

Stoppard's *Arcadia*

David Guaspari

In Tom Stoppard's plays ideas can just as much be objects of aesthetic perception and delight as can sunsets or roses. Ideas can be elegant; they can seduce, tease, or strike comic poses; they can rhyme and be set ringing at selected overtones. From ideas thus at play we ask what we ask of any imaginative use of language, inevitability and surprise.

One of Stoppard's favorite ideas is that "All men desire to know" both in the sense Aristotle intended and, as we say, in the Biblical sense—and that these desires are twins. (Aristotle's teacher's teacher reputedly said that a genuine philosopher must have a hunger for truth that is erotic.) The tragicomic pursuit of knowing and knowing—the hope that it can, at times, temporarily, succeed—makes Stoppard's world go 'round.

Thus the central character of *Jumpers*, George Moore, spends the play composing and rehearsing a half-noble/half-batty philosophy lecture in defense of his desperate conviction that good and bad are real and that the difference between them matters, however ridiculous that opinion makes him look and however the flourishing of the wicked seems to contradict it. Adultery, cynicism, madness, murder, none of these shake his faith: He believes in reason despite, if not quite because of, its absurdity.

And thus Dorothy Moore to George, her present husband and former teacher: "[S]o our tutorials descended from the metaphysical to the merely physical . . . not so much down to earth as down to the carpet [...] while you were still comparing knowledge in the sense of having-experience-of with knowledge in the sense of being-acquainted-with, and knowledge in the sense of inferring facts with knowledge in the sense of comprehending truths, and all the time as you got more and more acquainted with, though no more comprehending of, the symbolic patterns on my persian carpet, it was knowing in the biblical sense of screwing that you were learning about and maybe there's a book in you yet . . ."

Arcadia begins with a glancing comic statement of this theme. It is the morning of April 10, 1809, at the manor of Sidley Park. The young tutor Septimus Hodge has set his 13-year-old pupil, Lady Thomasina Coverly, a problem in algebra. (To keep her fully occupied, we later learn, he has asked her to prove Fermat's Last Theorem.) The curtain rises on a large room looking onto the garden, with teacher and student absorbed in their studies—separately, until Thomasina looks up from her lesson book to ask, "Septimus, what is carnal embrace?" Septimus is used to being put on the spot: "Carnal embrace is the

practice of throwing one's arms around a side of beef."

Thomasina will persist with this enquiry and with her algebra, but the ruling art of *Arcadia* is history. The play interleaves two stories about the same family (Thomasina's), set in the same room of the same house, at different times (the early 19th century and the present). Each proceeds in strict chronological sequence but they intertwine in many ways. The same objects pass through the hands of both sets of characters, though things new in the 19th century are old and worn in the 20th. Each story maintains a ghostly presence in the other—anachronistic props are not removed when the scene shifts between past and present but become honorarily invisible—yet all the conventional rules of time and cause are scrupulously obeyed. The one sly wink at these rules is telling: Septimus eats an apple picked "earlier" in the 20th century—an emblem of knowing and knowing, an echo of Newton's apple and the apple in the Garden of Eden.

Until the play's finale these two stories alternate. Then they race along side by side, with all the characters in Regency costume (the moderns are attending an offstage fancy dress ball) and the dialogue so intertwined that speeches seem to respond to one another across the years. The shared objects become, as the stage directions say, "doubled by time," so that a modern character may be reading an aged manuscript even as we see its author inspect the fresh original. Just as a single object can become twinned, so can the members of a seeming pair untwin: The finale is staged so as temporarily to confuse 19th century Augustus Coverly with 20th century Gus, boys of the same age played by the same actor.

Twinning and un-twinning playfully pose riddles about identity and its persistence through time, about what a self is and how one knows it. The pet tortoises of Septimus (called Plautus) and of 20th-century Valentine (Lightning) form another twinned pair. Plautus and Lightning are played by the same piece of taxidermy; and one tortoise is certainly the functional and moral equivalent of any another. It seems that they are two rather than one only by the arbitrary accident of existing at different times.

The fretwork of connections linking the two stories provides a formal scaffold for the play's real action, which consists of a dialogue between them. The surface of the 19th-century story ("Thomasina's" for short) is a classical comedy: cuckolds and carnal embraces, challenges to duel, abscondings in the night, chains of unrequited amours (X pursuing Y pursuing Z . . .), unintended encounters at the thresholds of bedroom doors—all taking place offstage and known to the audience by hearsay alone. Little of what we believe is actually seen. These frantic doings whirl about the richer but less externally eventful story of Thomasina herself, which is largely the journey of her thoughts.

The modern story is propelled by the attempts of two quite different scholars, Hannah Jarvis and Bernard Nightingale, to reconstruct Thomasina's story—to interpret the miscellany of messages (letters, books, palimpsests) that the past leaves unthinkingly in their way. Their historical speculations often leapfrog what we've seen of or can deduce from Thomasina's story, as though summoning that story into being. Thus summoned it responds first by unfolding—typically

to point out comic errors in attempts to predict the past—and then by volleying back chance relics that the future may seize upon either to correct itself or, equally likely, to heap higher its folly.

Within this 2-ring circus Stoppard the virtuoso deploys some of his favorite forms and devices—the detective story, the lecture, multiple plots, misdirected dialogue (in which each participant misinterprets the remarks of the others based on the conversation he thinks he’s having, but the others in fact are not), verbal high-jinks, philosophical slapstick—and displays one of his most appealing virtues, the sheer desire to give pleasure. The resulting fireworks, the razzle-dazzle of allusions, are not mere in-games to flatter or reward attempts at commentary. What an attentive audience needs to know about the East India Company, or Fermat’s Last Theorem, or the second law of thermodynamics, or landscape gardening is there in the text, which may set some kind of record for the sheer amount of exposition worked in by way of jokes.

Arcadia’s elaborate patterns and highly wrought surface say, Pay attention: everything is connected; everything matters; anything might be a source of interest or delight. This amounts to a moral stance—the negation of a moral negation, an anti-nihilism asserting that the world can be looked upon and found good (which is not, of course, the same as being found pleasant).

If the play’s ruling art is history, its ruling mystery is time—especially, the fact that the past is both omnipresent and irrevocably, heartbreakingly lost—and the desperate human desire that time’s losses be annulled or overcome. Thomasina, fed up with a lesson in ancient history, complains about Cleopatra’s frivolous captivity to “love” in these terms:

But [...] the Egyptian noodle made carnal embrace with the enemy who burned the great library of Alexandria without so much as a fine for all that is overdue. Oh, Septimus!—can you bear it? All the lost plays of the Athenians! [...] How can we sleep for grief?

Thomasina may be a mere schoolgirl, but this is genuine feeling that we shouldn’t condescend to. (And note its cause: the Egyptian noodle has made knowing the death of knowing.) Septimus’s reply bears quoting at length.

By counting our stock. Seven plays from Aeschylus, seven from Sophocles, *nineteen* from Euripides, my lady! You should no more grieve for the rest than for a buckle lost from your first shoe, or for your lesson book which will be lost when you are old. We shed as we pick up, like travellers who must carry everything in their arms, and what we let fall will be picked up by those behind. The procession is very long and life is very short. We die on the march. But there is nothing outside the march so nothing can be lost to it. The missing plays of Sophocles will turn up piece by piece, or be written again in another language [...] Mathematical discoveries glimpsed and lost to view will have their time again [...]

Brilliant as this is, it’s a curious offer of comfort. If losses were indeed bookkeeping illusions, eventually balanced by entries elsewhere in the ledger,

whose wounds would become illusory or be healed thereby? Septimus, faced losses of his own, will eventually have to reconsider these opinions.

Thomasina's story takes place on three consecutive days in 1809 and one in 1812. Her mother Lady Croom presides at Sidley Park throughout. Lord Croom is known only by report, in particular the reports of rifles and fowling pieces, heard offstage, as he blazes away at small game. Resident when the play begins are Septimus; Mr. Noakes, a landscape architect; Ezra Chater, a dismal poet; his wife (never seen but much heard of); and Lady Croom's brother Captain Brice.

Alongside the frantic unseen action flow two steady streams: one of thought, Thomasina's lessons, and one of its opposite, Mr. Noakes's eager off-stage ravaging of the landscape—dredging, plowing, uprooting and replanting, razing and rebuilding, to bring the manor's grounds into line with the current fashion in unspoilt Nature. The lively witty lessons escape the confines of time and accident by reaching toward the past and the future, the causes and the possibilities of things. Noakes is merely an amiable buffoon. Fully of the moment and of his time, he is a perfect cliché and therefore a kind of anti-thought—which does not make him ineffective. Noakes will eventually transform Sidley Park, as we are reminded in the play's finale, when mortality looms and time becomes an enemy, and his Improved Newcomen Steam Pump thumps steadily in the background like a menacing metronome.

Lord Croom has hired Mr. Noakes despite his Lady's clear partiality to the carefully constructed natural paradise already existing at Sidley Park. Lady Croom thinks that the famous tag "*Et in Arcadia ego*" means "Here I am in Arcadia" and believes it to be an assessment of her own situation. Thomasina knows the correct translation, and Septimus supplies it as a commentary on Lord Croom's nonstop hunting: "Even in Arcadia, there am I"—where the "I" in question is death. These are the sole mentions of Arcadia in Thomasina's story. The two other references in the modern story echo them: one in sarcastic dismissal of muddle-headed ideas about Nature; the other (again packaged obliquely in a joke) alluding to the ambiguous *memento mori*.

Contemporary Sidley Park is occupied by the present Lord and Lady Croom; their children, Valentine, Chloe, and Gus Coverly; and a house guest, Hannah Jarvis. The wrinklies, as Chloe calls her parents, never appear and seem more suited to Thomasina's story—conventional comic aristocrats, full of arbitrary likes and dislikes arbitrarily acted upon.¹ Hannah, in her late 30s, is formidably confident, intelligent, and self-sufficient. She's doing research for a book about the "the whole Romantic sham," the "decline from thinking to feeling" manifest in the successive renovations of Sidley Park's grounds from classical order to "the Gothic novel expressed in landscape"—and neatly summed up in the person of the Sidley Park Hermit, a mysterious figure suspected of genius but clearly mad, who is induced or permitted to occupy the decorative hermitage with which Noakes replaces Lady Croom's gazebo. When first seen Hannah is paging

¹Occam's Razor might suggest that the present Lord and Lady Croom *are* the ones from Thomasina's story. Do not multiply twins unnecessarily.

through Mr. Noakes's sketchbook.

The children are, if not lost, then at least adrift. Valentine is in his late 20's and still, technically, a graduate student at Oxford. His younger sister Chloe has no obvious interests aside from sex. Gus, 15, is sweet, shy, and eerily intelligent but doesn't speak, having given up the practice at age 5.

In contrast to these parentless, teacherless children (Hannah doesn't teach and Bernard deplores having to) precocious Thomasina is passionate about everything and well aware of being brighter than everyone around her, with the possible (but not actual) exception of Septimus. We will come to suspect that she is a kind of genius. Septimus himself is well-educated (having just completed his mathematics studies at Cambridge), attractive (to Mrs. Chater and Lady Croom, for example), and easily intelligent enough to recognize Thomasina's gifts.

Thomasina's opening question was prompted by servants' gossip. Someone—Septimus, it turns out—had been seen in “carnal embrace” with Mrs. Chater on the preceding day. Intelligence about this gossip is soon followed by the entrance of Mr. Chater, who has challenged Septimus to a duel; by Septimus's deft, calming flattery of the absurd and vain Chater; and, somewhat later, by Chater's reissued challenge.

The modern story begins with the arrival of Bernard Nightingale, a red-brick academic on the make in all senses of the word. Bernard has found three letters in a book that came from Byron's library, a copy of Chater's *Couch of Eros*. We've seen two of them already—a warning from Mrs. Chater, and Chater's first challenge—and we've seen Septimus place them between the pages of what certainly looks like the book that Bernard has discovered. Bernard also has a theory: that the letters were addressed to Byron; that Byron killed Chater in the consequent duel (there is no further record of the man or his miserable poetry); and that this killing explains Byron's hitherto mysterious 2-year absence from England, which began shortly thereafter. Bernard hungers, erotically, for a scholarly coup.

With Bernard's theory the present leaps ahead of the observed past. We've not yet seen the original of Bernard's third letter, nor have we seen (so we believe) any evidence of Byron, let alone of how Septimus's book could have wound up in Byron's hands. The past will eventually catch up and volley: Old Lord Croom kept meticulous records of everything he shot. Valentine, whose research mines the game books of Sidley Park for statistical patterns, has known all along that Byron is mentioned in the entry of April 10, 1809, for shooting a hare. This is the only hard proof of Byron's presence and its very existence is a kind of double-bluff joke: the hare that Byron claimed was actually shot by Lord Augustus, Thomasina's brother, and if the shooting book had told the truth, the truth about Byron's presence would have been lost.

Arcadia rings just about every possible change on these rallies between the past and the present. In another, Thomasina proposes a characteristically original solution to the mystery surrounding Fermat's Last Theorem. She says that the tantalizing marginal note, found posthumously, in which Fermat claimed to

have discovered a proof was a joke meant to drive posterity mad.²

The past plays its role largely by playing jokes. When Hannah asks why none of Byron's extant letters supports Bernard's theory, Bernard spins a satirical fantasy about a "Platonic letter" to Septimus that corroborates the theory's every detail but concludes "P.S. Burn this." And then the past tops him: Lady Croom kicks Byron and the Chaters out of Sidley Park—she, on the way to Byron's bedroom, had discovered Mrs. Chater coming *from* it; and Byron leaves Septimus a farewell note, which Septimus, to show his own ardor for Lady Croom, burns unopened. It is surely the very letter Bernard imagines, except for being *non*-Platonic and a *disproof* of his thesis. This is a philosophical joke: We recognize the letter Bernard meant precisely because it so spectacularly fails all the criteria by which he defines it.

Bernard is history's stooge. He leaps recklessly whenever bait is dangled, dismisses Hannah's many cautionary objections, and can't restrain himself from announcing his historical "discovery" with a press barrage and an appearance on a talk show. The nakedness of his ambition is almost disarming. "If Bernard can stay ahead of getting the rug pulled out until he's dead," Hannah says, "he'll be a success." And Bernard *is* an impressive technician. The second thing we see him do is dazzling, an improvisation that parlays arcane knowledge about Thackeray's editorship of an obscure magazine, Thackeray's father's job, the East India Company, and the life of Thomas Love Peacock to conclude that a tantalizing letter about the hermit (to which Hannah had seen a reference) would probably be from Peacock to Thackeray, and would most likely be found in the East India Collection at Blackfriars. This is Bernard at his best. He is showing off but is also, for the moment, simply absorbed in doing something well; and it is the only bit of history that Bernard gets right.

Hannah will finally pull the rug out, with pleasure, in a letter to the *Times*. She finds proof in the Sidley Park garden book that Byron couldn't have killed Chater, because Chater did not die in 1809. Chater the poet turns out to be identical with history's only other recorded Chater (whom Bernard had already discovered) "a botanist who described a dwarf dahlia in Martinique, and died there after being bitten by a monkey." Chater the uniquely bad poet was twinned as a botanist not by time but by ignorance.

Bernard will try to salvage some loot from his debacle—two previously unknown essays and two new lines of poetry, all, he's certain, by Byron, "as sure as he shot that hare." His treasure is as counterfeit as the hare, but Bernard will no doubt be able to cash it in. The comeuppance teaches him nothing, as shown by his exit from the play with an airy dismissal of Hannah's scrupling over proof: "Publish!"

This is very very clever and might at first glance seem to "deconstruct" the past as essentially unknowable and historical materials as "text" to be construed as we please. But *Arcadia* negates these negations. "Why were these things saved?" asks Hannah, about a miscellany of books and papers that have

²Real life has added its own gloss. Shortly after *Arcadia* opened Andrew Wiles announced a proof of Fermat's Last Theorem and, with subsequent amendments, it now seems accepted as correct. Mathematical discoveries glimpsed and lost to view will have their time again.

survived from Thomasina's time. Her meaning is straightforward: Isn't it odd what people hang on to, and what chance preserves? But Stoppard provides her words from the vocabulary in which one might speak of a saving providence.

Providence is not in Hannah's line, yet she feels obliged to act as if it were. "It's wanting to know," she says, "that makes us matter. Otherwise we're going out the way we came in." Somewhere, she tells herself, is some piece of evidence that explains the hermit. She has only to find it. And if she can't? Hannah does not object to belief in God, but hopes devoutly for the absence of any afterlife, which would amount to little more than a chance to look up answers in the back of the book. "Better," she says, "to struggle on knowing that failure is final." The alternative is to be like Bernard, for whom truth is merely instrumental, a way to put points on the scholarly scoreboard. Bernard can gamble recklessly because he's playing with a depreciated currency. Hannah plays for higher stakes, and her gambles most definitely imply a reckoning. It is she who can see deeply enough to put Thomasina at the center of both stories.

Thomasina is the only character touched by time. The three year interlude in her story leaves the adults essentially unchanged while she grows from not-quite-14 to what her mother makes clear is a marriageable age, from a clever schoolgirl to a (still coltish) young woman of remarkable intellectual gifts. And the last moments of the play are the last of Thomasina's life, dreadful knowledge we creep up on reluctantly: learning first from Hannah that Thomasina died in a fire on the eve of her 17th birthday, then (if we've been paying attention) that three years have elapsed since the opening scene, that her birthday is imminent, and finally that we are witnessing the eve itself.

Time is also one of Thomasina's subjects. Ready to take on Newton himself, she has the ambitiousness of genius: How complete is Newtonian science? What escapes its net? These questions force themselves forward as she returns repeatedly to puzzles about determinism and time. The scientific ideas involved are scattered throughout the conversation of "early" (13-year-old) and "late" Thomasina, and in the explanations of Valentine as he studies old lesson books and drawings that Hannah has brought to his attention. In modern jargon, these are the ideas of chaos, fractals, and entropy.

Chaos and fractals are Valentine's passion. The dizzying fractal patterns so attractively displayed by computers have properties possessed by many forms occurring in nature (such as clouds and coastlines): a self-similarity whereby any piece of the pattern, however large, looks a great deal like any other piece, however small. "Early" Thomasina, announcing her boredom with the geometry of pyramids and spheres, proposes to invent a geometry of nature, beginning with "the equation of a leaf." Her calculations, preserved in a lesson book, will fascinate Valentine and Hannah. Did she anticipate the geometry of fractals? Fractal geometry is also closely related to the mathematics of chaotic systems. The behavior of a chaotic physical system—the weather, for example—is neither quantitatively nor its qualitatively predictable for very long, *even if* the system is governed by laws that are perfectly known and perfectly deterministic.

Entropy and the second law of thermodynamics have become literary clichés: Entropy, a measure of disorder, tends to increase. Things tend to run down and

to wear out, and the wearing out of the universe itself will leave all of creation lifeless, cold, and dark. Septimus will call this cosmology Thomasina's Improved Newtonian Universe.

Valentine sees that Thomasina's "leaf equation" and her calculations might be anticipations of fractal geometry, but then again, and much more plausibly, might be uncomprehending doodles. He insists, to Hannah's great annoyance, that the formulas mean things to him they could not have meant to Thomasina. Her supposed glimpse of the future would amount to a reversal of causality: "There's an order things can't happen in. You can't have a door until there's a house." The underlying mathematics of fractals can be grasped with ordinary pencil and paper mathematics, but there's no way to generate the pictures or apply the theory without the calculating power of computers. As Valentine puts it, not only hadn't she enough time to do the calculations, she hadn't enough pencils.

The content of Thomasina's (supposed) ideas about fractals matters less than the "cause-reversing" fact of them, which complements Bernard's account of historical imagination as a reversal in *time*: "Tock, tick goes the universe and then recovers itself, but it was enough, you were in there, and you bloody *know*." While strictly observing all the usual laws of physics and common sense, *Arcadia* presents a world in which, thanks to imagination, time and cause can run in either direction.

The scientific ideas whose substance matters most originate in two witty and prescient remarks of "early" Thomasina. She prefaces one by asking Septimus, in a time-reversing way, "Am I the first person to have thought of this?" Without waiting to hear what "this" is, Septimus answers No—assuming she's about to say that Newton's laws deny our free will, or God's freedom of action, or our moral accountability. Thomasina says instead that, in Newton's universe, someone with complete knowledge of the positions and velocities of physical bodies at any one moment could in principle "write the formula for all the future"; the formula thus exists even if no one is clever enough to work it out. This is an arresting way of saying that Newton's scheme is the basis for a complete account of the physical world. (Because of Thomasina's death the world had to wait a few extra years to hear it. Valentine errs slightly in assigning this idea to the 1820's, yet Thomasina does have, as suggested, intellectual priority.)

Thomasina will eventually challenge just this supposed completeness, and here her other clever question plays its part: Why is it that you can stir a spoonful of jam *into* pudding but can't stir the jam back *out*? "Late" Thomasina will glimpse the second law of thermodynamics, which, as Valentine explains, provides an answer: the mixing of pudding and jam is that system's way of running down. The law also provides insight into a deep and puzzling fact unaccounted for in Newton's physics, the direction of time. The basic equations of Newtonian science run just as well backward as they do forward. Watch a movie of the earth circling the sun and you cannot tell which way the movie is being played—no bias in the equations distinguishes advancing toward the future from regressing toward the past. But you *can* tell the difference in a movie about pudding and jam—if the jam stirs out the movie must be running

backward.

These insights, Thomasina believes, show that the Newtonian universe, a deterministic one, cannot be the whole story.³ Valentine will argue that, at any rate, there is no “formula for the future” because chaos undermines predictability. (Chloe, *reductio ad absurdum* of the Coverly family’s surprising interest in this subject, will eventually provide her own take.) No extra-scientific motives lie behind Thomasina’s views. Her anti-determinism, for example, is not an attempt to make room for traditional morality; her vision of time’s irreversibility and the cold dark fate of the universe is not an attempt to undermine a human-centered view of creation. She follows the free play of her curiosity.

Thomasina’s move from a geometry of pyramids and spheres to one of Nature seems, like the successive remodelings Sidley Park, to be a move from classical to romantic forms. To Hannah, we know, “romantic” is a fighting word that implies a flight from reason. To polemicists for the other side, reason and science demand servitude to soulless mechanisms like the Improved Newcomen Steam Pump and the Improved Newtonian Universe.

But the correlation of these forces is more complex: Thomasina’s preference for a “romantic” geometry is a *scientific* decision; the Improved Universe is the working out of *anti*-Newtonian ideas; and Noakes’s comical/sinister steam pump is itself the agent of a “romantic” transformation. To regard reason and imagination as necessary antagonists is to reproduce in another form the mistaken opposition between knowing and knowing. The logic of *Arcadia* pairs scientists with poets—with Byron, for example, whom Bernard calls “an eighteenth century rationalist touched by genius” and whom Hannah quotes after hearing Valentine’s exposition of the bleak fate of the Improved Universe: “I had a dream which was not all a dream/ The bright sun was extinguished, and the stars/ Did wander darkling in the eternal space . . .”

Thomasina’s scientific testament and a love story—that is, knowing and knowing—are at the center of *Arcadia*’s intricate finale, in which the 19th and 20th century stories converge to end jointly with a waltz. The finale’s design is formal and fugue-like. Its dialogue counterpoints past and present. Events from 1809 recur, with comic variations, both in 1812 and in the present—the play’s opening, for example: Thomasina enters the finale sparring with Lord Augustus, who has threatened to tell on her for granting Septimus a kiss. (Septimus, she says, has agreed to teach her to waltz, the bargain “[s]ealed with a kiss, and a second kiss due when I can dance like mama.”) Augustus later asks Septimus to explain the facts of life. (Thomasina has troubled him by astonishing revelations of a purely theoretical character.) These events echo Septimus’s reported embrace of Mrs. Chater in the gazebo—now the hermitage, which is where Septimus kissed Thomasina—and Thomasina’s enquiry about carnal embrace.

The finale’s steady acceleration is achieved by yet another musical device: compression, which leaves the tempo unchanged but diminishes the period in

³As a matter of strict logic her argument is wrong. By the end of the 19th century physicists had fit thermodynamics securely into the Newtonian scheme.

which melodic and harmonic patterns complete themselves. In this case the patterns are cadences in which connections among the subplots click into place.

Chloe, of all people, begins the finale with a witty remark. It's prompted by one of the newspaper headlines occasioned by Bernard's publicity blitz: *Even in Arcadia—Sex, Literature, and Death at Sidley Park*. "Do you think I'm the first person to think of this?" she asks Valentine (he, like Septimus, saying No without waiting to hear her out): What keeps the universe from determination by mechanical laws is sex. The universe does indeed *try* to be deterministic but there's a hitch, namely "people fancying people who aren't supposed to be in that part of the plan." Valentine agrees that she has put her finger on "the attraction Newton left out."

Thomasina is not insensitive to this attraction—she has worked herself up to a silly crush on Lord Byron—but pursues her own refutation of determinism more scientifically. She sees that the second law of thermodynamics, which has not yet been invented, is implicit in a scientific paper Septimus shows her about the propagation of heat. Thomasina lacks the mathematics to state her insight precisely, much less to prove it, but pictures the idea in a diagram. (Without knowing its significance we've seen Valentine puzzling over this diagram through several scenes. When he finally grasps its meaning, his skepticism will be overcome.) Septimus doesn't pretend to understand, but sees enough to recognize that Thomasina's primer, which used to be his, "is mine again"—as though to say that he must now become her student.

The alignment of Thomasina with Chloe is neat, funny, and apt: determinism is overthrown by "the action of bodies in heat." The action of Mrs. Chater in heat has kept Thomasina's story—its external incidents, at least—briskly in motion. It has also undermined knowing of the other kind by generating the clues that misled poor Bernard. But the Chater Principle, this joint discovery of Chloe and Thomasina, is only a partial truth, since it suggests that knowing and knowing are always and only antagonists.

The modern story is conspicuously shy of bodies in heat. Bernard did, it is true, waste little time in seducing Chloe; and Lady Croom does stumble upon them, mid-finale, in another embrace (in the hermitage, of course). But Chloe's dismay when Bernard abandons her seems transitory. And when Hannah, learning of it, calls Bernard a bastard, Chloe turns on her: "What do you know about anything?" "Nothing," Hannah says, and later repeats "Nothing" to herself.

If the Chater Principle is active in the modern story, it's mostly through reaction, through Hannah's effortful resistance to being known. She won't submit to a photograph or a friendly kiss; scorns Bernard's proposition; politely refuses Valentine, who likes to jokes uncomfortably that she is his fiancee; and responds with dismay to Gus's puppy love. Hannah has evidently had more credible suitors as well. "Chaps sometimes wanted to marry me," she says. But she dismisses the idea with a reductive (and coarse) remark that seems more willed than believed. "I don't know a worse bargain. Available sex against not being allowed to fart in bed." It seems that she too subscribes to the Chater Principle, at least for public consumption.

That half truth is to be subsumed and corrected by Stoppard's Grand Unified

Theory in which the opposition between knowing and knowing coexists with a deep connection. For one thing, the opposition can be resolved by love, which distinguishes a marriage proposal from a bargain for sex, and which transforms the action of bodies in heat into something properly called knowing. Hannah's second "Nothing" suggests that at heart she knows this and knows that love is not a mere descent from thinking into feeling. Otherwise shrewd and unselfdeluded, Hannah contents herself with evasions and thereby fails in *self*-knowledge. If she understood herself better, Bernard says, she would have written her first book not about Caroline Lamb ("Romantic waffle on wheels") but about Byron. To Valentine it is Hannah's "classical reserve" that rings false, a mere "mannerism." And Chloe weighs in with pop psychology ("You've been deeply wounded in the past, haven't you . . .?"). Whatever their partial truths, none of these explanations touch Hannah. She has no difficulty ignoring Chloe, bantering her way around Valentine, and carving up Bernard.

She can't so easily fend off sweet, mute Gus. He is *Arcadia's* unsolved—indeed, uninvestigated—mystery. A boy gone voluntarily mute might seem like a would-be Symbol the size and subtlety of a billboard, but his function is (to me, at least) obscure. Like the other Coverly children Gus has links with Thomasina: his mother thinks he's a "genius"; he picks (for Hannah) the apple that Septimus eats and whose leaf Thomasina attempts to describe. He has, more generally, a kind of organic connection to Sidley Park's past. Gus loves rooting around in the manor's old books and papers; locates by intuition the buried foundations of a ruined outbuilding; comfortably reincarnates Augustus in Regency costume. He is in some ways a mirror image of Hannah, timid, tentative, and wordless. Gus shows that Hannah's relentless self-sufficiency makes her, after all, incomplete. He does so by giving her presents: that trans-historical apple; the dispositive clue to the hermit's identity; and in the end he will persuade her to waltz.

The pace picks up as Hannah bears down on the hermit. She already suspects that he is Septimus, an untwinning much sadder than that of the two Mr. Chaters. One clue comes from the letter found in Blackfriars, which shows that Septimus and the hermit were born the same year.⁴ After we have learned Hannah's conjecture about who the hermit *was*, Thomasina's story takes up the question of who he *will be*. Mr. Noakes is just completing his assault on the landscape, assisted by his steam pump—a device harnessing the action of bodies in heat and perhaps acquiring some of their demonic agency—when Lady Croom stumps him by asking how, now that the hermitage is built, she is to engage a suitable hermit. Does one, for example, advertise? And would one trust the bona fides of a hermit who subscribes to a newspaper? The discussion gets no further, but the eventual answer completes a pattern begun in the very first scene:

SEPTIMUS: [...] "Even in Arcadia, there am I." [...]

⁴We have an even better clue, which Hannah can't yet interpret. Bernard has found another contemporary account that mentions the hermit's pet, a tortoise called Plautus.

THOMASINA: Oh, phooey to death. (*She dips a pen and takes it to the reading stand.*) I will put in a hermit [...]

Seeming to dismiss the subject of death, Thomasina playfully alters one of Noakes's drawings by adding to his sketch of the hermitage the figure of a man. Hannah's belief that this drawing, though obviously a later addition, is the hermit's "only known likeness" looks at first like another of history's practical jokes. But the joke is deeply true and the drawing is a true prefiguring, because Thomasina does indeed put the hermit in his place.

The Blackfriars letter says that the hermit had been driven mad by "Frenchified mathematick," which taught that the world would eventually turn cold and die, and which he was desperate to refute by "good English algebra." This account, the preserved sheafs of the hermit's algebraic/cabbalistic scribblings, and Thomasina's decoded diagram suddenly hang together. (And the audience will recall Thomasina's saying, and Septimus's repeating, that the diagram would drive him mad.)

Hannah still won't call this proof. And there is in fact a deeper explanation of Septimus's fate, to which Hannah may never have access. If Septimus was driven mad, we will come to see, it was not by physics but by grief at Thomasina's death. The hermit hungers to disprove not merely a cosmological speculation, but a stark assertion of the pastness of the past and the permanence of loss. That her discoveries will be made again is not much compensation after all. Septimus's serene dismissal of loss is rebuked with a cruelty bordering on the grotesque, Thomasina's death by *fire*. His suffering, however, results not from his intellectual error but from having overcome the error by risking the dangerous ascent to thinking and feeling, from having something to lose.

More pieces click into place: Bernard's comeuppance, the hermit's identity, the "simultaneous" creation and decipherment of Thomasina's diagram. The present day and the 19th century are now converging rapidly, rushing from opposite temporal directions toward the moment of Thomasina's death.

The endgame begins when barefoot Thomasina steals downstairs to startle Septimus with a kiss full on the mouth, full payment: "I cannot be seventeen and not waltz." A down-at-the-heels Polish count, the current object of her mother's flirtation, is playing the piano in another room. "If mamma comes here I will tell her we met only to kiss, not to waltz." Septimus will have her wait, at least, until the count strikes up a waltz. He has been studying her essay of hers and her diagram, and decided to give them an A "on blind faith." While she explains the figure to him, Valentine explains it to Hannah, and now the story grows urgent:

SEPTIMUS: So the Improved Newtonian universe must cease and grow cold. Dear me.

VALENTINE: The heat goes into the mix.

THOMASINA: Yes, we must hurry if we are going to dance.

VALENTINE: And everything is mixing the same way, all the time, irreversibly ...

SEPTIMUS: Oh, we have time, I think.

VALENTINE: . . . till there's no time left. That's what time means.

Arcadia relaxes from this terrible point of tension without resolving it.

SEPTIMUS: When we have found all the mysteries and lost all the meaning, we will be alone, on an empty shore.

THOMASINA: Then we will dance. Is this a waltz?

SEPTIMUS: It will serve.

They dance, then pause and kiss in earnest—the only embrace in the play, carnal or otherwise. When the music ends Septimus bows and lights her candle: “Be careful with the flame.” She will wait for him to come to her room. He will not. “Then I will not go,” says Thomasina and insists, “Once more for my birthday.” As they resume, Gus startles Hannah with a present, a drawing by Thomasina labeled *Septimus Holding Plautus*. This is the last piece of Hannah’s puzzle, the proof she had faith was there to be found—a thing she could not have described but can recognize once seen, the mirror image of Bernard’s Platonic letter. Thomasina has added a face to her drawing of the hermit.

Gus bows an invitation, Hannah hesitantly accepts, and the action is complete. What remains is a coda, two waltzing couples—awkward Gus with awkward Hannah, Thomasina and Septimus moving gracefully and with delight. Even here is death, but also the possibility of love and a harmony of knowing and knowing. For so long as Septimus and Thomasina delight in this final lesson death will be kept at bay, and time and loss will be, for an Arcadian moment, overcome.