

## **Chronology of Events and References in ARCADIA**

Hardly entire, this list of references has been compiled by Susan Myer Silton from several online sources, and enhanced by independent research.

### **Pre 1800**

- 3rd Century B.C.** In Western tradition, the first full-fledged notion of Determinism originates with the Stoics, as part of their theory of Universal Causal Determinism.
- 295 B.C.** Euclid introduces his *Elements*, which codifies classical geometry, and presents an algorithm, which appears as Proposition II in Book VII ("Elementary Number Theory").
- 70 B.C.** Virgil, author of The *Aeneid*, and considered Rome's greatest poet, is born.
- 1564** Galileo Galilei, an Italian physicist, mathematician, astronomer and philosopher, is born. He played a major role in the Scientific Revolution, made vast improvements to the telescope, and has been called the "father of modern observational geometry."
- 1600** Claude Lorrain, byname of Claude Gellée, and often referred to by only his first name, is born. He is a French artist best known for, and one of the greatest masters of, ideal-landscape painting, an art form that seeks to present a view of nature more beautiful and harmonious than nature itself. The quality of that beauty is governed by classical concepts, and the landscape often contains classical ruins and pastoral figures in classical dress.
- 1615** Italian painter Salvator Rosa, one of the least conventional artists of 17th-century Italy, is born. Adopted as a hero by painters of the Romantic movement in the later 18th and early 19th centuries, he was mainly a painter of landscapes.
- 1637** Fermat's Last Theorem first conjectured in the margin of Pierre de Fermat's book, *Arithmetica*.
- 1650-1700** Origination of the Age of Enlightenment (or simply the Enlightenment or Age of Reason), a cultural movement of intellectuals in the 17th and 18th centuries, which began first in Europe and later in the American colonies. Its purpose was to reform society away from irrationality; adherents promoted more objective; and therefore, more useful scientific ideas, skepticism and intellectual interchange to counter and oppose superstition, intolerance and some abuses of power by the church and the state.
- 1687** Newton's *Principia Mathematica* is published, which introduces his First and Second Laws of Motion.
- 18<sup>th</sup> Century** the time in Europe when Classicism manifested itself in art, architecture, and literature. Its emphasis on form, simplicity, proportion, and restraint was the antithesis of Romanticism.
- 1705** Thomas Newcomen patents his Newcomen Atmospheric Engine or steam pump.
- 1717** Horatio (Horace) Walpole is born. An English art historian, man of letters, antiquarian and Whig politician, he is now largely remembered for his home, Strawberry Hill, which he built in Twickenham in the Gothic style, reviving it some decades before his Victorian successors. He is also known for his Gothic novel, *The Castle of Otranto*, which was

published in 1764.

- 1740 Lancelot “Capability” Brown begins his career as a landscape designer.
- 1782 The Picturesque is introduced into English cultural debate by the author William Gilpin. Along with the aesthetic and cultural strands of Gothic and Celticism, the Picturesque was a part of the emerging Romantic sensibility of the 18th century.
- 1785 Lady Caroline Lamb is born.
- 1787 Septimus Hodge is born.
- 1788 Byron is born.

Humphrey Repton, known for his “Red Book” prospectuses, receives his first paid landscape design commission, Catton Park.

- 1795 Thomasina Coverly is born in June.

**End of the 18<sup>th</sup> century** Romanticism originates in Europe as an artistic, literary and intellectual movement. In most areas, it was at its peak from 1800 to 1850.

## Post 1800

- 1800-1804 Septimus Hodge attends Harrow.
- 1801-1805 Lord Byron attends Harrow.
- 1804-1808 Septimus Hodge and Lord Byron are fellow students at Trinity College, Cambridge.
- 1807 On December 21, Joseph Fourier presents his paper *On the Propagation of Heat in Solid Bodies* to the Paris Institute (see 1812).
- 1808 Captain Edward Brice, elder brother of Lady Croom, conducts an affair with Charity Chater, wife of Ezra Chater, the wannabe poet cum botanist, which leads to Lord and Lady Croom's patronage of the Chaters at Sidley Park, Their Derbyshire estate.

Septimus Hodge is employed as tutor to Thomasina Coverly, the Croom's then thirteen year-old daughter, at Sidley Park.

Ezra Chater's book of poetry, *The Maid of Turkey*, is published, with Captain Brice covering the £50 cost, which in our present time is the equivalent of \$6,230. Hodge reviews it very unfavorably in the *Piccadilly Recreation*, of which his brother is editor.

Richard Noakes, landscape gardener, is employed by Lord Croom to re-design the grounds, changing the style from Classicism to Romanticism

- 1809 Captain Brice pays another £50 to have *The Couch of Eros*, the second of Ezra Chater's narrative poem books, published.

Byron first writes of his intention to leave England.

## April 1809 **First day in the play, Scene 1**

Guests at Sidley Park are Lord Byron, the Chaters and Captain Brice.

Septimus Hodge is sent a copy of Ezra Chater's *The Couch of Eros* to review for the *Piccadilly Recreation*.

Hodge is seen by Mr. Noakes in carnal embrace with Charity Chater in the gazebo.

Chater writes a note challenging Hodge to a duel, but Hodge flatters him out of his course. Hodge places the note between the pages of his copy of *The Couch of Eros*.

Augustus Coverly shoots a hare, which is claimed by Lord Byron in the game book.

Thomasina contemplates the effect of jam in rice pudding ("you can't stir things apart") and determinism (the possibility of a "formula for all the future"). She draws a hermit in Noakes' sketchbook, a prospectus for his clients, which is modeled after Humphry Repton's "Red Books". The pages depict watercolor views of the landscape, which are cut to be superimposed to show "before" and "after" views. Her rendering is found by Hannah Jarvis. Hannah is at the Croom estate in the present time, researching a book she is writing about the "Hermit of Sidley Park". Hannah shows it to Bernard Nightingale, a University don who has come to the estate in hopes of gathering material that will support his contention that Lord Byron killed Ezra Chater in a duel. Hannah tells Bernard that the drawing in the sketchbook is "the only known likeness of the Sidley hermit". (Act I, Scene 2)

Charity Chater writes to Septimus, warning him that her husband has sent to town for pistols, imploring him to deny what cannot be proven for her sake, and telling him she will "keep" her room.

## **Second day in the play, Day 3, Scene 3**

Lord Byron lets it slip at breakfast that the unflattering review of *The Maid of Turkey* was written by Hodge. Chater's anger is rekindled.

Thomasina writes her proposal for "A New Geometry of Irregular Forms" in her math textbook. She devises this new geometry for forms that can be found in nature. Her proposal is read by Hannah Jarvis in the present time to Valentine Coverly, the Croom's eldest son. (Act I, Scene 4).

Chater again challenges Hodge, this time with Brice as second. Hodge accepts. In the process, he insults Brice by accusing him of sleeping with Mrs. Chater. Brice then challenges Hodge himself. Hodge accepts his challenge as well.

Lady Croom takes Hodge's copy of *The Couch of Eros* to Byron to read. It has three letters inside: the two challenges from Ezra Chater and the note from Charity Chater. In 1816, the book was sold to pay Byron's debts when he left England for good (see below). It was purchased by a relative of Bernard Nightingale's, and languished in the family's country house cellar until the house was sold to make way for the Channel Tunnel rail-link. Bernard finds the book and letters and brings them to Sidley Park in the present time to show to Hannah Jarvis.

Thomasina writes a marginal note in her mathematics primer in the style of Fermat. Hannah finds it 200 years later and reads it to Valentine (Act I, Scene 4).

### **Third day in the play, Scene 6**

Hodge leaves two letters in his bedroom to be opened in the event of his death: one to Lady Croom, professing his lustful admiration, and the other to Thomasina, telling her of the significance he sees in her "rice pudding" discovery. He sleeps in the boathouse in preparation for his duels with Chater and Brice at dawn.

**3:00 am** Mrs. Chater is discovered by Lady Croom on the threshold of Byron's room. Lady Croom banishes Mr. and Mrs. Chater, as well as Captain Brice and Lord Byron, from Sidley Park.

Captain Brice and Mr. and Mrs. Chater leave Sidley Park in a carriage.

**4:00 am** Lord Byron leaves on his horse, taking Hodge's book and leaving a letter addressed to Hodge with Jellaby, the butler.

Lady Croom goes to Hodge's room and finds and opens the letters he has written to her and her daughter.

**5:00 am** Hodge shows up for the duels, but he is the only one who does. Instead, he shoots a rabbit for Thomasina with Lord Byron's rabbit pistols.

**5:30 am** Hodge is confronted by Lady Croom regarding the letters. During the course of their conversation, he burns Byron's letter unread. Lady Croom invites him to her sitting room at 7 o'clock that evening. After she leaves, Septimus burns his letters to her and Thomasina.

### **Later in 1809**

Byron leaves England for the Grand Tour.

Captain Brice, with Charity Chater as his mistress, sets sail for the Indies with Ezra Chater as botanist.

**1810** Ezra Chater describes a dwarf dahlia in Martinique, where he is bitten by a monkey and dies.

Captain Brice marries Charity Chater.

The dahlia described by Chater before his death, is named "Charity," by Captain Brice after his new wife. He sends it back as a gift to Sidley Park. Lady Croom describes it in a letter to Hodge, which Hannah later finds in one of her garden books. In the letter, Lady Croom writes, "For the widow's dowry of dahlias I can almost forgive my brother's marriage ... I sent one potted to Chatsworth. The Duchess was most satisfactorily put out by it when I called at Devonshire House. Your friend was there lording it as a poet." The Duchess she mentions is none other than Georgiana Cavendish, the aunt of Caroline Lamb.

**1811** Byron returns to England

Lady Croom and Septimus are in London, waltzing. They see Byron posing at the Royal Academy for a painting with Lady Caroline Lamb. When they return, they bring the Polish Count Zelinsky to stay at Sidley Park.

**1812-1816** Lord Byron publishes his *Childe Harold's Pilgrimage*, a lengthy narrative poem written in four parts. Autobiographical, it narrates the European travels of a world-weary young man, who, disillusioned with a life of pleasure and revelry, looks for distraction in foreign lands.

**1812** Lady Caroline Lamb and Lord Byron begin their love affair.

Count Zelinsky remains a guest at Sidley Park.

Hodge kisses Thomasina in the gazebo, promising to teach her to waltz.

Augustus Coverly returns to Sidley Park from Eton.

Thomasina devises an equation that feeds back on itself, describing it as "rabbits eating their own progeny." She has discovered the mathematical procedure that is now called an iterated function system, a method of constructing fractals using an iterated algorithm. The "rabbits eating their own progeny" quote describes the idea of an iterated algorithm, which starts with a number or point, and processes it to obtain a new number or point, which is recorded and then fed back into the process. This "feedback mechanism" is done again and again, and after many repetitions, a pattern emerges. Thomasina was far ahead of her time, as fractals were not defined until 1975.

Thomasina draws a picture of Septimus holding Plautus, which Gus Coverly, the youngest Croom son from the present time, finds and gives to Hannah at the end of the play. It proves her premise that Septimus Hodge is indeed the ill-fated Hermit of Sidley Park. She will now be able to confidently complete her book.

Thomasina realizes the implications for determinism in a new French theory of thermodynamics and diminishing returns by Joseph Fourier (see 1807). She draws a diagram of heat loss, which Septimus asks her to explain in an essay.

Hannah Jarvis finds Thomasina's diagram in Septimus' portfolio and asks Valentine Coverly to explain in Act I, Scene 4. Valentine dismisses it, discrediting its author as a thirteen year-old child. Later, in Act II, Scene 7, Valentine recognizes it as a diagram of heat exchange, and the prescient work of a genius who was far ahead of her time.

### **Evening, about a week later, the night before Thomasina's 17th birthday**

Septimus teaches Thomasina how to waltz on the eve of her seventeenth birthday. He gives her an alpha for her essay on determinism and heat theory, which she takes to her room with a candle. She asks him to join her, but he refuses.

That night, Thomasina dies in a fire that starts from her candle, the one that Septimus lit.

Septimus spends the next 22 years of his life driving himself mad trying to finish Thomasina's incomplete discovery, which perhaps only she had the genius to complete. He takes the post of hermit and vainly attempts to apply his "good English algebra" to the problem. He also attempts to prove (or disprove) the "end of the world" theory ("...the improved Newtonian Universe must cease and grow cold" - the second law of thermodynamics, entropy, etc.), filling the hermitage with iterations. We might also posit that his madness derived from the grief of her loss, and because he lit the candle that started the fire.

- 1816 Lord Byron leaves England for good. His books, including *The Couch of Eros* are sold.
- 1824 The first formulation of the second law of thermodynamics is credited to the French scientist Sadi Carnot.
- 1832 The *Peaks Traveller and Gazetteer* makes reference to the hermit in a description of the property.
- 1834 Septimus Hodge, alias the hermit of Sidley Park, dies of madness “hoary as Job and meagre as a cabbage-stalk”. He is 47.

#### Post 1834

- 1862 In an article on hermits and anchorites, *Cornhill Magazine* (edited by Thackeray) quotes a letter written by the author of *Headlong Hall* about a visit to the Earl of Croom's estate, Sidley Park, where he encounters a hermit who is “Not one of your village simpletons to frighten the ladies, but a savant among idiots, a sage of lunacy.”
- 1880s-1900s: Henri Poincaré, a French mathematician, theoretical physicist, engineer, philosopher of science, discovers a chaotic deterministic system which laid the foundations of modern chaos theory.
- 1890s-1900s: Mathematicians, challenging dependence upon geometrical notions, motion and intuitive understandings, begin to explore algorithms and iterations, producing monstrous shapes now thought of as fractals.
- 1963 The Lorenz system, notable for having chaotic solutions for certain parameter values and initial conditions, is first studied by Edward Lorenz, an American mathematician and meteorologist. Lorenz coined the term “butterfly effect”.
- 1982 Benoit Mandelbrot publishes *The Fractal Geometry of Nature*, which shows how fractals can occur in many different places in both mathematics and elsewhere in nature.
- 1994 Andrew Wiles, a British Mathematician working at Princeton University, proves Fermat’s Last Theorem after correcting flaws in the proof he had introduced a year earlier. His paper, *Modular Elliptic Curves and Fermat’s Last Theorem*, appears in *The Annals of Mathematics* in 1995.
- 1900 German theoretical physicist Max Planck presents Quantum Theory to the German Physical Society.
- 1905 Albert Einstein, a German-born theoretical physicist, proposes the Special Theory of Relativity in his paper *On the Electrodynamics of Moving Bodies*. It is one of the two components of the Theory of Relativity (see 1916). The Theory of Relativity transformed theoretical physics and astronomy during the during the 20th century. When first published, relativity superseded a 200-year-old theory of mechanics created primarily by Isaac Newton.
- 1916 General relativity, or the general theory of relativity, is published by Albert Einstein. It is the geometric theory of gravitation and the current description of gravitation in modern physics. It is also a component of the Theory of Relativity.