

# The Beauty of Reasoning: A Reexamination of Hypatia of Alexandria

Bryan J. Whitfield

## *The Beauty of Reasoning*

No handiwork of Callimachus,  
Who handled marble as if it were bronze,  
Made draperies that seemed to rise  
When sea-wind swept the corner, stands.

The vagaries of war, decay, accident, and time have effaced more than the handiwork of Callimachus, as W. B. Yeats (1962, p. 159) well knew. As invaders put old civilizations to the sword and their manuscripts to the fire, they destroyed as well the work of countless mathematicians. The contributions of Hypatia, the most famous woman mathematician of antiquity, must unfortunately be counted among that number. The lexicographers record that she produced commentaries on the algebra of Diophantus, the conics of Apollonius, as well as a work entitled *The Astronomical Canon*. Letters from her students document her ability to construct devices like the hydroscope (hydrometer) and the astrolabe. But no record from her own hand remains.

This silence, so emblematic of the contributions of women to mathematics, is poignant enough, but Hypatia's tragic murder in the mob violence of 415 exemplifies in the extreme the marginalization of female mathematicians. But Hypatia has suffered a fate worse than neglect; she has become a symbol.

In attempts to explain complicated cultural transitions, historians and cultural anthropologists sometimes utilize specific persons as bearers of a culture or as emblems of cultures in conflict. To the degree these portraits elucidate the conflicts they narrate, they are justifiable and perhaps unavoidable. The dangers, however, are at least two-fold. Such narratives can oversimplify and thereby distort history, and they can overtake and obscure the lives they utilize as vehicles or symbols of a culture. In creating the metanarrative or grand narrative, the narratives of the individual lives, or small narratives, with all of their rich particularity, are deformed (Lyotard, 1979).

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This process of symbolization, unfortunately, has too often resulted in such distortion of Hypatia's contributions: her mutilation in the streets of Alexandria has generated a continuing violence at the hands of numerous historians. From the sixth-century writings of Damascius to more recent writers like Charles Kingsley, Edward Gibbon, and Carl Sagan, the tragedy of Hypatia's death has been used as an occasion for a miscreant euhemerization that falsifies historical fact, at best in the service of a larger narrative, at worst in the service of propaganda. These tendentious historians present Hypatia as a noble pagan martyr, a sacrificial virgin murdered at the instigation of Cyril, the evil Christian bishop of Alexandria, for her refusal to abandon the religion of the Greeks. She becomes the embodiment of Hellenism destroyed by the onslaught of mindless Christianity, the epitome of the end of the wisdom of the ancients.

This rendering of Hypatia's death may be high drama, but it is poor history that does a disservice to Hypatia's real contributions and ignores the continuation of the Alexandrian philosophical tradition after her death. Examination of her significance must begin, therefore, with a refutation of this idealized portrait and then continue with a development of her life and work using more reliable historical sources as well as legitimate inferences that may be drawn from the intellectual and cultural context in which she lived.

## *Unraveling Polemical Knots*

Attempts to use the death of Hypatia for polemical ends began with the work of the Athenian scholar Damascius, the last head of the *Academy* before it was closed by Justinian. He wrote in exile, as one of the last of the pagans, and was anxious to exploit the scandal of Hypatia's death. Consequently, he placed responsibility for her death in the hands of Cyril's men so that readers would picture her as the martyr of Hellenism, comparable to the heroized Emperor Julian, who had sought to restore paganism as the religion of the empire and was reportedly killed by a traitorous Christian (Lacombrade, 1978; Chuvin, 1990). But the death of Julian qualifies as "martyrdom" even less than does that of Hypatia.

Damascius's views were influential in antiquity; they served as the basis of much of the information in the Byzantine lexicon-encyclopedia known as the *Suda* that

strongly influenced later assessments of the death of Hypatia. Damascius may also have influenced the other Byzantine sources of information about her, including the works of Photius, Johannes Malalas, and Nicephorus Callistus (Ogilvie, 1986; Lacombrade, 1978).

But the prejudiced stylization of Hypatia was not limited to Byzantine historians. Like his Athenian counterpart, the English historian Edward Gibbon was intent on vilifying Cyril. He began his account of Hypatia's death with the remark that the bishop "soon prompted, or accepted, the sacrifice of a virgin" (Gibbon, 1946, p. 1562). Throughout his narrative, Gibbon was careful to heighten the conflict between the chaste Hypatia and the passionate Cyril, who among his other faults, "beheld, with a jealous eye, the gorgeous train of horses and slaves who crowded the door of her academy" (Gibbon, 1946, p. 1562).

In his account of Hypatia's death, Gibbon cited as his source the ecclesiastical historian Socrates, Hypatia's contemporary. But Gibbon's principal source was not Socrates, but the lexicographical account of the *Suda* (or *Suidas*), a tenth-or eleventh-century Byzantine lexicon that relied on Damascius's account. Even in his selection of source material, Gibbon's polemic, like that of Damascius, was apparent. The very title of his voluminous history indicated that his paradigm was one of declension. Gibbon wrote a history in which the intellect of Hellenism and the emotionalism of Christianity were inextricably opposed; indeed, he viewed "the transition from ancient philosopher to Christian monk as the epitome of the 'decline and fall' in the ancient civilization" (Shiel, 1968, p. 112). As a result, he injected his polemical views about the conflict between paganism and Christianity into his rendering of the history of Hypatia. The contrasting treatment of the bloodthirsty Cyril and the wise Hypatia provided for him one in a series of cameo portraits that illustrated the larger conflict between the two opposing cultures. Hypatia's death was for him simply an occasion for furthering his polemic against the rise of Christendom.

If historians like Damascius and Gibbon were anxious to use Hypatia's death for anti-Christian polemic, others were anxious to use the murder for their own sectarian purposes. Given these previous attacks against Cyril, the story of Hypatia became an easy vehicle for Protestant polemic against the Catholicism the bishop came to embody. In the eighteenth century, John Toland, a contemporary of Gibbon, wrote an anticlerical panegyric on Hypatia entitled *Hypatia: Or the history of a most beautiful, most vertuous, most learned, and every way accomplish'd lady; who was torn to pieces by the clergy of Alexandria, to*

*gratify the pride, emulation, and cruelty of their archbishop, commonly but undeservedly stil'd St. Cyril* (Ogilvie, 1986). Over a hundred years later, the nineteenth-century English fiction writer Charles Kingsley continued this anti-Catholic polemic in his lengthy novel, *Hypatia, or New Foes with an Old Face* (Kingsley, 1853). These new foes were those of the circle of John Henry Newman, whose conversion to Catholicism made him the target of

Kingsley's continued criticism. Kingsley campaigned against Catholicism both in the press and by means of his fiction (Trevor, 1963). Thus this novel revealed more about Kingsley's peculiar views than it did about the historical Hypatia, who cer-

tainly bore little resemblance to the novel's helpless, pretentious, and erotic heroine (Snyder, 1989; Rist, 1965).

But while Kingsley's fiction probably represents the apogee of the polemical use of the story of Hypatia, her legacy has fared little better in the present century. In particular, in the most widely disseminated account of Hypatia's death, Carl Sagan draws a vivid portrait of Hypatia, but he, like Damascius and Gibbon before him, heightens the contrast between Cyril and Hypatia as the exemplars of Christian passion and irrationality triumphing over the bravery, chasteness, and wisdom of Hellenism:

Hypatia stood at the epicenter of these mighty social forces. Cyril, the Archbishop of Alexandria, despised her because of her close friendship with the Roman governor, and because she was a symbol of learning and science, which were largely identified by the early Church with paganism. In great personal danger, she continued to teach and publish, until, in the year 415, on her way to work she was set upon by a fanatical mob of Cyril's parishioners. They dragged her from her chariot, tore off her clothes, and, armed with abalone shells, flayed her flesh from her bones. Her remains were burned, her works obliterated, her name forgotten. Cyril was made a saint. (Sagan, 1980, pp. 335-336).

Unfortunately, Hypatia fares little better even in textbooks of the history of mathematics. Burton (1985) records that Hypatia "took part in the last attempt to oppose the Christian religion. As a living symbol of the old culture, she was destined to be a pawn in a struggle for political mastery of Alexandria" (p. 242). Although he is careful to avoid a polemic against Cyril and rightly attributes Hypatia's death to mob violence, he still insists on drawing Hypatia as a representative of paganism in opposition to an increasingly powerful Christianity. In this struggle, she is "a pawn," "a living symbol." And to that extent, she has

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## The death of Hypatia has been used for polemical ends.

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lost her particularity. As her identity was physically taken from her on the streets of Alexandria, it continues to be wrested away in service of another narrative. But such action does violence both to Hypatia and to the complex history of the relationships between Christianity and Hellenism.

### ***Reconnecting Threads***

Whenever I look upon you and your words,  
I pay reverence,  
As I look upon the heavenly home of the virgin.  
For your concerns are directed at the heavens,  
Revered Hypatia, you who are yourself the beauty  
of reasoning,  
The immaculate star of wise learning.  
(Palladas, quoted in Snyder, 1989, p. 120).

Given this continuing deformation of the legacy of Hypatia, a reconstruction of her life and work using more reliable historical sources as well as information about her intellectual and cultural context becomes vital. As Rist (1965) insists, “From imagination and the emotional backwash of history we must turn to facts” (p. 215). The account of the church historian Socrates, a contemporary of Hypatia’s, proves particularly significant for this task as a more objective ancient source than Damascius. In addition, some information from the *Suda* lexicon, if carefully analyzed, also yields useful information. Most significant of all, however, are the letters and writings of Hypatia’s student, Synesius of Cyrene.

Examination of these sources as well as consideration of the intellectual and cultural context in which Hypatia lived reveals at least three areas that call for revision of the traditional historiography presented above. The usual discussions of Hypatia’s death are deficient in at least three ways: they overstate the role of Cyril in Hypatia’s death, they ignore the continuation of Alexandrian Neoplatonism after 415, and they misrepresent Hypatia as an opponent of Christianity.

The role of Cyril, archbishop of Alexandria, in Hypatia’s death has been central to the polemic of writers like Gibbon and Kingsley. The claim of the archbishop’s direct involvement allows these writers to depict him as an emblem of a Christianity full of passion rather than intellect, as a symbol whose contrasts with Hypatia can be drawn sharply. But examination of more unbiased sources reveals that the immediate involvement of Cyril in Hypatia’s death is not clear. Even the writer of the *Suda* was aware

of variations in his sources: Hypatia “suffered such treatment on account of envy and because of her superior wisdom, especially in the area of astronomy; some say the envy was on the part of Cyril, while others claim that these events took place on account of the innate rashness and proclivity towards sedition among the Alexandrians” (quoted in Snyder, 1989, pp. 115-116).

More significantly, Socrates sets the episode of Hypatia’s death within the broader context of Alexandrian civil unrest. In the two chapters of his history that precede his account of Hypatia, he describes a series of events with two interwoven strands: mounting mob violence and a growing rift between Cyril and Orestes, prefect of Alexandria (Socrates, 1952; see also the summary in Chuvin, 1990).

In his introduction to these two chapters, Socrates notes that the “Alexandrian public is more delighted with tumult than any other people; and if at any time it should find a pretext, breaks forth into the most intolerable excesses; for it never ceases from its turbulence without bloodshed” (Socrates, 1952, p. 159). In his recent history of Egypt, Alan Bowman confirms that, from the end of the third century, the history of Alexandria is one of recurrent violence, in part due to the pluralism of the city. There had been violence against the Jews even since the time of Philo. But with the rise of Christianity, the most common antagonists were the pagans and the Christians. This continuing history of conflict gave rise to repeated episodes of violence that both eroded social hierarchies and destroyed cultural monuments. The mobs of Alexandria vandalized the Serapeum in 391, when Hypatia was in her early twenties (Bowman, 1986). Repeated violence created a volatile atmosphere in which mob action could easily be incited, whatever the cause, real or imaginary (Bowman, 1986).

In this context, a dispute between Jews and Christians over the theater escalated into street violence against Christians. In retaliation, Cyril led an equally violent campaign that forced the Jews out of the city. This expulsion (and loss of population) enraged the prefect

Orestes, who regarded this episode as the most grievous in a series of encroachments on his authority (Socrates, 1952).

In response to this mounting conflict between Orestes and Cyril, five hundred of the zealous monks of Nitria left their monasteries for Alexandria and sought to stone Orestes. Despite the prefect’s protestations that he was a baptized Christian, a monk named Ammonius struck him on the head. But the prefect was rescued, the culprit

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arrested, and the remaining monks put to flight. For this attack, Ammonius was tortured and put to death. Cyril then took the monk's body to lie in state, so that he could receive the adoration of the faithful as a martyr. As a result, the rift between the civil and ecclesiastical powers continued to widen.

Given this conflict, rumors spread that Hypatia, who frequently met with Orestes, was an obstacle to the reconciliation of Cyril and the prefect. These rumors incited the mob violence that ended in her murder. But, as Socrates carefully summaries, she fell "a victim to the political jealousy which at that time prevailed" (Socrates, 1952, p. 160). Significantly, the conflict was not one between pagan and Christian officials, but between two Christians. Suggestively, when attacked by the monks of Nitria, Orestes protested that he had been baptized by the bishop of Constantinople. But in the early fifth century, the bishops of Constantinople and Alexandria represented two strongly opposed schools of theology, an opposition culminating in Cyril's denunciation of Nestorius a few years after Hypatia's death. Therefore, although it was not without its ideological overtones, the conflict between Cyril and Orestes was not over differing stances toward Hellenism. Consequently, it is disingenuous at best to suggest that Hypatia's opposition to Christianity results in her death. Furthermore, although Cyril cannot be completely absolved from responsibility, given his inflammatory actions and influence over the Christian populace, there is little evidence that connects him directly with Hypatia's death.

But careful historical research reveals a second flaw in the polemical reduction of Hypatia to the symbol of a dying paganism, the last flower of Hellas. In the tradition of Gibbon, Bertrand Russell dramatically concluded his narration of Hypatia's death: "after this Alexandria was no longer troubled by philosophers" (Russell, 1946, p. 387). But, as Rist (1965) and Évrard (1977) have demonstrated, the Alexandrian philosophical tradition did continue, whatever the "fine polemic" of Gibbon and Russell. The contributions of Hierocles, including both accounts of his work in Photius and his commentary on the *Carmen Aureum*, document the continuation of Neoplatonism at Alexandria after Hypatia's death (Rist, 1965). Most significantly, the contributions of Hierocles and his successors Ammonius, John Philopon, and Olympiodorus have provided scholars a basis for distinguishing a distinct Alexandrian school of Neoplatonism, of which Hypatia is the first representative (Évrard, 1977). Not all of these successors were Hellenes, to be sure. But Alexandrian Christianity had strong philosophical interests from the

time of Clement and Origen in the second century, and, despite the impression those who concentrate on Cyril might give, it continued throughout its history to include among its number many with philosophical interests, including Synesius of Cyrene.

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Synesius was a student of Hypatia's whose extant writings provide additional insight into her attitudes toward Christianity and cast further doubt on the validity of her participation in "the last attempt to oppose the Christian religion" (Burton, 1985, p. 242). Careful examination of Synesius's work suggests that, while Hypatia was no Christian, neither was she engaged in anti-Christian propaganda. Although Synesius was not a Christian during his student years at Alexandria, other students of Hypatia, possibly including Isidore of Pelusium, were (Bregman, 1982, p. 24), and her circle of influence included government leaders who were Christians, like Orestes. Furthermore, while Rist (1965) cites Alexander's content study of Synesius's letters in support of his view that Hypatia taught a very traditional Platonism, Bregman's (1982) examination of all of Synesius's writing, including his poetry, suggests that Hypatia taught a non-theurgic Porphyrian variety of Neoplatonism. The Porphyrian strain of Neoplatonism was particularly palatable to Christians, and in contradistinction to the Iamblichian version, did not give the cultic practices of Hellenism a central place. Many adherents of this Porphyrian school, in fact, easily made their way from philosophy to Christianity (Bregman, 1982). Thus, although Synesius can speak of Hypatia as "then genuine leader of the rites of philosophy" in Alexandria (Letter 137), he does not imply her oversight of a cultus. Rather, as Bregman (1982) summarizes: Hypatia "taught in a confessionally neutral atmosphere which was neither particularly hostile to Christianity nor dependent upon a sacerdotal paganism" (p. 24). Two actions of Theophilus, Cyril's predecessor as bishop of Alexandria, underscore the neutrality of Hypatia's school. He eagerly sought Synesius's elevation to the bishopric despite the Cyrenian's dogmatic reservations (Bregman, 1982), and despite his suppression of pagan practices, he tolerated the continued existence of Hypatia's school (Bregman, 1982; Évrard, 1977).

The writings of Damascius, preserved also in the account of the *Suda*, contain yet another reason for Hypatia's acceptance among some Christian circles. Hypatia's method of teaching resembled that of the Cynic preachers (Évrard, 1977; Rist, 1965), and she wore the tribon, the virtual uniform of the Cynic preacher (Rist, 1965). The *Suda* further reveals that she used Cynic invective and the

object lesson of a used feminine napkin to dissuade an erstwhile suitor (Rist, 1965). The Christians of the fourth and fifth centuries tolerated Cynics more than any other variety of Hellenistic philosophy and often shared their asceticism (Chuvin, 1990; Évrard, 1977; Rist, 1965).

This characterization of Hypatia as a Cynic preacher, as well as the overtones of Porphyrianism in Synesius's writing, argues against her support of a militant paganism like that of Julian. She appears rather as the center of an eclectic school, drawn from all quarters and religions of the empire, tolerated even in periods when other pagan practices were suppressed. She cannot therefore honestly be represented as a martyr of Hellenism. Her death must rather be seen as a tragic outcome of mob violence set against the political conflict of Alexandria. Doubtless her Hellenism and her gender, as well as her visibility and brilliance, made her more vulnerable to assault. But however analyzed, there always remains something of the inexplicable in the eruption of mob violence, which lies beyond the reason and the reasoning whose beauty Hypatia embodied.

### *Weaving Mathematical Intersections*

Isidore was much different from Hypatia, not only as a man differs from a woman, but also as a real philosopher differs from a woman who knows geometry.

Philosophy was not Hypatia's only field of study. In fact, it was for her mathematics as much as for her philosophy that she became famous. But the union of these fields of study was certainly not improbable; any Neoplatonist who "looked at the heavens" would unite the study of mathematics and astronomy to that of metaphysics, for Neoplatonism rooted rational concerns in a mystical reality (Lacombrade, 1978; Bregman, 1982). Despite Damascius's polemic in his *Life of Isidore*, real philosophers in no way despised mathematical study.

But the reconstruction of Hypatia's mathematical interests and contributions prove more problematic than a reconstruction of her philosophical position. The letters of Synesius reveal that he studied mathematics and astronomy as well as philosophy under Hypatia's guidance, and they document her facility with scientific instruments like the astrolabe and hydroscope. But the philosopher-bishop was no mathematician. His letters and poems provide inferences for reconstructing Hypatia's Neoplatonic philosophy, but they do not provide significant information about her mathematical activity. Furthermore, while the writings of Hypatia's philo-

sophical successors like Hierocles shed light on her contributions to Neoplatonism, there are no extant works of her mathematical successors. While Hypatia's death did not mean the end of philosophy in Alexandria, pace Bertrand Russell (1946), it did augur the passing of Alexandrian mathematics (Burton, 1985; Loria, 1929).

Consequently the contributions of Hypatia's father Theon and the references to the titles of her work in the *Suda* are the only solid historical foundations for reconstructing Hypatia's mathematical interests. Yet even these marginal sources are not without value.

The extant work of Theon includes the first three books of his commentary on Ptolemy's *Almagest* and his edition and revision of Euclid's *Elements* (Burton, 1985; Loria, 1929). From her father, Hypatia would have learned the treasures of the first and second Alexandrian schools of mathematics, doubtless including a sound foundation in the geometry of Euclid. Some secondary sources speculate that she, in fact, was a co-editor of the *Elements* (Alic, 1986).

Through her study of Ptolemaic astronomy, Hypatia would have also been familiar with sexagesimal fractions and the involved mathematics of epicycles and chords of angles (Burton, 1985). Again, there exists speculation that Hypatia may have written parts of Theon's commentary on the *Almagest* (Alic, 1986; Ogilvie, 1986). The *Suda*'s documentation that she wrote a volume entitled *The Astronomical Canon* may indicate that she furthered her father's study and delved more deeply into these areas of mathematics than he did. While some scholars believe *The Astronomical Canon* was simply a collection of astronomical tables, others consider it to have been a commentary on Ptolemy (Burton, 1985; Rist, 1965). Furthermore, the *Suda*'s account claims Hypatia excelled her father in astronomy (Richeson, 1940). In any case, her knowledge in these areas of mathematics would have been well grounded.

In addition, the *Suda*'s note about the titles of Hypatia's

work is not without value, for while Hypatia's commentaries have been lost, portions of the works upon which she expounded are still extant: the *Conics* of Apollonius and the *Arithmetica* of

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## Hypatia was familiar with both algebraic and geometric representations of higher-order equations.

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Diophantus. Both works treat representations of higher-order equations, but while Apollonius's approach is geometric, Diophantus's is algebraic. Thus Hypatia was familiar with both algebraic and geometric representations of higher-order equations.

The *Conics* of Apollonius are considered among the most difficult mathematical works of antiquity. A native

of Perga, Apollonius taught at the Museum in Alexandria in the third century B.C.E. Of the eight original books of the Conics, only the first four are preserved in Greek. Books Five through Seven are known only in Arabic translation, and only fragments of Book Eight remain (Toomer, 1972; Loria, 1929). Apollonius's investigation of conics built on that of Euclid (now lost), and treated tangents to conics, asymptotes and foci, and the harmonic properties of conic sections. In addition, Apollonius proved theorems related to the maximum and minimum segments from a given point to a given conic. Most importantly, perhaps, he treated in Book IV the intersections of various conics and the conditions necessary and sufficient for the existence of solutions to these intersections, known as the problems of *diorismoi*. Apollonius's work laid the foundations for much of what was later to become known as projective geometry (Gow, 1884; Heath, 1931; Hogendijk, 1985; Loria, 1929).

Like Apollonius, Diophantus lived and taught in Alexandria, but in the mid-third century C.E., the second great period of Alexandrian mathematics. His *Arithmetica* represented an advance from previous algebraic works. The first significant improvement was in notation: Diophantus developed a stenographic shorthand for unknowns and powers, thus creating a syncopated algebra that proved a critical advance over the rhetorical algebra of earlier mathematicians. Diophantus's second contribution was his treatment of determinate and indeterminate equations up to the sixth degree (Burton, 1985; Heath, 1931; Gow, 1884; Klein, 1968; Loria, 1929; Swift, 1956). Thus he provided an algebraic treatment of the problems of *diorismoi* that Apollonius had explored geometrically six centuries before. Unfortunately, Diophantus proposed no single, unified method of problem solving. Instead, he used "artifices and devices that best fit the particular problem" (Cohen, 1948, p. 25). Thus his methods varied from case to case; he provided no systematic approach to the solution of systems of equations (Burton, 1985). Though ingenious, his methods did not possess the power that a more synthetic approach would have yielded. Nonetheless, his solution of various types of determinate and indeterminate equations for rational values was to prove a significant step in overcoming the centuries-old Greek abandonment of algebra for geometry due to the crisis of the incommensurables. As such, his contributions meant that his successors, including Hypatia, would be *both* algebraists and geometers.

It is this emerging facility in both algebra and geometry

that proves suggestive for the mathematics of Hypatia. Two other Alexandrian mathematicians, Heron and Pappus, were the first to adopt algebraic methods of proving the Euclidean propositions of Book II of the *Elements* (Heath, 1956). This transition from geometric to algebraic proof is intriguing: for while Heron lived in the first century, Pappus lived in the fourth, and was therefore a close predecessor of Theon and Hypatia. As editor and

student, or perhaps, co-editors of the *Elements*, these later Alexandrians would have known the work of Heron and Pappus well. Given these models and the further contributions of

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Diophantus, Hypatia's commentary on Apollonius may well have included similar algebraic methods of proving theorems about conic sections, building in particular on the work of Pappus, who had also written a commentary on Apollonius. In any case, the Alexandrian mathematicians of the fourth and fifth centuries were clearly developing a multirepresentational mathematics that utilized both algebra and geometry to solve systems of higher-order equations. As the last heir of this legacy, Hypatia both utilized and extended their advances. Although her work was lost, the tradition within which she worked and the texts on which she commented proved to be the precise basis for the next major advance in the history of mathematics. When Viète and Fermat began to explore the conic sections in the seventeenth century, the texts of both Apollonius and Diophantus proved vital (Toomer, 1972; Vogel, 1972). It was not until twelve centuries had passed that mathematicians were again to explore the connections that Hypatia had made.

### Conclusion

We knew for long the mansion's look  
 And what we said of it became  
 A part of what it is . . . Children,  
 Still weaving budded aureoles,  
 Will speak our speech and never know.

Further conclusions about the mathematics of Hypatia must remain in the realm of conjecture. Like many other ancient mathematicians, a complete assessment of her contributions remains beyond historical determination. But the historian ought not to reduce her to symbol, the virginal emblem of a dying paganism. To insist on her historical particularity is to begin to recover a sense of the richness that was her life. Her contributions to a perduring tradition of Alexandrian philosophy and her exploration

and possible extension of the most advanced mathematics of antiquity deserve careful treatment; emblematic euhemerization will not suffice.

But despite the caprice of history, there is a final, more positive word. For if Wallace Stevens's (1967, p. 127) poetic reminder that the language of the past shapes the perception of future generations holds true for mathematical language as well, then there remains a sense in which Hypatia's contributions remain a significant part of our cultural deposit, despite the loss of her work and the frequent polemical use of her story. Indeed, whenever high school students struggle with algebraic representations of conic sections and their intersections, they are, even without knowing it, speaking her language. It is time the historians begin to do so as well.

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