The relationship between science and love in tom stoppard's "arcadia"

Tom Stoppard is famous for the wit and intellectual appeal of his creations, and Arcadia perfectly fulfills these characteristics. Stoppard has the capacity to exquisitely present the most simple, yet important things in life. The play is uniquely structured, utilizing complex mathematical theorems and numerous historical references that reveal myriad themes, while juxtaposing the past with the present, the Classical with the Romantic, and the mathematical with the poetic. All of this is done to prove one of the most basic human truths: that — despite all logic — the human being cannot fully live without love. This essay aims to explain the relationship between the mathematical aspects of the play and the way love is portrayed.

Mathematics and science play a starring role in Arcadia. The play does not only feature mathematicians as central characters, but it also uses mathematics and science to endow everyday things — clouds, a leaf, a population of birds — with magnificence and magic. Mathematics is far from being just a collection of simplistic calculating rules; it can provide extremely rich descriptions of our complex world, and of us. The point of using, for example, the second law of thermodynamics, is not to understand it fully, but to see how it helps understand the relationship between past and present, order and disorder, certainty and uncertainty and the absolute uncertainty of love.

As it is fit for a play set partly at the dawn of the 19th century, when the Age of Enlightenment was giving away to the Romantic era, it is also about sex, love, jealousy and other messy human emotions that cannot — supposedly — be neatly reduced to a mathematical formula. Whenever the characters try to fix and understand reality, whether it be through the use of language,

through the use of narratives designed to control and explain their experiences, or through the study of science, they discover that life is not so easily confined and defined. As a consequence, the play makes one question how much love, life, mathematics and science can be related and how far can the latter take us in explaining what life and love are all about.

In the Arcadian universe, the common notion that love and science occupy opposite poles in human experience gets turned on its head. Rational, logical science and irrational, passionate love have something in common: both are unpredictable and chaotic. The mixing of mathematical theorems with love and history may seem strange at first glance. Stoppard has explained that his inspiration for Arcadia came from reading the mathematical theory novel " Chaos" at the same time as exploring the style, temperament, and art of Romanticism and Classicism and particularly the differences in these styles. Throughout the novel, the dominant theory is, in fact, the " chaos" theory. The nature of knowledge, whether mathematical, physical or historical, is chaotic. The play itself, as Stoppard says, is " chaos constructed" (Demastes and Kelly, 1994: 5), with a couple of bifurcations and finally getting to the last scene, which is extremely mixed up.

The thoroughness with which Stoppard integrates these mathematical ideas into the action of the play demolishes the idea that he only used the chaos theory as a way to strengthen his play, since it was the scientific theory in fashion at that time. On the contrary, his purpose is to explore — using this theory — the clash of rationality and emotion, the unpredictability of passion, and the way chaos can develop from logic. He shows how certain mathematical ideas and theories reflect and resonate with these themes.

Science has long been a primary way in which humans have sought to understand the world that surrounds them. In the opening scene, Thomasina is taking a look into Newtonian science and Euclidian geometry, modes of thought that see the world as linear, ordered, and stable. In human terms, Newton and his classical laws of motion seem to leave no room for unpredictability and free will. Thomasina explains the ramifications of what would happen if everything behaved according to Newton's laws of motion with the supposed situation that if all atoms were stopped, someone really smart could write the formula for all the future. This apparent causal determinism suggests a deterministic, mechanical universe; it is one of strict order, regularity, and predictability. However, Thomasina has already begun to intuit that this view of the universe is incomplete and she tells Septimus about how stirring the rice pudding backwards will not make the jam come back together. This seemingly simple observation points to the Second Law of Thermodynamics and the increasing disorder in the universe.

This disorder is not seen entirely as something bad, and Valentine and Hannah even seem to celebrate that those scientists before mentioned were wrong, because it opens so many doors, it creates so many mysteries; they celebrate uncertainty. Indeed, the play as a whole acknowledges the difficulty of truly knowing anything. In the depiction of people striving to understand the past and to find the keys that unlock the mysteries of nature, the play is a celebration of the human struggle to obtain knowledge, to understand as much as possible. Rather than despair, Stoppard embraces a cautious optimism and expresses a resounding belief in human agency rather than materialistic views of life. Arcadia is a confirmation that despite

all the indeterminacy, people can use their intellect and intuition to gain knowledge and understand what surrounds them. It suggests that science often works, that people can lead fulfilling lives. Even without all the answers, people can be happy, and that interacting with uncertainty is part of what makes human life worth living.

The joke, on the first scene, that sexual attraction is the attraction Newton left out is one of Stoppard's metaphorical conceits for the difficulty in mapping out individual destinies. Newton's laws work when they operate in a vacuum, and it is the friction of the real world that destroys predictability. Likewise, the multiple variables and contingencies of reality, which include love and the heat of sexual passion, preclude predictable, deterministic lives. The richness of deterministic chaos as a metaphor for human life and interactions is its paradoxical quality. The sense of determinism, of the inability to control with whom one falls in love is there, yet the play also shows free will in action as Septimus decides not to consummate the relationship with his pupil. In Arcadia, the characters experience both determinism and unpredictability, both fate and free will.

Hannah is a character whose dominant personality is " scientific" in that she loves dispassionate intellect. She states that the Romantic Movement was a " sham", and the ordered, classical gardens that were replaced represented paradise. Hanna puts thought before emotion, the classical over the romantic, and sees the world in binary terms. She sees emotion as an unwanted irregularity, a potential collapse into disorder. Ironically, to prove her idea that the Age of Enlightenment banished into the Romantic wilderness, she must rely on instinct and intuition. To summarize, she

embodies Tom Stoppard's notion that Classical and Romantic temperaments are not mutually exclusive, but rather co-exist in people. A parallelism could be drawn, with Romanticism being love and Classicism being science. Only one cannot fulfill the task of understanding life, but the two must be intertwined in order to work together.

In the seventh scene the play's ideas are manifested in human terms as the richness and complicatedness of Stoppard's characters, themes, and dramatic structure integrate. It is a scene rich with imagery, many revolving around heat. Steam engines, thermodynamics, sexual passion, and candles are all present. To varying degrees, the moments that involve these items or ideas involve construction or destruction as they can be life affirming or life denying.

Conclusively, the scientific and the human dimensions of the play are linked in the final scene, where the waltz starts. A waltz is emblematic of deterministic chaos in that there is a prescribes series of steps, but that " deterministic equation" can still yield any number of patterns — Spanish, hesitation, slow waltz, etc. —. In the staging I saw of the play, Septimus and Thomasina's waltz took them on many different paths through the rome, even dancing between Bernard and Chloë, who are in the midst of their abrupt and unplanned farewell. One of the couples is completely in sync, and the other is not; one is based solely on sex, while the other mixes sexual and intellectual attraction, but ultimately remains platonic as they never consummate their affection. Although Thomasina invites Septimus to spend the night with her, his final answer is that he will not, and that indicates his non-deterministic free will. Nonetheless, the deterministic side of life is also

acknowledged in this moment, for it is here that Septimus lights Thomasina's candle, who the audience knew was going to die in a fire that very night. Her intuition about the heat death of the universe — how everything is going to end at room temperature — becomes painfully and bitterly personal. The dance of life ends in death, but is still a happy one. Even though the " universe must cease and grow cold" (Arcadia, 1993: 93), the characters remain happy, even celebratory; Valentine for the joy of scientific, intellectual understanding, and Thomasina for human contact, embodied in the ensuing waltz and kisses she shares with Septimus.

Bibliography

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