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Spirit and Geometric Form: The Stone and the Shell in Wordsworth's Arab Dream

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"Speaking no dream but things oracular"
The Prelude, 1805[1]

Unlike those Victorians who claimed that the Romantics had rejected science, several recent critics have argued that the Romantic response to science was more complex. For although Romantic poets and essayists were often critical of contemporary scientific practice, they were also willing to argue that science might have as yet undiscovered relations with imagination and poetry.[2] The distinguishing feature of this second response is its prophetic mode, for it speculates that the failings of scientific practice might be put aside were science to take part in the imaginative renewal of society. In act IV of Shelley's *Prometheus Unbound,* for example, a chorus of spirits declares that science, together with sculpture and "poesy," is essential to the now liberated human mind.[3] Even Blake, who opposed his visionary epistemology to the

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[1]*The Prelude*: 1799, 1805, and 1850, eds. Jonathan Wordsworth, M.H. Abrams, and Stephen Gill (New York: W. W. Norton, 1979), XII, 252, p. 450. Subsequent references to this edition appear in the text. Unless otherwise identified, the 1865 text is cited by book, line, and page.

[2]Several studies examine Romantic considerations of science. Among these are: Carl H. Grabo, *A Newton among Poets* (1930; rpt. New York: Cooper Square Publishers, 1968); Donald Ault, *Blake's Visionary Physics* (Chicago: Univ. of Chicago Press, 1974); H.A.M. Snelders, "Romanticism and Naturphilosophie and the Inorganic Natural Sciences, 1797-1840: An Introductory Survey," *SIR* 9 (Summer 1970):193-215; Trevor H. Levere, "Coleridge, Chemistry and the Philosophy of Nature," *SIR* 16 (Summer 1977):349-79; Ault, "Incommensurability and Interconnection in Blake's Anti-Newtonian Text," *SIR* 16:277-303; and Pierce C. Mullen, "The Romantic as Scientist: Lorenz Oken," *SIR* 16:381-99.

[3]*Prometheus Unbound,* ed. Lawrence J. Zillman (Seattle: Univ. of Washington Press, 1959), IV, 111-16, pp. 268-69.

experimentalism of Newton and Locke, concluded *Night the Ninth* of *The Four Zoas* with the announcement that "sweet Science reigns."[4] In this essay I will argue that Wordsworth's view of science in the Arab dream in Book V of the 1805 *Prelude* is no less complex than that of Blake and Shelley. Like them, Wordsworth rejected the narrow experimentalism of contemporary scientific practice, but included science in his prophetic narrative of deluge, books, and burying treasure.

This reading of the Arab dream as Wordsworth's most radically speculative response to science challenges a consensus among readers of *The Prelude* from Thomas De Quincey to the post-structuralists. Even this last group of readers, who acknowledge that "the language of the dream" (V, 87, p. 156) is disturbingly unfixed, still insist that the Arab's two treasures, a stone and a shell, demonstrate the fixed opposition of science or mathematics to poetry.[5] Because the Arab names the stone "*Euclid's Elements*" (*Prelude,* V, 88, p. 156), it is argued, this treasure must represent science in general, while the shell, which speaks an ode, must be poetry. Here, at least, critics have contended, Wordsworth's text is unequivocal both in its separation of science from poetry and in its designation of the shell as the treasure "of more worth" (*Prelude,* V, 90, p. 156). I suggest that the easy binomialism of this reading mistakes both the argument of the Arab dream and the symbolic logic of its treasures. As a response to the inquiry concerning knowledge, books, and their possible destruction with which Book V opens, the Arab dream seeks to resolve that inquiry by re-defining its key terms. The strategy of re-definition is metonymic, even as the strategy that characterizes the opening of Book V, which functions as the prologue of the dream, its metaphoric. The prologue can only repeat its terms or at best seek figurative resemblances between them and whatever new terms it introduces. But the dream presents symbols which radically alter the preceding inquiry

[4]In *Complete Writings of William Blake,* ed. Geoffrey Keynes, rev. edn. (London: Oxford Univ. Press, 1971), line 855, p. 379.

[5]Critics who have associated the Arab's treasures with an opposition of poetry and science include: Raymond F. Havens, *The Mind of a Poet,* 2 vols. (Baltimore: The Johns Hopkins Press, 1941), 2:410-411; Newton P. Stallknecht, "On Poetry and Geometric Truth," *KR* 18 (Winter 1956):1-20; Jane Worthington Smyser, "Wordsworth's Dream of Poetry and Science: *The Prelude,* V," *PMLA* 71 (March 1956):269-75; Geoffrey H. Hartman, *Wordsworth's Poetry, 1787–1814* (New Haven: Yale Univ. Press, 1964), pp. 228 and 231; J. Hillis Miller, "The Stone and the Shell: The Problem of Poetic Form in Wordsworth's Dream of the Arab," in *Mouvements Premiers* (Paris: Librairie José Corti, 1972), pp. 140 and 144; Michael Ragussis, "Language and Metamorphosis in Wordworth's Arab Dream," *MLQ* 36 (June 1975):148-65; Timothy Bahti, "Figures of Interpretation, The Interpretation of Figures: A Reading of Wordsworth's 'Dream of the Arab'," *SIR* 18 (Winter 1979):617; Mary Jacobus, "Wordsworth and the Language of the Dream," *ELH* 46 (Winter 1979): 642; John A. Hodgson, *Wordsworth's Philosophical Poetry, 1797–1814* (Lincoln: Univ. of Nebraska Press, 1980), pp. 145-47.

because they abandon the earlier opposition of poetry to science to make way for a new set of oppositions and unexpected points of convergence.

As critics have long agreed, then, and as the Arab tells the dreamer, the stone is "*Euclid's Elements*." Yet as such it represents not science in general but that traditional knowledge which is sustained by rigid logic and resists change. However, the shell embodies a new kind of knowledge which is at once geometric and poetic. Unlike the closed surface of the stone, the shell is an open-ended geometrical spiral whose developing form requires a cooperation between natural processes and the exact ratio of geometrical progressions. It thus possesses a "higher geometry"[6] than that of the stone, whose geometry can describe only static figures. Similarly, because the shell contains voices which are multiple and divine and *speaks* an ode, its language is no less dynamic than is its form. As symbols the stone and the shell provide different responses to the problem with which Book V opens: how can knowledge be saved from destruction. For if the knowledge offered by the stone might survive if it is buried — which is precisely what the Arab hopes to do with the treasures — that offered by the shell has the power to preserve itself without being buried because it can create and inhabit other forms and voices when old ones disintegrate. Whereas the stone looks backward to traditional knowledge and its preservation, the shell projects itself forward and seeks new options for self-preservation.

Critics who have asserted instead that the Arab's treasures symbolize an opposition between science and poetry have noted that the prologue of Book V does consider just such an opposition. In these lines the speaker refers first to the "works of bard and sage" and later to "poetry and geometric truth" (*Prelude,* V, 41-64, p. 154). Whatever the terms used, then, the speaker's commitment in the prologue to some kind of opposition between poetry and science seems clear, or so critics have argued. Even if this is the case, however, distinctions articulated in the prologue should not be uncritically applied to terms introduced in the drama. To do so would be to deny the power traditionally granted to dreams as symbolic narratives which either prophesy the future or reinterpret problems that the conscious mind had previously entertained. Like many medieval dream visions,[7] the Arab dream claims to do both. For in reinterpreting the fears introduced in the prologue, the dream responds to them in the guise of prophetic speech. The strategy

[6]Philip C. Ritterbush, "Organic Form: Aesthetics and Objectivity in the Study of Form in the Life Sciences," in *Organic Form,* ed. G. S. Rousseau (London: Routledge and Kegan Paul, 1972), p. 47.

[7]See, for example, William Langland, *Piers Plowman,* B Text, ed. J.A.W. Bennett (Oxford: The Clarendon Press, 1972), Prologue; and John Bunyan, *The Pilgrims Progress,* ed. James B. Whalley and Roger Sharrock, 2nd edn., rev. (Oxford: The Clarendon Press, 1972), Prologue.

which underlies its response is resolutely metonymic in that the dream transforms the inflexible opposition of the prologue by replacing its key terms with two new symbols. These metonymic shifts, whose final symbolic configuration will resemble the spiral of the Arab's shell, may be illustrated briefly by examining one instance in which the dream declares what the prologue suppresses.

In the prologue the speaker fears destruction by fire or earthquake, and doubts that the products of the mind could be renewed in the same way that a singed, desolate earth might renew itself. Although the speaker does not say so, the precedent for such renewal is of course that which occurred after the Deluge described in Genesis and in Ovid's *Metamorphoses*.[8] What is silent in the prologue becomes the dramatic center of the dream narrative as a deluge threatens to engulf the dreamer, the Arab, and the two treasures. Yet the dream also modifies the threat of destruction by declaring that while the shell announces an imminent deluge, it does so with a "loud prophetic blast of harmony" (*Prelude,* V, 96, p. 156). As other readers have remarked, this configuration of destruction and harmony is apocalyptic. Here, too, the dream makes explicit what the prologue — which mentions fire and earthquake but neglects their traditional association with the Apocalypse — had suppressed. I draw attention to the way in which the idea of a deluge is suppressed in the prologue, then given a crucial role in the dream, to make a general point about "the language of the dream" as opposed to that of its prologue. The latter is limited and fixed; by itself it is unable to express new solutions to the speaker's dilemma. But the language of the dream is fully capable of successive transformations in the symbolic identities of its parts, including its prologue.

A similar strategy governs the relation between the Arab's two treasures and terms introduced in the prologue. The "works of bard and sage" share the "same hopes," but they are yet "twin labourers" (*Prelude,* V, 41-43, p. 154). Neither, the speaker fears, will survive cataclysm. Moreover, the term *sage* may retain some of the disapproval with which it is used in Wordsworth's 1798 poem "Tables Turned," which had charged that the sage teaches us how to "murder" nature by dissecting it.[9] But the next pair of terms, "poetry and geometric truth," which the speaker introduces just before falling asleep to dream, share a singular complement, "the knowledge that endures" (*Prelude,* V, 64-65, p. 145). This shift from two plural ("twin labourers . . . same hopes") to a singular complement ("the knowledge") signals the mediat-

[8]Also noted by Ragussis, pp. 148-65, and W. H. Auden, *The Enchafèd Flood* (New York: Random House, 1950), pp. 43-44.

[9]"Tables Turned," in *The Poetical Works of William Wordsworth,* eds. Ernest de Selincourt and Helen Darbishire, 2nd edn., 5 vols. (Oxford: The Clarendon Press, 1958), 4:57, lines 24-28.

ing transformation between the fixed metaphors of the prologue and the metonymic character of figures introduced in the dream. For "poetry and geometric truth" are now one and will survive, unlike the "works of bard and sage," whose capacity for survival he had earlier doubted. Even De Quincey, who illustrated his distinction between the separate and unequal strengths of the "literature of knowledge" and the "literature of power" by characterizing them as science and poetry respectively,[10] acknowledged that power was not the exclusive province of poetry in Wordsworth's dream. Instead De Quincey described the stone and the shell as "these two hemispheres, as it were, that compose the total world of human power — mathematics on the one hand, poetry on the other."[11] Despite this recognition that mathematics must be included in the world of power, De Quincey's reading remains, like the prologue of Book V, caught in the web of its own terms, for it cannot abandon the principle that poetry and mathematics ought to be separate. In Wordsworth's text, however, the metonymic shift to the singular "knowledge that endures" which occurs in the prologue just before the speaker begins to dream is a gesture toward just such a reconciliation.

The specific character of the shell as the dream symbol for knowledge that can endure cataclysm emerges more clearly when we compare Wordsworth's narrative of deluge and burying treasure to a similar account in Josephus's *A History of the Jews.*[12] Well known in the eighteenth century but neglected by readers of the Arab dream ever since, Josephus's version of the Deluge is only one of several likely sources for Wordsworth's text.[13] Yet it is also the only one explicitly concerned with saving knowledge from being destroyed in a deluge.

In Josephus's *History,* Sesostris of Egypt, who had heard an Adamic prophecy of destruction, commands that the knowledge of the heavens be inscribed on two pillars — one stone, the other brick — which would

[10]"Letters to a Young Man Whose Education Has Been Neglected," in *The Collected Writings of Thomas DeQuincey,* ed. David Masson, 14 vols. (Edinburgh: Adam and Charles Black, 1890), 10:46-49; and "The Poetry of Pope," in *Collected Writings,* 11:55-56; and "Literary Reminiscences: Wordsworth," in *Collected Writings,* 2:268.

[11]"Literary Reminiscences: Wordsworth," in *Collected Writings,* 2:268-69.

[12]Flavius Josephus, *Works,* trans. William Whiston, ed. Samuel Burder, rev. edn., 2 vols. (Boston: S. Walker, 1821), 1:15-16. A Burder-Whiston edition of Josephus is listed in *The Rydal Mount Catalogue* of Wordsworth's library as item 84 without a date of publication (ed. William Knight, *Transactions of the Wordsworth Society,* 6, 1884, pp. 198-257). *The British Museum General Catalogue of Printed Books* does list an 1812 London edition that matches the physical description given for Wordsworth's copy.

[13]Miller points out (p. 138) that although the 1850 text makes the dreamer the "I" of the speaker rather than the "philosophic friend" of 1805, the dream itself is "not so much a real dream as the deliberate invention of a dream sequence." One influence on that invention was Descartes's dream of "poetry and science," as Smyser (pp. 269-75) has demonstrated.

then be buried. According to the essay on "Mathematics" in the 1797 edition of the *Encyclopaedia Britannica,* the knowledge so inscribed was Euclidean geometry.[14] This association was, moreover, fairly widespread in eighteenth-century references to Josephus, a Jewish historian of the time of Christ who was much admired by Biblical apologists.[15] Thus William Whiston, a theologian and Cambridge fellow of natural philosophy whose tenure at Cambridge preceded that of Sir Isaac Newton, translated Josephus's *History* and later summarized its Deluge narrative in the introduction of his edition of Euclid's *Elements.*[16] Clearly, Whiston's goal was to encourage the study of Euclid by reminding students of its ancient origin and extraordinary capacity for survival. Although Wordsworth at some point acquired the 1797 *Encyclopaedia* and Josephus's three-volume *History,* the version of Deluge narrative which the Arab dream echoes is the summary that Whiston included in his edition of the *Elements,* used at Cambridge until about 1750 and still in its library when Wordsworth arrived in 1787.[17] Judging from his admitted lack of application to the study of mathematics after leaving Hawkshead Grammar School,[18] it is probably safe to assume that Wordsworth read only Whiston's Introduction, which described Egyptian preparations for the Deluge in these terms:

> the Posterity of Seth observed the Order of the Heavens, and the Courses of the Stars. And lest these Inventions should slip out of the Knowledge of Men, *Adam* having predicted a twofold Destruction of the Earth, one by a Deluge, the other by Fire, they

[14]See *Encyclopaedia Britannica* (1797), s.v. "Mathematics." This edition is listed as item 369 in the *R.M. Catalogue.*

[15]Thus the *Encyclopaedia Britannica* (ibid.) cites Josephus as a classical authority. The essay on Whiston in the *Dictionary of National Biography* notes that his edition of Josephus's *Works* remained the most popular of Whiston's writings throughout the eighteenth century (1917; rpt. London: Oxford Univ. Press, 1967-1968). In the seventeenth century Thomas Burnet's *The Sacred Theory of the Earth* also refers to Josephus's account of the Deluge (ed. J.M. Cohen, 2 vols., 1684; rpt. Carbondale: Southern Illinois Univ. Press, 1965, vol. 1, passim).

[16]See the Whiston-Burder translation cited above and Whiston's preface for *The Elements of Euclid,* ed. Andrew Tacquet (London: J. Senex, 1727). Hereafter cited as Whiston, *Elements.*

[17]W. W. Rouse Ball, *A History of the Study of Mathematics at Cambridge* (Cambridge: Cambridge Univ. Press, 1889), pp. 96-99; according to Ben Ross Schneider, Jr., Wordsworth's training in geometry at Hawkshead was sufficiently good to permit him to enter Cambridge with advanced standing in mathematics (*Wordsworth's Cambridge Education* (Cambridge: Cambridge Univ. Press, 1957), pp. 4-6). The Hawkshead School Library still owns the edition of Euclid's *Elements* which was published by Sir Isaac Barrow, Newton's predecessor at Cambridge (correspondence with school trustees, 11 November 1975).

[18]Schneider, pp. 6 and 96, and Mary Moorman, *Wordsworth: A Biography,* 2 vols. (Oxford: Clarendon Press, 1969), 2:437-39, and 442.

> rais'd two columns, one of Bricks, of Stone the other, and inscrib'd their Inventions upon them, that if the Brick one should happen to be destroy'd by the Deluge, that of Stone, which would remain, might affort Men an Opportunity of being instructed, and present to their View the Things which it had inscrib'd on it.[19]

Even as it transforms the prologue of Book V and the Deluge narratives of Genesis and Ovid's *Metamorphoses,* so does Wordsworth's dream transform the Deluge narrative which it most resembles. First, because it is named Euclid's *Elements* and most closely resembles Josephus's stone pillar, the Arab's stone represents Euclidean geometry which was, according to Whiston and the 1797 *Encyclopaedia Britannica,* the knowledge that Sesostris had inscribed on both pillars. The shell, which does not at all resemble the brick pillar, would seem to have little in common with the geometry which was inscribed on both pillars. Second, unlike the inscribed pillars of Josephus's account, the stone and the shell are not inscribed objects. Yet because the Arab insists that both are "books" and the dreamer believes him (*Prelude,* V, 89 and 113, p. 156), we as readers are compelled to read the two treasures as if they were in fact books or even inscribed monuments. Because they lack human inscriptions, they can be read only as objects that have been inscribed by natural processes, or nature itself.[20] The stone and the shell may thus be versions of parts of the "Book of Nature" which medieval and Renaissance writers claimed was God's "second" Book. They argued moreover that because the Book of Nature was open for all to see, its legibility often surpassed that of the Bible, or God's "first" Book, whose oblique textuality was the mixed blessing of exegetical commentators and those who thereafter read their commentaries.[21] As parts of the Book of Nature, the Arab's treasures may possess some of the attributes of the *Logos.* Indeed, the shell does have prophetic voices, so it at least exhibits one of the principal functions of the *Logos* as Christ and the Word of the New Testament and Apocalypse. The reader's task is twofold: to discern how the treasures are both distinct and yet complementary. Paradoxically, to recognize their complementarity we must first isolate the differences between them.

[19]Whiston's summary, *Elements,* Introduction.

[20]Wordsworth's fascination with inscriptions appears in his *Essays on Epitaphs* (III), in *The Prose Works of William Wordsworth,* eds. W.J.B. Owen and Jane W. Smyser, 3 vols. (Oxford: The Clarendon Press, 1974), 2:49-96. See also Hartman, "Wordsworth, Inscriptions, and Romantic Nature Poetry," in *Beyond Formalism* (New Haven: Yale Univ. Press, 1970), pp. 206-30; and Frances Ferguson, *Wordsworth: Language as Counter-Spirit* (New Haven: Yale Univ. Press, 1977), p. 28.

[21]Ernst R. Curtius, *Latin Literature and the European Middle Ages,* trans. Willard R. Trask (New York: Harper and Row, 1953), pp. 319-26. Also cited by Ragussis, p. 157 and Bahti, p. 611.

Because it is a natural object and Euclidean geometry, the stone is the dreamer's guide to the character of traditional knowledge. As a closed, rounded figure, its approximate geometrical equivalent is the circle. Regarded by ancient philosophers as the sum of all figures and hence perfect, the circle is the last figure to be investigated in the fifteen books of Euclid's *Elements*.[22] In part, then, the Arab's stone represents the logical perfection of Euclidean geometry. Because it is durable, the stone reflects Euclid's longevity as the model of reason among both "ancients" and "moderns."[23] Finally, as a natural object with geometrical properties, it should remind its readers that philosophers have long "found" Euclidean figures in nature and that such discoveries were especially admired by seventeenth- and eighteenth-century writers. Invoking Descartes's *Dioptric*, many of them declared that we see by a kind of "natural geometry."[24] No mean geometer himself, Newton declared that God was the supreme Geometer and presented the conclusions of the *Principia* by means of Euclidean proofs, although he himself had reached those conclusions by relying on the fluxional calculus.[25] This caution — for the *Principia* was more likely to gain acceptance if presented in this manner — and Newton's no less genuine admiration for Euclid reflect a common assumption of the age, visible in a number of contemporary editions of the *Elements* and in ruffled debates in the *Gentleman's Magazine* about whether Cambridge undergraduates were getting too little or too much mathematics.[26]

The *Elements* retained its prestige well into the early nineteenth century because it seemed to offer an anchor to an age theologically ill at

[22]Whiston, *Elements*, passim. See also: Jacob Bronowski, *The Ascent of Man* (Boston: Little, Brown, 1974), p. 158; and Julian Lowell Coolidge, *A History of Geometrical Methods* (1940 rpt.; New York: Dover, 1963), pp. 1–6.

[23]Morris Kline, *Mathematics in Western Culture* (1953 rpt.; London: Oxford Univ. Press, 1974), pp. 53–54.

[24]*Dioptric*, *Philosophical Writings*, trans. Norman Kemp Smith (New York: Modern Library, 1958), p. 155.

[25]Charles Coulston Gillispie, *The Edge of Objectivity: An Essay in the History of Scientific Ideas* (1960; rpt. Princeton: Princeton Univ. Press, 1973), p. 141.

[26]Henry Hill's edition of *Euclid* (London: William Pearson, 1724) celebrates geometry as the "pillar of mathematics" and the principal of all arts. The allusion to Josephus's anecdote would probably not have gone unnoticed by Hill's readers. This edition concludes its dedication to Prince Charles with a flattering blessing that transforms the classical epithet for Ptolemy, the Prince of Geometricians, into a description of God: "May the Prince of Geometricians, the omnipotent creator of the Universe, long preserve your Grace." Whiston's edition describes geometry as the key to mathematics, and then translates Plato's motto for *The Republic* as "let no one ignorant of Geometry enter here." Edmund Stone's edition (2nd edn., London: John Rivington, 1765) offered geometry as the proper foundation for those in search of truth through reason. See also the squabbles among correspondents to *The Gentleman's Magazine* 44 (1774), 72 (1792), and 73 (1793).

ease with the implications of its empiricism.[27] One could say that the Enlightenment hoped to garner Euclid as *its* twofold treasure. On the one hand, Euclidean figures matched forms found in nature and sufficed for charting the heavens.[28] On the other, Euclidean proofs constructed arguments that were wholly self-contained, if one granted, as one always did until the 1830s,[29] the axioms that were the basis for all Euclidean proofs. There was but one flaw. As the analysis of figures and as a system of deductive proofs, Euclidean geometry is static and hence secure only within limits, and these limits were being subverted gradually by late eighteenth-century studies in landforms, botany, biology, and chemistry.[30]

In the Arab dream Wordsworth identifies a major limitation of Euclid as a scientific model: its mathematics is not capable of reflecting the alteration in time of the world and its forms.[31] Thus the Arab presents the stone as the book

> that held acquaintance with the stars,
> And wedded man to man by purest bond
> Of nature,[32] undisturbed by space or time.
> (*Prelude,* V, 104-106, p. 156)

Like the stone, Euclid cannot respond to a world changed utterly by the Deluge, yet such a world looms before the dreamer. To confront this world the dreamer requires a language that can change; that of the stone cannot, for it has no voice, and is limited to being Euclid's *Elements,* no more. Despite its evident durability as a natural object and a mathematical model, the stone will not suffice for the dreamer because it cannot

[27]For a suggestion of theological uncertainty about empiricism and geometry, see George Berkeley, Bishop of Cloyne's remarks on geometry as a divine language in Nature but an inappropriate one for human vision in *A New Theory of Vision,* in his *Works,* eds. A.A. Luce and T.E. Jessop, 2 vols. (New York: Nelson, 1948), 1:232-35.

[28]Kline, pp. 53-54.

[29]Richard Courant and Herbert Robbins, *What Is Mathematics?,* 4th edn. (New York: Oxford Univ. Press, 1947), pp. 218-25.

[30]Barry Gower, "Speculation in Physics: The History and Practice of the *Naturphilosophie,*" *Studies in the History and Philosophy of Science* 3 (February 1973):301-56.

[31]Kline, p. 55. For an analysis of the development of a dynamic mathematics with Newton's calculus and later with the construction of non-Euclidean geometries, see Bronowski, p. 233, and Courant and Robbins, p. 223.

[32]Wordsworth later substituted "reason" for "Nature" (1850, V, 105, p. 143). With that revision he makes explicit an association of Euclid with reason rather than with natural phenomena and Nature which had been implicit from the first in the dream. The date of revision is not certain, but because it appears as a correction of ms. A and on the fair copy ms. C, it may have been done between 1817 and 1819, the dates Ernest de Selincourt offers for the composition of ms. C (*The Prelude,* rev. edn., eds. de Selincourt and Helen Darbishire (Oxford: The Clarendon Press, 1959), p. xii).

assimilate new data or substitute new knowledge for old. Elsewhere in *The Prelude,* Wordsworth's fascination with geometry is similarly riddled with recognitions of its shortcomings. Thus while he is charmed by its theorems because they calm a mind "beset with images" (*Prelude,* VI, 178–87, p. 194), he also acknowledges that Euclid's geometry describes a world of abstractions (*Prelude,* VI, 135–59, pp. 192 and 194), and compares its solid figures to rigid containers which would misshape the true history of the mind's development were the speaker to attempt to "parcel out / His intellect by geometric rules, / Split like a province into round and square" (*Prelude,* II, 209–10, p. 76).

By contrast, the shell can assimilate and can change. Indeed change is the essence of its form. Faithful to a point of origin in its development, the organism of the shell fuses particles of matter into a form for its life. The principle of its development is organic in the most Coleridgean sense of the term, for the shell articulates an interior direction and pattern instinctive to its organism.[33] Should one shell be destroyed, others can be created which would exhibit the same form and demonstrate the same underlying principles. Regenerative and organic, the shell inscribes a geometrical spiral.[34] Its curve is open-ended yet faithful to the ratios established at its origins. As an evolving form it speaks for a new poetic and scientific age, one whose adaptability reflects the dynamism of the world and its forms.

In adopting the shell to represent both geometric truth and poetry, Wordsworth draws on a scientific tradition that had long admired the geometrical properties of organic forms. By 1838, mathematicians had proved what philosophers had long suspected: the curve of the Arab's shell is a logarithmic spiral. As such, its ratios are identical to the "golden section" admired since antiquity as the ideal symmetry of all forms. Unlike any other mathematical curve, the spiral of the seashell is a "figure that grows without changing its shape."[35] Wordsworth could

[33]*On Poesy or Art,* in *Biographia Literaria,* ed. John Shawcross, 2 vols. (1907; rpt. London: Oxford Univ. Press, 1967), 2:262.

[34]Melvyn New has argued to the contrary that the Arab's shell is not a spiral seashell but the traditional lyre-shell of poetry, hence a tortoise shell, in "Wordsworth's Shell of Poetry," *PQ* 53 (April 1974): 275–77. But the dreamer would not put a lyre-shell to his ear in order to hear its voices unless either the ear or shell were acoustically unsound, and no poet would argue that. Because Wordsworth does not explicitly name the Arab's shell a seashell, he may wish to retain the poetic office of the traditional lyre-shell yet transform its contours in order to announce the new character of his shell and its voices. See John Hollander, "Wordsworth and the Music of Sound," in *New Perspectives on Coleridge and Wordsworth* (New York: Columbia Univ. Press, 1972), pp. 50–75, for an analysis of the metamorphoses of the poet's shell through the early nineteenth century.

[35]Ritterbush, "Organic Form: Aesthetics and Objectivity," in *Organic Form,* p. 47. In *Poetry and Mathematics* Scott Buchanan observes that transformations of figures like the spiral "would allow a rule or principle of the sort which mathematicians and some

have encountered this principle in an essay on shells which appeared in the 1797 *Encyclopaedia Britannica.* In recapitulating previous speculations about the natural geometry of the spiral seashell, particularly the giant conch, the writer of the essay declared:

> The singular regularity, beauty, and delicacy in the structure of shells of animals, and the variety and brillancy in the colouring of many of them, at the same time that they strike the attention of the most curious observers, have at times excited philosophers to inquire into and detect, if possible, the causes and manner of their formation.[36]

This description may be echoed in part by Wordsworth's dreamer, who first notices the "surpassing brightness" of the Arab's shell (*Prelude,* V, 80, p. 156). Finally, the widespread organicist contention that the universe is always in process, supported as it was by the eighteenth-century preoccupation with organic form and changing visual perspectives, made figures like the seashell more suitable models for the knowledge that endures than those associated with the geometry of Euclid.[37]

Because it is a resonating chamber that amplifies and proliferates sounds, the shell responds to the destruction of books by insisting that other words and other languages must re-create what is lost. The shell can offer this option because its language is spoken, not written:

> the arab told him that the stone —
> To give it in the language of the dream —

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philosophers would call eternal truths; they mean that something very much like the soul of the projective field inscribed by spirals and conic sections remains constant throughout an indefinite number of variations." (1929; rpt. Philadelphia: J. P. Lippincott, 1962, p. 55). The line of a spiral inscribes a cone. Coolidge notes too that the geometry of spirals is approached in Archimedes' study of conic sections (pp. 45-58).

[36]S.v. "Shells."

[37]Ritterbush, "Organic Form: Aesthetics and Objectivity," in *Organic Form,* pp. 47-50. Erasmus Darwin uses the metaphor of changing landscape perspectives on the earth's surface to depict the organic growth of a seed (*The Botanic Garden,* 1791; rpt. Menston, England: Scolar Press, 1973, p. 156). One analogue for the higher geometry of Wordsworth's shell is non-euclidean geometry, which demonstrates the flexibility and inner coherence suggested by the spiral. As a class, non-Euclidean models are not committed to a single schema for all phenomena. Hence while the proliferation of such models did not destroy the validity of Euclid in many frames of references, it did destroy the idea that Euclid's *Elements* was the only geometry. Like the multiple voices of the shell, non-Euclidean models assert that geometric truth is not the single, written document of Euclid's *Elements,* but multiple and dynamic. Courant and Robbins argue (p. 223): "the revolutionary importance of the discovery of non-Euclidean geometry lay in the fact that it demolished the notion of the axioms of Euclid as the immutable mathematical framework into which our experimental knowledge of physical reality must be fitted."

> Was *Euclid's Elements*. 'And this', said he,
> 'This other', pointing to the shell, 'this book
> Is something of more worth.'
>
> (*Prelude*, V, 86-90, p. 156)

While at other times the dreamer merely acquiesces to what the Arab asserts, on this point both conspire to portray the nature of the shell. The Arab has relied on gesture and demonstrative adjectives ("this, this other") to introduce the shell. In relating what the Arab has said, the dreamer is careful to preserve the distinction between the shell, for which he reserves the rhetorical immediacy of direct speech, and the stone, whose description is more distantly framed as a reported statement. Reportage without the flexibility of the speaking voice reiterates the essential fixity of the stone. But because it possesses numerous, divine voices which speak an ode in an "unknown tongue" (*Prelude*, V, 94, p. 156), the shell represents the plurality of voices which is required to create a universal language for humankind after Eden.

Saving the shell will not be accomplished by burying it, since it would break under such pressures even as the stone might not. The lesson of the dream is rather that the shell is the treasure "of more worth" because it can be re-created. Like the written forms which house the "immortal verse" of Shakespeare and Milton, the shell is only an "earthly casket" and will turn to dust as all physical containers do (*Prelude*, V, 164-65, p. 160). But the spirit which governs that container are its voices: immaterial, multiple, and divine.

The vision of science and knowledge articulated by the form and voices of the Arab's shell is fully consonant with what Thomas Vogler has recently described as "Romantic form consciousness," the desire to create structures in discourse that reflect structures in the mind.[38] Thus conceived, Romantic form is governed by desire, or the purposiveness which demands that form reflect spirit. In the Arab dream the manifestation of such desire would be the projective capacities of the shell as a natural object whose form is created according to principles which its organism "knows," in the sense that it might be said to share in the divine knowledge of Nature as God's more legible "Book." As an emblem for the poet, the shell demonstrates how the mind intuits form. Thus Charles Darwin, as Vogler notes, knew what to look for in coral reefs long before he saw them. For Romantic writers — and the designation is as appropriate to Darwin as it is to Wordsworth — organic form was at once metaphor and fact.[39] In its fusion of form and inner purposiveness,

[38]Thomas Vogler, "Romantic Form Consciousness: The Desire of Discourse and the Discourse of Desire." Paper delivered at conference on "English and German Romanticism: Cross-Currents and Controversies," University of Houston, 25-28 February 1981.

[39]For a different view of organic form, see William K. Wimsatt, "Organic Form: Some Questions about a Metaphor," in *Organic Form*, p. 78.

the Arab's shell achieves the dynamic form advocated by Coleridge's *natura naturans* and by the German Romantic preference for "becoming" rather than static forms.[40]

The differences between the treasures of Wordsworth's dream and the pillars of Josephus's narrative suggest, therefore, that the symbolic opposition proposed in the Arab dream concerns fixed versus dynamic knowledge, not simply poetry versus science. Yet if the dream subverts the opposition of the prologue only to introduce another kind of opposition, the speaker is again trapped between mutually exclusive categories. For if the stone and the shell are inevitably opposed, the future of knowledge must be forever isolated from its past. But this solution holds little comfort for the speaker of Book V, who urgently seeks to preserve past knowledge in some fashion. The Arab dream responds to this dilemma in its final lines, which once more transform Josephus's version of the Deluge by re-assigning the term "twofold." In Whiston's summary of Josephus's narrative, the term refers to the two options for destruction which Sesostris knew from Adam's prophecy.[41] In Wordsworth's narrative, the term is applied to the treasures themselves, last glimpsed as a "twofold treasure" which the Arab carries in one hand as he rides off to stay ahead of the rising flood waters (*Prelude,* V, 119-20, p. 158). This last adjustment to Josephus's version signals the special complementarity of the Arab's treasures. In Josephus, the two types of destruction — fire and flood — are the cataclysms of Apocalypse and Genesis. Thus they represent both extremes of human history. Had the dream preserved these options as the "twofold" cataclysm of the shell's prophecy, its speaker would have been pinioned between past and future cataclysms. Instead, the dream suppresses apocalyptic destruction, then attaches apocalyptic harmony to an imminent deluge. Of even more significance is its assignment of the term "twofold" to the Arab's treasures. Now the "twin hopes" which the speaker had earlier associated with works of bard and sage in the prologue have become the single hope and treasure of the dream.

The concluding lines of the Arab dream thus invite the speaker and the reader to examine the stone and the shell once again to discover how they might be distinct, yet complementary symbols. Whereas the stone is round, closed, massive, inorganic, and inert, the shell is spiral, open-ended, fragile, organic, and vital. Similarly, the shell resembles a "hollowed out" stone,[42] and the stone, a filled container. This complementarity of structure suggests further that as symbols both represent

[40]*On Poesy or Art,* in *Biographia Literaria,* 2:262. Anne K. Mellor discusses Schlegel's conception of becoming in a recent essay, "On Romantic Irony, Symbolism and Allegory," *Criticism* 21 (Summer 1979); 225, and, more extensively, in *English Romantic Irony* (Cambridge, Mass.: Harvard Univ. Press, 1980), ch. 1, passim.

[41]See Whiston's summary, *Elements,* Introduction.

[42]Miller, p. 141.

kinds of knowledge which require each other. As traditional mathematical knowledge, the stone cannot be discarded; it has endured for centuries and will continue to be a foundation for future knowledge. On the other hand, the shell is the greater treasure because it has the capacity to acknowledge its origins and yet continue to grow. In mathematical terms, the shell expands the limits established by the stone much as the spiral opens the single ratio of the circle into multiple, interdependent ratios. Nor can the shell abandon its origins in the knowledge preserved as the stone. Like the logarithmic spiral which retains the shape and direction established by a point of origin, the shell retains the foundations provided by the stone as an ancient model of reason.[43]

Unlike the stone and the shell, whose different yet complementary identities make them reliable guides to the import of the dream, other dream symbols either confuse or deceive the dreamer. These include: the landscapes of deluge and desert, the double identity of the Arab, and his proposal that he bury the two treasures to preserve them. For example, although the desert and the deluge appear to be no less different and complementary, they are in fact reversible images whose symbolic content is identical. As such they illustrate the semantic poverty of symbols whose "binary opposition"[44] is closed to figurative extension. Whether filled with water or emptied of water, both signify an endless wasteland and the dreamer's psychic confusion.[45] In this they conform to their archetypes in the Deluge narratives of Genesis, *The Metamorphoses* and *Paradise Lost*.[46] The desert wilderness of the dream recalls the description of pre-creation Chaos in Genesis, and that of the

[43]Ritterbush, "Organic Form: Aesthetics and Objectivity," in *Organic Form,* p. 49.

[44]Miller, p. 140. Miller sees in "binary opposition" a "structural principle" as important in the Arab dream as "the movement of displacement." As my remarks make clear, I do not entirely agree, although the importance of figurative displacement, insofar as it moves forward and is not caught in the round of binary opposition, is undeniable. However, as my argument suggests, Roman Jakobson's seminal distinction between metonymy and metaphor is probably more useful. See Jacobson's "Linguistics and Poetics," reprinted in *The Structuralists from Marx to Levi-Strauss,* eds. Richard and Fernande De George (New York: Doubleday Anchor, 1972), pp. 85-122.

[45]Auden, pp. 43-44. This reading of the deluge as a desert-like desolation reflects a similar emphasis in the Deluge accounts of Ovid's *Metamorphoses* and Genesis. Hartman's interpretation in *Wordsworth's Poetry* (pp. 69 and 226) owes much to *The Prelude,* Book VI (lines 547-549) echo of Ovid's Nile simile, which compares the Deluge to the annual, refertilizing overflow of the Nile. That Ovidian context is worth noting, however, for there the simile domesticates the terror which in the preceding narrative governs Deucalion and Pyrrha's response to the Deluge (*The Fifteen Books of Publius Ovidius Naso entytuled "Metamorphosis,"* trans. Arthur Golding, ed. John Fredrick Nims, 1576; rpt. New York: Macmillan, 1965); bk. 1, p. 9. Wordsworth's library included George Sandys's and Golding's translations. In like fashion, Wordsworth's Book VI Nile simile domesticates the deluge narrative of Book V by countering its reading of the deluge as destruction with one of the deluge as restoration.

[46]Ragussis, p. 155.

world after the Deluge in *The Metamorphoses.* In the 1850 text of the Arab dream, Wordsworth amplifies the parallels between Chaos and this desert by calling it "black," "void," and "a boundless plain / Of sandy wilderness" (*Prelude,* 1850, V, 71-72, p. 157). As Thomas Burnet had also insisted, the Deluge is Chaos come again[47] and so twice made the symbolic equivalent of the desert. The apparent opposition of the two landscapes in the Arab dream masks their identity since antiquity: they are Chaos and void come again to haunt the dreamer.

Similar ambiguities concerning the Arab's identity and putative guidance reveal the unreliability of "sure" guides to the preservation of knowledge. According to the dreamer, the Arab-Don Quixote is

> yet not the knight,
> But was an arab of the desart too,
> Of these was neither, and was both at once.
> (*Prelude,* V, 124-26, p. 158)

The elaborate equivocation ("Of these was neither, and was both at once") recalls the narrative ambiguities of Cervantes's novel, which the dreamer had been reading. Confronted with two dubious narrators in that work, a lying Arab (for so the third narrator implies) and a lying or self-deceived Don Quixote (for so other characters imply),[48] the dreamer of the 1850 text sensibly harbors some unacknowledged uncertainty about whether the Arab of his dream will guide him through the desert:

> At the sight
> Much I rejoiced, not doubting but a guide
> Was present, one who with unerring skill
> Would through the desert lead me.
> (*Prelude,* 1850, V, 80-82, p. 157)

By depending on a double negative ("not doubting") to indicate that the stranger will guide him, the dreamer suggests how unlikely is the prospect of that guidance. And rightly so, since the Arab does abandon the dreamer.

[47] *The Sacred Theory of the Earth,* vol. 1, ch. vi, pp. 67-77.

[48] Part 1, chs. 1, 9, 22, 25, 52; part 2, chs. 3, 8, 23, 24, 63, 74. The *R.M. Catalogue* lists as item 337 a Spanish edition of both parts, titled *Historia del Famosa Cavallero Don Quixote de la Mancha,* ed. Rev. D. J. Bowle (London and Salisbury: B. White, P. Elmsley, 1781). Wordsworth's dreamer loosely translates this title as "The famous history of the errant knight / Recorded by Cervantes" (V, 59-60, p. 154). For an English translation of these passages, see *The Ingenious Gentleman Don Quixote de la Mancha,* trans. Samuel Putnam, 2 vols. (New York: Viking Press, 1949), 1:27, 72, 73, 167, 200, 462; and 2:528, 557, 657, 666, 920, and 988.

Finally, although the Arab and the dreamer himself contemplate burying knowledge, that burial never takes place. For once the Arab has announced his intention and fled, the dreamer is unable to follow and the dream ends as the flood waters approach him. I suggest that the narrative does not include an actual burial of the treasures because this ancient solution is not appropriate for Wordsworth's dreamer,[49] even though his wish to do so demonstrates a continuing confusion about the meaning of events in the dream. If the dreamer were altogether misled by his dream, it would have little value as an intelligible response to the prologue of Book V and its query about the possible destruction of knowledge. But he does correctly interpret those elements which must be understood before the import of other aspects of the dream can be unravelled.

The divine voices of the shell, whose ode the dreamer understands even though it is uttered in an "unknown tongue," implicitly teach the dreamer that their voices are echoes of his own spirit. As the *Encyclopaedia Britannica* (1797) had also explained, the configuration of the spiral shell is a helix, like that of the ear.[50] Both are thus resonating chambers, so that the ode which the dreamer can only hear by putting his ear to the shell must be his own utterance. Because the dreamer's voices *prophesy* a deluge, we are invited to compare the dreamer to Triton, whose conch shell signalled instead the end of the Deluge in *The Metamorphoses.*[51] For if the narrative time of the Arab dream is here prediluvian, the shell's prophesy of apocalyptic destruction *and* renewal declares that the action of the dream is prospective. It thus includes the past and the future in its view of loss and renewal. Ultimately, the dreamer himself must recognize that the knowledge of the shell is not an artifact buried in the past, but an endangered one inseparable from his present and future.

As the dream concludes, the speaker argues that the Arab's intention to bury knowledge is one with which he can sympathize (*Prelude,* V, 149-61, p. 158). But later he exposes the infantile character of the Arab's purpose by presenting the wish to hoard or possess treasure as a boyish hope that failed. The treasure in question is now four volumes of *The Arabian Nights,* echoing that matrix of dream symbols which refer to an Arab's attempt to bury knowledge. As books that were treasures for the young Wordsworth,[52] those volumes of tales can only be "possessed"

[49]Dewey R. Faulkner has noted that one Biblical authority does not advocate burial of one's treasures. The Parable of the Talents (Matthew 24:14-30) has no praise for hoarders, but warns instead that those who hoard will lose all their treasure.

[50]S.v. "Shells." See M.H. Abrams's discussion of the aeolian lyre as another Romantic symbol for the poet in *The Mirror and the Lamp* (New York: Oxford Univ. Press, 1953), pp. 51-52.

[51]Ovid, p. 9.

[52]Moorman, 1:9.

by hoarding money, much as the stone and the shell are hoarded by the Arab. However, like the dreamer, the boy fails to possess them (*Prelude,* V, 499–500, p. 178). In contrast to his earlier view of the Arab, here the speaker emphasizes the futility of hoarding treasure as the boy, the dreamer, and the speaker himself once hoped they might.[53]

The stone, the shell, and even other, misleading symbols demonstrate the necessity and difficulty of reading aright the language of the Arab dream. The only reliable guides are the treasures themselves, and in particular, the shell, whose power to transform itself counters closed schemata for preserving knowledge and meaning. Like *Don Quixote* and *The Arabian Nights,* books whose themes are implicit in Wordsworth's text, the Arab dream is a spoken, framed tale. As those of the Arabian Nights brought life for Scheherazade by forestalling death, Wordsworth's Arab dream brings life to its speaker by breaking up the ancient formulae for saving knowledge, formulae first proposed in the prologue of Book V. The narrative irresolution of the dream is therefore necessary, temporary, and creative, as we may expect of a dream narrative which is framed by mention of *Don Quixote* (*Prelude,* V, 58–60, 139–48, pp. 154 and 158). The voices of the shell insist too that the meaning of such texts is neither random nor coyly indeterminate, but dynamic.

The shell and the stone are emblems for the past and future products of the intellect, not simply images for an opposition of poetry to science. Because it is prophetic, the shell can witness a collaboration between poetry and geometric truth not available within the traditional constraints of the stone, which can only be Euclid's *Elements.* The shell also sustains a vital equilibrium between the material rigor suggested by its form and origin in the past, and the prophetic spirit suggested by the divine voices it houses. As the model for discourse capable of similar collaborations, the shell speaks for those symbols that reject the self-enclosure of binary oppositions, and instead transform themselves. For while the poetic and geometrical models advocated by the shell retain a well-defined kinship with the past, they also announce a spirit that is committed to projecting itself forward.

The Arab dream has been much discussed yet somewhat less understood, in part because its mediating contexts in Wordsworth's poetry and prose have not been adequately examined. Rather than demonstrating a binomialism which the Arab's treasures merely echo, as critics have often argued, Wordsworth's other references to science alter significantly from early to late in his career. If early poems are usually eager to declare that science is inferior to poetry and nature, this position yields

[53]Michael C. Jaye provides a useful analysis of the narrative discontinuities in Book V in "The Artifice of Disjunction: Book V, *The Prelude,*" *PLL* 14 (Winter 1978):43–50.

within a few years to ambivalent considerations of how science is different from poetry, and then to the claim that science was or might once again be united with poetry.

In "Tables Turned," first published in the 1798 *Lyrical Ballads*, Wordsworth chastised the scientific method of observation as destructive of the relation between mind and nature. Experimentalists, he charged, "murder to dissect."[54] But, as James Averill has noted, other poems in the 1798 *Lyrical Ballads* exhibit the same meticulous observation that was as much the defining characteristic of the scientific method in the eighteenth century as it is now.[55] In the 1802 *Preface* to these poems, a curious blend of ambivalence and more guarded criticism emerges. While the scientist sees only "those parts of nature which are the objects of his studies," Wordsworth declares, the poet sees and connects everything. Still, he adds, if science is ever "ready to put on, as it were, a form of flesh and blood," then the poet would welcome the "man of science" to the "household of man."[56]

The 1805 *Prelude* witnesses a new direction in Wordsworth's response to science. For while the speaker is both repelled and attracted by geometrical abstraction in Books II and VI and still insistent in the prologue of Book V that poetry and science are at best "twin hopes," in the Arab dream he introduces the prospect of an apocalyptic harmony of poetic utterance with a new kind of science. This shift may have originated in Wordsworth's transformation of the earlier opposition of science to poetry into a broader consideration of what knowledge is and whether it can be contained in books. Manuscript evidence suggests moreover that this topic was important to his emerging conception of the theme of *The Prelude* when he returned to the poem in early 1804. As Mark Reed has noted, manuscripts W and WW, which contain versions of materials later incorporated into Book V, reveal Wordsworth's preoccupation with "the complexity and ironies of the relations between the physical word, personal identity, intellectual construction, and vital or creative being."[57] Four years later, Wordsworth returned to the theme of experimental science and knowledge in composing the manuscript for his 1809 political tract *The Convention of Cintra*.

[54] *Poetical Works*, 4:57.

[55] "Wordsworth and 'Natural Science': The Poetry of 1798," *JEGP* 77 (April 1978):232–46.

[56] *Preface to the Lyrical Ballads*, in *Prose Works*, 1:140. For the 1802 text see *Literary Criticism of William Wordsworth*, ed. Paul M. Zall (Lincoln: Univ. of Nebraska Press, 1966), pp. 51–52.

[57] *Wordsworth: The Chronology of the Middle Years* (Cambridge, Mass.: Harvard Univ. Press, 1975), p. 644. Wordsworth had begun to consider possible relations between books, power, and natural objects by 1798. All three terms appear in "Michael" (lines 27–30), first published in the first edition of the *Lyrical Ballads*. See *Poetical Works*, 5 vols. (1952), 2:81.

In a section that was deleted from the published version of this tract, Wordsworth discusses the nature of knowledge and its self-preservation. Here he criticizes contemporary "experimentalists" whose "natural science" delivers "products" which are "not even gifted with the power of self-preservation."[58] If we recall that four years earlier the speaker of the prologue of Book V could not even be certain that products of poetry would be preserved from future cataclysm, the new certainty of this 1809 statement echoes the lesson implicit in the metonymic strategies of the Arab dream. Only the knowledge which can re-create its forms for its life will be preserved from destruction. Earlier in the same deleted section of *The Convention of Cintra,* Wordsworth specifies the historical relation between knowledge and power in Baconian science:

> Lord Bacon two hundred years ago announced that knowledge was power and strenuously recommended the process of experiment and induction for attainment of knowledge. But the mind of this Philosopher was comprehensive and sublime and must have had intimate communion of the truth of which the experimentalists who deem themselves his disciples are for the most part ignorant viz, that knowledge of facts conferring power over the combinations of things in the material world has no determinate connection with power over the faculties of the mind.[59]

Unlike De Quincey, who was later to argue that the literature of knowledge (science) was distinct from the literature of power (poetry or imagination),[60] here Wordsworth invokes Bacon's use of both terms to suggest that the shortcomings of contemporary scientific practice were to be found in its failure to comprehend what Bacon had proposed as the foundation of scientific experiment. Like some of his predecessors and contemporaries,[61] then, Wordsworth was as willing to consider how

[58]*The Convention of Cintra,* in *Prose Works,* 1:324-25n. DeQuincey saw the manuscript of this pamphlet through the press (Owen and Smyser, Introduction, *Prose Works,* 2:218-20), but never commented directly on the differences between its discussion of knowledge and power and his own. For an analysis of Wordsworth's use of the term *power* in a number of contexts, see Owen, *Wordsworth as Critic* (Toronto: Toronto Univ. Press, 1969), pp. 198-228.

[59]*Prose Works,* 2:324n.

[60]"The Poetry of Pope," in *Collected Writings,* 11:55-56.

[61]For a useful summary of eighteenth-century attitudes toward science, see G. S. Rousseau's essay, "Science," in *The Eighteenth Century,* ed. Pat Rogers (New York: Holmes and Meier, 1978), pp. 153-207; Marjorie Nicholson's *Newton Demands the Muse* (Princeton: Princeton Univ. Press, 1946) discusses the poet's response to Newton's *Opticks*; in *Science and Imagination* (Ithaca: Cornell Univ. Press, 1956). Nicolson considers specific responses to the new astronomy, the telescope, and the microscope. Of special interest in this collection is an essay on Swift's view of science in *Voyage to Laputa,* pp. 110-54. Nicolson and Rousseau survey relations between Alexander Pope and the sciences in *This Long Disease, My Life* (Princeton: Princeton Univ. Press, 1968).

modern science might improve as he was to chastise it for having debased the principles to which it owed its origins. Even as a much older man, he continued to speculate that poetry and science might or ought to be related. In the 1830s he discussed the topic with the eminent Irish mathematician Sir William Rowan Hamilton, to whom Wordsworth deplored his early lack of application to the study of mathematics.[62] Thirty years later, however, Matthew Arnold's influential "Literature and Science" echoed not Wordsworth's mature though unpublished consideration of knowledge and power, but De Quincey's categorical opposition between the two.[63] Arnold's essay thus hardened into dogma an opposition between science and literature which owed much to De Quincey, but little to what Wordsworth had in fact argued in 1809.

Like Blakean contraries, the two poles of Wordsworth's response to science in Book V of the 1805 *Prelude* are antagonistic yet complementary. The prologue looks backward to the rigid opposition between science and poetry that had characterized Wordsworth's earlier view, but the Arab dream announces the prophetic vision that informs his later consideration of science. Yet this second response also depends on his earlier recognition of what had not sufficed in traditional science and knowledge, even as the projective capacity of the shell as a new kind of knowledge has its foundation in the traditional knowledge of the stone. Moreover, both are essential to the Romantic conception of what science had been and what it might yet become.

[62]Moorman, 2:437-39 and 442.

[63]"Literature and Science," in *Poetry and Criticism of Matthew Arnold,* ed. A. Dwight Culler (Boston: Houghton Mifflin, 1961), pp. 381-96 and 575-76n.