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Article

Coleridge, Humphrey Davy and Chemistry

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	ABSTRACT
Keywords: <i>Coleridge, Science, Poetry, Chemistry, Humphrey Davy</i>	Coleridge had a great interest in science and scientific phenomena and often attended lectures on science and read scientific treatises. As a result of his great interest in science he often used images and metaphors from chemistry, geology and physiology, among other branches of science. This paper examines Coleridge's deep interest in chemistry, an interest fostered by his friendship with Humphrey Davy and the influence of this branch of science on his poetry and poetic theories.
	

I shall attack chemistry like a shark.

Coleridge in a letter to Humphrey Davy, July 15, 1800

When he was questioned as to why he attended so many lectures on chemistry, Coleridge replied that they helped him in improving his metaphors. Coleridge had a great interest in science and scientific phenomena and often attended lectures on science and read scientific treatises. As a result of his great interest in science he often used images and metaphors from chemistry, geology and physiology, among other branches of science.

The idea of organic unity, what Coleridge referred to as the 'One Life' in his poem "The Eolian Harp", recurs in much of Coleridge's writings. Throughout his poetry and criticism this idea of resolving things into a harmony, of bringing together nature, man and God finds predominance. Science, because of its dependence on facts, related the mind to

nature and natural phenomena. It was, hence, an area of study that was fundamental to Coleridge's thought. Science, for Coleridge, was a source of imaginative insight. It became important in moulding his theories about poetry and poetic creation. His notebooks, letters and marginalia are an important source for the study of his great interest in almost all areas of science. Coleridge was personally acquainted with Thomas Beddoes, Humphrey Davy, Blumenbach and Erasmus Darwin and read most of their work. He studied physiology at Gottingen and became acquainted with chemistry by attending Humphrey Davy's lectures at the Royal Institution in London.

Richard Holmes in *The Age of Wonder* notes that Davy was the inspiration behind the *Lyrical Ballads* Preface statement that links the discoveries of man with the imagination of the poet:

If the labours of Men of science should ever create any material revolution, direct or indirect, in our condition, and in the impressions which we habitually receive, the Poet will sleep no more than at present; he will be ready to follow the steps of the Man of science, not only in those general indirect effects, but he will be at his side, carrying sensation into the midst of objects of science itself. The remotest discoveries of the Chemist, the Botanist, or Mineralogist, will be as proper subjects of the Poet's art as any upon which it can be employed.ⁱ

This paper examines Coleridge's deep interest in chemistry, an interest fostered by his friendship with Humphrey Davy and the influence of this branch of science on his thought. In a letter written in 1796, Coleridge wrote "Metaphysics & Poetry, & 'Facts of mind' . . . are my darling Studies. – In short, I seldom read except to amuse myself & - I am almost always reading. – Of useful knowledge, I am a so-so- chemist, & I love chemistry – all else is blank".ⁱⁱ During this time Coleridge was acquainted with some ideas of eighteenth-century British science and philosophy. Newton, Hartley and Priestley together formed the basis for Unitarianism. However, Coleridge soon began to stress on the active mind and creative imagination in his thought and abandoned Hartley. The epistemology of John Locke which derived knowledge from the sense of sight began to seem superficial. In "The Destiny of Nations" (1796), Coleridge spoke against the emptiness of scientific materialism and proposed an alternative for science and poetry:

For what is Freedom, but the unfettered use
Of all the powers which God for use had given?
But chiefly this, him First, him Last to view
Through meaner powers and secondary things
Effulgent, as through clouds that veil his blaze.
For all that meets the bodily sense I deem
Symbolical, one mighty alphabet
For infant mindsⁱⁱⁱ

Coleridge believed that natural phenomena were symbols of something higher, conferring unity and significance on things that would otherwise be insignificant and unconnected. Science in its eighteenth-century empiricist form, he believed, had neglected this task:

But some there are who deem themselves most free
 When they within this gross and visible sphere
 Chain down the winged thought, scoffing ascent,
 Proud in their meanness, and themselves they cheat
 With noisy emptiness of learned phrase,
 Their subtle fluids, impacts, essences,
 Self-working tools, uncaused effects, and all
 Those blind Omniscients, those almighty Slaves,
 Untenanting creation of its God^{iv}

Coleridge's philosophical inquiries had been influenced by Davy's "Essay on heat, light, and the combinations of light" in Beddoes's collection *Contributions to Physical and Medical Knowledge, Principally from the West of England*. In Davy's thought, light played a major role, entering into chemical composition and thus into the composition of living bodies. Coleridge met Humphrey Davy in 1799 when Davy was working at Beddoes's Pneumatic Institution as chemical superintendent. It is through Davy that Coleridge developed a great interest in chemistry, a subject he had been introduced to by Beddoes. In a letter to Davy, Coleridge wrote of the publication of Davy's researches, of the setting up of an ideal colony which would involve Davy, Wordsworth and Southey, spoke of the philosophy of sensation, the nature of death, William Godwin, chemistry and poetry:

Godwin talks evermore of you with lively affection - "What a pity that such a Man should degrade his vast Talents to Chemistry" - cried he to me. - Why, quoth I, how, Godwin! Can you talk thus of a science, of which neither you nor I understand an iota? . . . - . . . I defended Chemistry as knowingly at least as Godwin attacked it - affirmed that it united the opposite advantages of immaterializing [?the] mind without destroying the definiteness of [?the] Ideas - nay even while it gave clearness to them - And eke that being necessarily [?per]formed with the passion of Hope, it was p[?oetica]l - & we both agreed (for G. as we[?ll as I] thinks himself a Poet) that the Poet is the Greatest possible character ^v

In a notebook entry, he writes that chemical nomenclature, "as far as it was borrowed from Life, Intelligence, half-metaphorically, half-mystically, may be brought back again ... in the philosophy of Language - which ought to be experimentation & analytic of the elements of meaning, their single, double, triple and quadruple combinations, - & of simple aggression, or of composition by balance of opposition."^{vi} Coleridge read Davy's publications and wrote to Davy about how he felt when he saw an advertisement for Davy's essay, *Mr. Davy's Galvanic Habitudes of Charcoal*, in the *Morning Post*:

Upon my soul, I believe there is not a Letter in those words, round which a world of imagery does not circumsolve - your room, the garden, the cold bath, the Moonlight Rocks . . . and dreams of wonderful Things attached to your name!^{vii}

Among many other ideas that Davy laid out in his lectures was the idea of the carbon cycle.

Davy represented it as a one continuous cycle of carbon and energy between plants and human beings. This idea of a harmony in nature might have been an important influence on Coleridge's idea of "One Life". Coleridge distinguished the sciences from one another, and believed that mechanics was distinct from chemistry. It is in his use of chemistry in distinguishing between synthesis and juxtaposition that he comes close to his idea of imagination as the synthetic power in the human mind. In his *Treatise on Method* of 1818, Coleridge compares the poet to the "chemical philosopher" who is also engaged in the "pursuit after unity of principle through a diversity of forms."^{viii} It is the pursuit of the chemical philosopher to unite ideas with laws, and the result is often an intermingling of objects that are different yet unified.

Coleridge believed that there existed a harmony between the powers and forms of the mind and the powers and forms of nature. His poems make this clear, for instance these lines in "To Nature":

It may indeed be phantasy, when I
 Essay to draw from all created things
 Deep, heartfelt, inward joy that closely clings;
 And trace in leaves and flowers that round me lie
 Lessons of love and earnest piety.^{ix}

Coleridge held the belief that there was a relation between the human mind and nature. This idea provided him with an explanation of perception as creative rather than passively receptive. The poet's genius is revealed in his idealization and synthesis of material furnished by perception and fancy. Science too, through the creative minds of men of genius, perceived and created ideas and unity in the world of nature. Coleridge was a brilliant observer of the minute in nature. In preparing for an epic, he was aware that what he needed was a good knowledge of principle, a detailed account down the ages of the history and frame of man and nature. The poet's mind would work on a synthesis of all the varied branches of knowledge and work them into a unity. It is in this endeavour that the poet, philosopher and scientist all coalesce. For Coleridge, in Shakespeare one could see the best illustration of this.

The *Biographia Literaria*, together with his lectures on drama, reveal the unity of Coleridge's mind, connecting his abstract speculations about science with the immediacy and precision of his poetic observation. In 1803, Coleridge wrote that "... I would make a pilgrimage to the Deserts of Arabia to find the man who could make understand how the *one can be many!* Eternal universal mystery! It seems as if it were impossible; yet it *is* & it is every where!"^x

Coleridge's fascination with chemistry lay in chemistry's capacity for blending diverse ideas. The best elucidation of the imaginative power and significance of chemistry is seen in the "Essays on the principles of method" in *The Friend* of 1818:

as "the lunatic, the lover, and the poet," suggest each other to Shakespeare's Theseus, as soon as his thoughts present him the ONE FORM, of which they are but varieties; so water and flame, the diamond, the charcoal, and the mantling champagne, with its ebullient sparkles, are convoked and fraternized by the theory of the chemist. This is, in truth, the

first charm of chemistry, and the secret of the almost universal interest excited by its discoveries. The serious complacency which is afforded by the sense of truth, utility, permanence, and progression, blends with and ennobles the exhilarating surprise and the pleasurable sting of curiosity, which accompany the propounding and the solving of an Enigma. It is the sense of a principle of connection given by the mind, and sanctioned by the correspondency of nature. Hence the strong hold which in all ages chemistry has had on the imagination. If in SHAKSPEARE we find nature idealized into poetry, through the creative power of a profound yet observant meditation, so through the meditative observation of a DAVY... we find poetry, as it were, substantiated and realized in nature: yea nature itself disclosed to us, ... as at once the poet and the poem!^{xi}

It was chemistry, that much like poetry, revealed to Coleridge, the underlying unity in things not immediately apparent.

Coleridge evinced a keen interest in Davy's work and his notebooks reveal a scientific precision in the way he observes and records nature and natural phenomena.

River Greta near its fall into the Tees – Shootings of water threads down the slope of the huge green stone. – The white Eddy-rose that blossom'd up against the stream in the scallop, by fits and starts, obstinate in resurrection. – *It is the Life* that we live. Black round spots from 5 to 18 in the decaying leaf of the Sycamore.^{xii}

Davy's *Researches* and his work on galvanism published in *Nicholson's Journal* in 1800 aroused great interest in London. Davy began a series of lectures on chemistry in 1802 and Coleridge was one among the audience. The first lecture in the series was "Discourse Introductory to a Course of Lectures on Chemistry". This lecture went on to greatly influence the view of science in society in the Romantic period. Coleridge expressed his greatest admiration for Davy calling him "our prince of Chemists".^{xiii} In 1803 Coleridge wrote "I have hoped, and do hope, more proudly of Davy than of any other man."^{xiv} On hearing of Davy's lectures on galvanism, Coleridge wrote "My motive muscles tingled & contracted at the news, as if you had bared them & were zincfying the life-mocking Fibres."^{xv}

The relation between the external world and the human being was of great importance for Coleridge. Generally speaking, the science of method, Coleridge believed, would work on the mind that processes the information in the mind, taken from sense perception and memory, and organizes it harmoniously with the human mind:

Such, too, is the case with the substances of the LABORATORY, which are assumed to be incapable of decomposition. They are mere exponents of some one law, which the chemical philosopher, whatever may be his theory, is incessantly labouring to discover. The law, indeed, has not yet assumed the form of an idea in his mind; it is what we have called an Instinct; it is a pursuit after unity of principle, through a diversity of forms.^{xvi}

All the theories about forces and hopes to unify all forces, physical and social, into one grand system were not fanciful during the time. The Newtonian cosmos of discrete particles set in motion along constant paths had become an emblem for political as well as imaginative inertia. The new electrochemistry saw a shift in metaphor and afforded the imagery of opposing forces clashing and synthesizing to produce wholly new substances.

Davy's theories, Coleridge wrote in a letter to Dorothy Wordsworth in 1807, were "more intellectual, more ennobling and empowering human nature, than Newton's!" "Davy supposes," he continued in the letter, "that there is only one power in the world of the senses; which in particles acts as chemical attractions, in specific masses as electricity, & on matter in general, as planetary Gravitation.... [W]hen this has been proved, it will then only remain to resolve this into some Law of vital Intellect--and all human Knowledge will be Science and Metaphysics the only Science."^{xvii}

Coleridge declared that "Humphry Davy in his Laboratory is probably doing more for the Science of Mind, than all the Metaphysicians have done from Aristotle to Hartley, inclusive."^{xviii} In a letter written to Davy in January 1809, Coleridge writes that he considered himself fortunate to be Davy's contemporary. However, in spite of all this praise, the letter was not all admiration and praise for Davy. He wrote of the fact that he "furnished to [his] Understanding & Conscience proofs--both of the Supreme Reason as superessential to the World of the Senses; of an analogous Mind in Man not resulting from it's perishable Machine, nor even from the general Spirit of Life, it's inclosed steam or perfluent water-force."^{xix}

Coleridge referred to Davy "the Man who born a Poet first converted Poetry into Science."^{xx} He added the "One Life" passage in the errata to the conversation poem "The Eolian Harp" in the 1817 collection of his poems *Sibylline Leaves*:

O! the one Life within us and abroad,
Which meets all motion and becomes its soul,
A light in sound, a sound-like power in light,
Rhythm in all thought, and joyance everywhere –
Methinks, it should have been impossible
Not to love all things in a world so fill'd;
Where the breeze warbles, and the mute still air
Is Music slumbering on her instrument.^{xxi}

For Coleridge there was a link between poetry, the human mind and the world of nature. A link forged by a force that can bring together the apparently disparate aspects of life and things into a unity that could be best perceived by the creative imagination. Chemistry, he wrote to Davy, "united the opposite advantages of immaterializing mind without destroying the definiteness of Ideas – nay even while it gave clearness to them."^{xxii}

Chemistry, and Coleridge's whole scheme of sciences exemplified creativity in nature. His renewed study of chemistry began in 1819-1820 and was undertaken within a wider context of the study of life. Coleridge hoped that modern science (especially chemistry) would

disclose an ideal law working towards the reconciliation of opposing forces in nature and in social institutions.

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ⁱ Quoted in Richard Holmes, 2009, p. 291.

ⁱⁱ *Collected Letters*, I, 260

ⁱⁱⁱ *Poetical Works*, p. 182, ll. 13-20

^{iv} *Ibid.* ll. 27-35

^v *Collected Letters*, I, 557

^{vi} *Collected Notebooks*, 3, 312

^{vii} *Collected Letters*, II, 9 October 1800, p. 630.

^{viii} *Shorter Works and Fragments*, I, 648.

^{ix} *Poetical Works*, p. 429, ll. 1-5

^x *Collected Notebooks*, I, 1561; cf. *Collected Notebooks*, I, 556

^{xi} *Friend*, vol. I, p. 471.

^{xii} Holmes, *Early Visions*, p. 274.

^{xiii} *Marginalia*, I, p. 650.

^{xiv} *Collected Letters*, II, 927.

^{xv} *Collected Letters*, II, 726.

^{xvi} *Shorter Works and Fragments*, I, pp. 647-8.

^{xvii} *Collected Letters* 3, 38

^{xviii} *Marginalia*, I, 566.

^{xix} *Collected Letters*, III, p. 172

^{xx} *Collected Letters*, V, 309.

^{xxi} *Poetical Works*, p. 101, ll.26-33.

^{xxii} *Collected Letters*, I, 557.