity to meet the Fluid Philosopher in person, attended the Academic meeting on February 15<sup>th</sup> 1830, when the affair of the Inkfish erupted.

Geoffroy claimed that the anatomy of the inkfish or squid provided the clinching evidence for his views and would conclusively demonstrate the encompassing Unity of Organic Composition, and produced a paper to prove it, adding that, 'When facts do not suffice, recourse to analogy and induction is the right and property of genius'. He argued that if a vertebrate be bent backwards so that the nape of the neck was attached to the buttocks, then its internal anatomy would compare directly with that of this clever mollusc. Cuvier cavilled instantly and jumped up to make a blustering reply. Crabtree had taken an instant dislike to the prosy, insistent Cuvier. 'Which means, mon petit choux, that the arse is where the mouth is', muttered Crabtree in a deliberate stage whisper. This was too much for Cuvier and he flew into attack. Geoffroy lost his nerve, and his account of the meeting which had appeared in the proofs was mysteriously lost and never appeared in the printed Proceedings. The rest is history.

Despite its attraction for him, Crabtree had demolished Nature Philosophy and Lamarckian Evolution single-handed. Cuvier had triumphed; his methods of comparative anatomy dominated Biology for the rest of the century and established the anatomical basis of Darwinian evolution. But the Inkfish had triumphed too: discharging his puff of ink with its unique ability to confuse critics and obfuscate fields of research, and yet when the water clears, leaves only clues to his presence and influence for others to guess at.

The study of chirality in minerals spurred Crabtree in his later years into Natural Asymmetry, which had become so obvious to him ever since he started dining in public and was forever knocking over his neighbour's

claret glass. He had first heard of Phrenology from Crabb Robinson, who had attended lectures by Gall, its founder, in Jena. By 1809 Crabtree had become Reader in Criminology at Queen's College Oxford and had been interested in its application to the diagnosis of criminal tendencies among his charges. Many have suggested that this was only an excuse because his real concern was to examine the phrenological claim to assess 'amativeness' by the degree of bulging at the back of the cranium, for to the Phrenologist the cerebellum was the abode of Venus. The popularity of phrenology was due to the enthusiasm of Romantic critics to concentrate on the analysis of character, but it was also a component of the Free Thought Movement, to which we all know that Crabtree was a life-long subscriber.

In 1838 he was asked by the President of the Phrenological Society to address his members at a meeting held at the Newcastle Literary and Philosophical Society in conjunction with the British Association meeting there. Crabtree accepted at once for he had been present at the inaugural meeting of the Lit. and Phil., when he was on his way to visit Hamish Anstruther in Pittenweem in 1793 and had an affection for its aims. From the beginning, the Lit. and Phil. had established the tradition of members reading papers to each other and discussing them at length and in comfort, the very core of Crabtree's intellectual life. His friendship with Banks and Smith at the very hub of natural science activity and gossip in London ensured him a warm welcome, and the fact that he had sailed with Cook made him all the more welcome. Indeed it was in gratitude at this reception that Crabtree arranged for the first wombat and duck-billed platypus to arrive from Australia in 1799 to be sent to the Lit. and Phil. museum. It can come as no surprise, then, to know that he chose the occasion of that meeting in 1838 to elaborate his *Theory of Intellectual Asymmetry*, by which the left dominates intellectual thought and thus, by complementarity, generates the true path of understanding and the advance of intellectual endeavour.

Now some may think that Crabtree had been anticipated in this by Duncan's 1824 account of Dr. Hirnschadel's '*ologies of the Cranon and Phren*', but that is seriously to underestimate the simplicity of Crabtree's concept, which he had applied so successfully in advancing science by deliberately antagonising its most distinguished men.

The lack of contemporary acclaim of what we must now recognise is one of Crabtree's most enduring creative acts resolved me to examine the records myself. The Librarian of the Lit. and Phil. was most helpful. The arrival of the wombat and its congener was fully documented, though it was noted in the margin of the manuscript that they were not in the peak of condition on arrival. The records are abundant, but not in the best of order, so you can understand my reaction when, on opening the last box for 1848, I found a faded portrait and a poem.

The portrait, a pencil drawing, is signed and dated 'J Wilson 1845' and bears on the back the faded initials 'JC'. Its provenance can only be guessed at, but I was allowed to make a copy, which I would like, Sir, **to present to the Foundation (see page 321)**. Comparisons are odious, I am told, but it will not escape your notice, I am sure, that both the Portrait and this drawing are made from the Left.

The poem was copied onto a single manuscript sheet and bears the explanatory note, 'Written in the Pocket Book of a Scientific Friend' and dated 1786, the year Crabtree met Goethe in Rome:

Shall each frail transitory hand  
That folly, vice or interest frame  
To friendship's sacred fires pretend  
Or dare usurp her hallowed name.  
Let Virtue only form the tie  
Which binds two sympathetic friends  
While SCIENCE waves her laurels high  
And honour on her nod attends.