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ملخص:

معالجة توم ستوبرد للمتأخرات في مسرحية أركاديا د/منى أنور وحش

يعتبر توم ستوبرد من الكتاب المبتكرين غير التقليديين . وخلال مشواره المسرحي قدم مسرحيات ثريه كلما قرأها المتلقى اكتشف فيها بعدا جديدا . انه مفتون بتطعيم اعماله المسرحيه بمعتقدات من أعمال سابقه بالاضافه الى ولعه بالتنقل بحريه عبر الأزمان المختلفه .

وتعتبر مسرحية ستوبرد أركاديا مثالا حيا لتلك الابعاد مع اختلاف بسيط وهو أن التطعيم هذه المره ليس بأجزاء من أعمال سابقه ولكنه يطعمها بنظريات علميه ومذاهب فلسفيه مختلفه بالاضافه الى ان ولعه بحرية التنقل بين الأزمان يجد متنفسا له في تلك المسرحيه اذ ان ستوبرد يسطح الماضي والحاضر معا ويقدم لنا شخصيات من الزمنين في موقع واحد .

والفكره في المسرحيه ان الكاتب يريد أن يؤكد أنه لا يوجد حدا فاصلا بين المذاهب المتأخره ولكن هناك تداخل فيما بينهم ويؤكد على أننا لا نستطيع ان نقيم حدا فاصلا بين العلم و الادب والفاسفه اذ أنها تصب في بوتقه واحده ، الانسان .

يناقش ستوبرد نظريات نيوتن ونظرية الفوضى ونظرية امكانية التنبؤ بمجريات الامور بالاضافه الى عرضه للهندسه التقليديه و الهندسه الحديثه عن طريق شخصيه محوريه وهي الطالبه ذات الثلاث عشر ربيعا والتي تعتبر نابغة القرن التاسع عشر والتي بينى على نظرياتها شخوص للقرن العشرين . ونستخلص من ذلك أنه لا يمكن ان تتواجد أى نظريه بشكل عشوائي ولكن يتحتم أن تكون مرتكزه على ما تم التوصل اليه في الماضي لأن المعرفه هي سلسله متصله لا تنقطع .

ان ستوبرد يقدم لنا في مسرحيته أركاديا ملهاه غنيه بالأفكار و ينفى نظرية الثنائيات المتأخره ولكن يؤكد على وجود الثنائيات المتلاحمه للمتداخله . ويرمى البحث الى اثبات هذه النظرية عن طريق تحليل مسرحية أركاديا .

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CHLOE: A dance for the district, our annual dressing up and general drunkenness (17).

This party hinted at in Act One Scene Two is exactly the waltz ending **Arcadia** in Act Two Scene Seven. Characters from both centuries end the play waltzing together, having props from past and present side by side on a table on the stage. These characters are unaware of the existence of each other. Yet this merging of past and present in this dance verifies Stoppard's point of view in relation to the existence of binaries that are reconcilable.. Past and present float together from the beginning of the play till the end; 'Classicism' is mixed with 'Romanticism'; science and sex are implied in the term 'carnal embrace', and young age is portrayed as the voice of wisdom represented by Thomasina. Newton's theories of motion, determinism, the clockwork nature of the universe as well as the linear development of events are discussed in **Arcadia** in addition with the 'Second Law of Thermodynamics', the 'Chaos Theory, the non-linear development of events that can hardly be predicted. Still these modern theories are not created out of scratch as they are based on the past achievements, even if they contradict them. The past is the basis of the present.

One can build on past achievements, but the moment lived in the past can never be relived. The hermit of Sidley Park fails to relive a past moment to change its events, similarly the hero of the film **The Butterfly Effect** destroys his life with his attempt to relive his childhood through his use of the time-machine.

Stoppard is a playwright who is fond of recycling texts, ideas and traveling through time. **Arcadia** is considered his masterpiece as it contains a recycling of ideas and a well planned traveling through time. The creativity of this author who has never received college education is incredible.

Lady Croom, the butterfly, picks up the 'Couch of Eros' containing these three letters :

LADY CROOM; ... Oh! 'The Couch of Eros!' (For she has spotted Septimus's copy of the book on the table).

SEPTIMUS: That is my copy, madam.

LADY CROOM; So much the better- what are a friend's books for if not to be borrowed.

(Note: ('The Couch of Eros') now contains the three letters, and it must do so without advertising the fact. This is why the volume has been described as a substantial quarto.) (41).

Stoppard mixes in his play art with science, drama with scientific knowledge. Thomasina is the genius student of the 19th century, and Valentine is the mathematician of the 20th century working on the growth of population. He builds his assumptions on Thomasina's unintended discoveries that are related to the 'Second Law of Thermodynamics, 'Iterated Algorithm' as well as 'Fractal Geometry'. The 'Chaos Theory, has been hinted at by Thomasina. Septimus is the young tutor who is impressed by the cleverness of his student. Hannah suspects his being the hermit of Sidley Park, who died broken hearted after Thomasina's accidental death. Hannah tries to collect information about Hermione trying to unfold the mystery of Sidley Park's hermit. She has written several books on the histories of gardens and laments the transference of the Sidley Park garden. Her field of study is landscape and literature from 1750 till 1834, the date of the hermit's death.

Concerning the children of the Coverly's family in the 20th century, they are actually two Chloe Coverly, aged eighteen and Gus Coverly aged fifteen. David Gaspair states: Chloe has no obvious interests aside from sex. Gus, fifteen, is sweet, shy and ...intelligent, but doesn't speak, having given up the practice at age five"(225). From her first appearance Chloe refers to the party they intend to have:

BERNARD: Are you having a garden party?

Nevertheless, through "good English algebra", [Septimus] spends the rest of his life trying to find some "restitution of hope" that he can bring back his beloved Thomasina in defiance of the Second Law of Thermodynamics(402).

In the present Bernard is ready to indulge in affairs whether with Hannah or Chloe Coverly to reach his goal of asserting Byron's crime, using emotion to strengthen reason. Ronald H. Mc Kinney declares:

Bernard offers to sleep with anyone who can help him achieve his triumph, whether it be Chloe or Hanna. But he knows nothing of real love... By the end of the play we are no longer sure who is romantic and who is classicist (400-4001).

Concerning the scientific theories and in spite of the fact that the 'Chaos Theory' contradicts Newton's laws: the laws of motion, the possibility of predictability and the development of events in straight lines, this theory could never have occurred from scratch. The drawbacks of Newton's clockwork universe led to the emergence of the 'Chaos Theory'.

At the same time the world has become a small village makes the butterfly effect noticeable and felt. It is very difficult in the age of globalization to isolate one part of the world from the other. In *Arcadia* our butterfly is Lady Croom as she is indirectly responsible for Bernard's accusations of Byron. She has picked up Septimus's copy of Chater's 'The Couch of Eros' where the accusations against Byron are inserted in the form of letters to be found by Bernard later on. Jeffrey Kramer states:" In Bernard's case the "butterfly" is Lady Croom, who has casually picked up Septimus's copy of Chater- in which are pressed the accusations and challenges seized on by Bernard...(6). Lady Croom's picking of Septimus's copy of 'the Couch of Eros' is not intended and this copy happens to contain the three letters addressed to Septimus: Mr. Chater's letter , Mrs. Chater's note and Lord Byron's letter.

There is no possibility to erect a Chinese wall to separate between centuries. We can go backwards to benefit from past achievements, yet we can not give birth to a lost moment and relive it. Katherine Mansfield states in her short story **The Voyage**:

Lost! One Golden Hour
Set with Sixty Diamond Minutes.
No Reward Is Offered.
FOR IT IS GONE FOR EVER! (232)

Therefore the moment that is lived can never be relived. The past can only give information and history to the present, helping to create order out of disorder. At the same time Stoppard in **Arcadia** proves that binaries do not have to oppose each other. They can only overlap quoting the term from the 'Chaos Theory'. In an Online article titled **Arcadia by Tom Stoppard**, this concept is further explained:

According to chaos theory, there is order within disorder, and disorder within order... Stoppard uses these ideas to explore binaries concepts often thought of as opposites such as order and disorder, romanticism and classicism, past and present,... history and fiction. Ultimately we see that binaries don't exist (1).

Stoppard's treatment of incongruous and opposite concepts in **Arcadia** proves that they do not necessarily collide with each other. For example 'Classicism' does not totally oppose 'Romanticism'. Thomasina is a combination of both trends. Septimus is the tutor who applies reason in his life. At the same time he is emotionally involved with several characters such as Mrs. Chater, Lady Croom and finally his student Thomasina. He turns out to be the hermit of Sidley Park who has spent his life after Thomasina's death trying to reverse time to bring his beloved back to life. This is totally romantic and has nothing to do with reason. Ronald H. Mc Kinney writes:

Even here is death, but also the possibility of love and harmony... 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 (231).

Furthermore Stoppard treats his incongruities through flattening of time, presenting Sidley Park in 1809 and 1993. The playwright's fondness of traveling through time is unlimited. Carol Rocamoura declares: "As a playwright who loves to travel through time, Tom Stoppard is unstoppable... [T]here is Arcadia (1993), which he sets simultaneously in 1809 and 1993 in the drawing room of Sidley Park..."(34).

Stoppard's technique of flattening past and present enriches *Arcadia*. The scenes run backwards to shed light on the present confusion. Act One Scene One and Scene Three take place in the past, whereas Scene Two and Scene Four take place in the present. Concerning Act Two it consists of three scenes. Scene Five is in the present, whereas Scene Six is in the past. . In Scene Seven both past and present are mixed together and from page 88 till the end of the play past and present are presented simultaneously on the stage. Derek B. Alwes states: "The play we are watching does "run backwards",... until the two historical time periods seem to merge into simultaneously at the end of the play" (392).

Stoppard's connecting past and present which stems from his fondness to travel through time, is closely associated with quantum mechanics. In an Online article Victor J. Stenger maintains:

The mind of each human being on earth is instantaneously connected to each other- past, present, and future- as a part of every mind existing in space and time... [Q]uantum mechanics tells us that all human minds are united in one mind and the entities of the universe- electrons, protons, galaxies, and the like- are floating in a field of mind that cannot be limited within a restricted space or period(1).

لحدث فيلم "تأثير الفراشه" أو The Butterfly Effect. تدور حول التعبير أو للمصطلح الذي يستخدم في نظرية الفوضى، ويقصد بها أنه عندما ترفرف فراشه بجناحيها في مكان ما، فهي تحدث ريحا تؤدي توابعه الى هبوب اعصار بمكان آخر ... وأن جميع البشر لديهم يوم مفضل يريدون أن يعيشوه مجددا (٢٥) !

The hero of the film tries to go back to his past to change things that occurred in that past. He uses the time machine to help him go backwards. The effect of his attempt turns out to be catastrophic. Changing past events is impossible.

The concept of the 'Butterfly Effect' is a very important principle of the 'Chaos Theory' as it is some form of globalization where we can never isolate ourselves from current events. John Jefferson Davis further elaborates this concept:

The rather remarkable idea expressed in this term is that a very small change in the initial conditions of some physical system, the fluttering of a butterfly's wing in Pekin, as it cascades unpredictability through a complicated system can have very large effects later in time, e.g., producing a thunderstorm in New York (76).

This concept of the 'Butterfly Effect' can only occur in one age, never between different ages. An event that occurred in the past can not be changed by this effect as the time gap is very difficult to conquer in reality; it could only be overcome in a work of art. Therefore the final scene of *Arcadia* merges characters from the past together with characters from the present, in a waltz, where they dance unaware of the existence of each other. Katherine E. Kelly states: 'The overcoming of time at the conclusion of *Arcadia* is a triumph of art, not of science... (183)'. Thomasina's dance with Septimus is a challenge of death, as far as she lost her life in a fire. Stoppard's merging of the dancers from both centuries together shows that one can overcome death sense through the imagination. Consequently the waltz is symbolic of the overcoming of loss. David Guaspair maintains:

chain. Septimus explains this idea of the rebirth of knowledge in other forms to Thomasina, who expresses her deep grief for the burning of the great library of Alexandria:

THOMASINA: [T]he Egyptian noodle made carnal embrace with the enemy who burned the great library of Alexandria... Oh, Septimus!- Can you bear it? All the lost plays of the Athenians!... How can we sleep for grief?

SEPTIMUS: We shed as we pick up, like travelers who must carry everything in their arms, and what we let fall will be picked up by those behind... 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 (38).

Building on data from the past is possible, but attempting to relive that past with the objective of changing it is impossible. Septimus tries to work on Thomasina's equations to change her fatal destiny, her being burnt to death on the eve of her seventeenth birthday but in vain. Ronald H. Mc Kinney maintains: "Nevertheless, through "good English algebra", [Septimus] spends the rest of his life trying to find some "restitution of hope" that he can bring back his beloved Thomasina in a defiance of the Second Law of Thermodynamics (402)". No change of past events can take place, only further development of information or rebirth of lost knowledge. This attempt is risky and might lead to disasters.

The recent film **The Butterfly Effect**, confirms the impossibility of trying to change one's past by reliving it. Karam Abdel Maku'd states:

The events of the film "The Butterfly Effect" revolve round this term or expression used in the Chaos Theory... It means that when a butterfly flaps its wings somewhere, it creates a ripple effect which could lead to the blow of a storm somewhere else... and that [A]ll humans have a favorite day they wish to relive (25)!

Valentine explains his work to Hannah contrasting it to Thomasina's work. He states that Thomasina started with an equation turning it into a graph, whereas he is just doing it the other way round. He assures Hannah that the result received from the computer shows that the future is heading towards a form of chaos:

VALENTINE: Actually I'm doing it from the other end. She started with an equation and turned it into a graph. I've got a graph- real data- and I'm trying to find the equation which would give you the graph if you used it the way she's used hers. Iterated it... Your value for y becomes your next value for x. the question is: what is being done to x? What is the manipulation?... It's called an algorithm... When they are all put together, it turns out the population is obeying a mathematical rule... When you push the numbers through the computer you can see it on the screen. The future is disorder (45-48).

Still there is a possibility to deduce order out of disorder. Valentine builds on Thomasina's notes, pushing them into his computer and manages to create order out of disorder. He explains this to Hannah:

VALENTINE: See? In an ocean of ashes, islands of order. Patterns making themselves out of nothing. I can't show you how deep it goes. Each picture is a detail of the previous one, blown up...

HANNAH: Well done!

VALENTINE: Not me. It's Thomasina. I just pushed her equations through the computer a few million times further than she managed to do with her pencil (76).

Building on knowledge acquired from the past is something Stoppard confirms in his play, the recycling of information to be reborn in a new modernized shape. Knowledge takes the form of a

used the term fractal to describe irregular patterns that could describe variety of forms in nature such as clouds, the crust of the earth and so forth. Traditional geometry had forced the eye to see nature in terms of straight lines and smooth curves; Mandelbrot had provided a geometrical view that could help man to see nature in all its irregular complexity (See 77).

Thomasina 's trial and error geometry applies the realistic shapes of nature doing without the traditional geometry that is based on straight lines. Her fractal feed back process is further developed in the present to become the 'Chaos Theory' that has changed the traditional framework of Maths. Robert L. Devaney writes: [Thomasina] is a prodigy who not only questions the very foundations of her mathematical subjects, but also sets about to change the direction of countless centuries of mathematical thought. In the process she lays the foundation for ... chaos theory"(1). This theory terminates classical geometry and encourages the use of computers to present various, fantastic geometrical structures. James Gleick confirms:

'WHERE CHAOS BEGINS, CLASSICAL SCIENCE STOPS... Chaos has created special techniques of using computers and special kinds of graphic images, pictures that capture a fantastic and delicate structure underlying complexity (3-4).

Valentine, the present mathematician of Sidley Park, applies the rules of the ' Chaos Theory' using his computer to reach to a statistics of population growth in Sidley Park. He makes use of Thomasina's discoveries . Katherine E. Kelly states:

... Valentine Coverly is a mathematician working with Chaos Theory. His research- project is to discover the equation that governs the apparently haphazard fluctuations in the populations of grouse on the moors where the Coverly family has always shot. He describes the emergence of such a pattern among the random points on the computer screen (176).

comprehend all the actions thus suspended, then... you could write the formula for all the future; and... nobody can be so clever as to do it...(5).

Thomasina, the genius young girl repeated in 1812 her doubts in relation to Newton's theories of future prediction. Being sixteen sharpened her intelligence on the one hand, and strengthened her standpoint on the other:

THOMASINA: Well!... Newton's machine which would knock our atoms from cradle to grave by the laws of motion is incomplete! Determinism leaves the road at every corner...(83).

Determinism and future prediction are rather impractical. The concept of truth itself is relative and varying from one century to the other. This is a characteristic of the postmodern age, where science can tell stories similar to fiction. John Docker writes:

In the postmodern age we no longer have a positivistic science that claims to know the truth; rather science, as in the new quantum mechanics associated with Chaos Theory, now tells stories,... as in any other area of knowledge(109).

Thomasina is not satisfied with classical geometry, hence uses trial and error to reach a new form of geometry, which is fractal geometry:

THOMASINA: ... Mountains are not pyramids and trees are not cones. God must love gunnery and architecture... There is another geometry which I am engaged in discovering by trial and error (84).

Thomasina's trial and error geometry is much more realistic. It is related to the actual shapes of nature without subjecting them to preconceived shapes and designs. This concept is further developed by Mandelbrot to form fractal geometry. He

We collectively wish to apologize for having misled the general educated public by spreading ideas about the determinism of systems satisfying Newton's laws of motion that, after 1960, were proved to be incorrect(75).

The ordered, predictable world of Newton is being replaced by the unpredictable atmosphere created by the 'Chaos Theory' that is enjoying a free will of its own and proves the difficulty to estimate a long term prediction of the direction of events. Ronald H. Mc.Kinney states:"The Newtonian expects that reality is as regular and predictable as a clock, while the chaos theorist looks at life as a waterfall in which minute fluctuations are amplified into dramatic large- scale changes" (396).

Stoppard discusses these terms through his characters in the play. The whole idea started after his reading of James Gleick's book **Chaos**. Paul Delaney maintains:

Stoppard's mind began to work when he read James Gleick's book **Chaos** and saw that it might serve as a metaphor for a play about the antithesis between the Romantic and the Classical. Chaos theory in this respect represents the overthrow of determinism, the idea that nature behaves like a giant piece of clockwork whose functioning, once understood, can be perfectly predicted in advance. Chaos tells us that the world is not like that: even the motions of the planets, the most metronomic of natural phenomena, may ultimately be unpredictable (266).

In Act One Scene One Thomasina confirms the idea that it is very difficult to predict the future direction of events, hence she contradicts Newton's theory of the possibility to predict the future on the one hand, and paves the way for the emergence of the 'Chaos Theory' on the other hand:

THOMASINA: If you could stop every atom in its position and direction, and if your mind could

VALENTINE; It doesn't mean Byron didn't fight a duel, it only means Chater wasn't killed in it (89).

Bernard's efforts to accuse Byron based on the fragments he finds related to the past turn out to be inaccurate, in spite of his certainty of their validity. Nothing is certain. Prediction of the direction of events is something doubtful as they do not develop in a straight linear line. Surprises, unexpected results usually take place. This fact takes us to the two colliding principles in *Arcadia*: Newton's clockwork linear predetermined universe and the 'Chaos Theory' of the non-linear development of events. Newton's concepts are classical, whereas the non-linear concept is more romantic. In an Online article Mary Grove states:

In *Arcadia*, simple Newtonian physics represents Classicism. This "clockwork" view of the universe a controlled environment, and provides a metaphor for... the world as orderly and unchanging... Two fields within physics represent Romanticism: the second law of thermodynamics... and chaos theory (1).

Newton's theories of motion prove to be inaccurate; specially the first two mentioned in the Online article **Newton's Theories and Achievements**:

1. Everybody routines in a state of rest or of uniform motion in a straight line, unless it is compelled to change that state by forces impressed on it.
2. The change of motion is proportional to the force impressed, and is made in the direction of a straight line(3).

These classical deterministic concepts are violated by the 'Chaos Theory'. The events are rather unpredictable; consequently they are more non-linear. Jefferson Davis maintains:

through all the clues available to prove that Lord Byron killed Mr. Chater during his stay at Sidley Park because of Byron's affair with Mrs. Chater. Bernard intends to give a speech in London in relation to Byron's mysterious disappearance from England. Consequently he tries to get hold of any clue that might help him in this speech and at the same time he is certain that he will find something in the Croom papers to prove that Byron killed Mr. Chater:

VALENTINE: He killed Chater! Somewhere in the Croom papers there will be something-(31)... The aristocratic friend of the tutor... the first thing he does is seduce Chater's wife. All is discovered. There is a duel. Chater dead, Byron fled (50).

Lord Byron himself would have liked the idea that in spite of his invisible existence in *Arcadia*, much of the plot revolves around him and the gossip in relation to his affairs at Sidley Park. In an Online article by Jay Rogolf this point is stated: "Lord Byron (1788-1824) would have loved the fact that he never appears in Tom Stoppard's *Arcadia*, [yet] much of the plot revolves around him and gossip concerning him" (1).

Hannah disagrees with Bernard and insists on her opinion that Byron did not kill Mr. Chater, whereas Bernard arranges the clues he finds according to his own desire to give a speech related to Byron's issue at Sidley Park. Jay Rogolf writes: "Bernard theorizes Byron killed Chater in a duel, necessitating his departure but Hannah Jervis correctly objects that for months Byron had been trying to raise money for his travels, and didn't really depart till summer". Hence Bernard's clues that accuse Byron of Chater's death are not accurate. Chater actually died in Martinique in 1810, he did not die in a duel with Byron:

HANNAH: (Patiently) It means that Ezra Chater of Sidley Park connection is the same Chater who described a dwarf dahlia in Martinique in `1810 and died there, of a monkey bite...

around for much longer then, well call it twenty years (43-44).

Thomasina's unintended discovery reached through her game of the apple leaf is the basis for the term classified as 'Iterated Algorithm'. This modern theory was discovered as a game played by a genius girl thirteen years old. The discovery of theories is usually achieved through hard labor and serious observation. Stoppard presents it in **Arcadia** through a game that creates a theory by coincidence. Still, Thomasina is a genius and Valentine builds on her discoveries in his present research. In an Online article Gove Effinger maintains:

The idea which Thomasina discovers, as we find out later from the present day discussion of Hannah and Valentine, is that of **iterated algorithms**, that is the idea of starting with a number (or point), processing it somehow to obtain a new number or point (which you record), and then feeding that new number or point back into the process. You do this "feedback mechanism" again and again, and after a long time you see the **pattern** which emerges (2).

Thomasina's mathematic primer is an important clue from the past that helps the characters in the present to build upon. Septimus portfolio and the letters discovered shed light on past data and form the present information. In the Online article **Love and the Second Law of Thermodynamics** Allyn Jackson states this fact:

Trying to make sense of clues that have been left behind is a strong motif in the play. It is really the idea of modeling phenomena based on incomplete knowledge, whether one is trying to formulate a mathematical rule to represent numerical data or trying to reconstruct how people in the past lived (2).

Yet this attempt to shed light on how the dwellers of Sidley Park lived in the past does not always meet success. Bernard goes

Thomasina's first question presented about the meaning of 'carnal embrace' while working on 'Fermat's Last Theorem' in algebra proves this point. The attempt of Bernard and Valentine to arouse Hannah's emotional response, in spite of their involvement in scientific research is another clue supporting this point of view. Having music accompanying research whether presented in the tunes of the piano or the final waltz proves that science and emotion can not be strictly separated.

Thomasina, the student of the 19th century fulfills incredible discoveries such as the basis for the 'Second Law of Thermodynamics', the essentials of 'Iterated Algorithm' and 'Fractal Geometry'. Thomasina picks up an apple leaf and deduces an equation from it:" (She picks up the apple leaf.) I will plot this leaf and deduce its equation" (37). She depends in this game on the feedback process. Valentine explains this to Hannah, who reads Thomasina's notes in her primer and shows incomprehension of its content:

HANNA: "I, Thomasina Coverly have found a truly wonderful method whereby all the forms of nature must give up their numerical secrets and draw themselves through number alone... This margin being too mean for my purpose, the reader must look elsewhere for the New Geometry of Irregular Forms discovered by Thomasina Coverly (43).

VALENTINE: It's an iterated algorithm...

Each graph is a small section of the previous one, blown. Like you'd blow up a detail of a photograph, and then a detail of the detail, and so on, forever... You have some $-x$ -and y equations. Any value for x gives you a value for y . So you put a dot where it's right for both x and y ... and when you've done that a few times you join up the dots and that's your graph of whatever the equation is... Like a feedback. She's feeding the solution back into the equation, and then solving it again. Iteration, you see. It's the technique I'm using on my grouse numbers, and it hasn't been

Reason and emotion exist in man in different degrees but the elimination of the one for the sake of the other is rather odd. Hannah is conservative and rejects 'Romanticism', yet she joins the other characters in their final waltz. David Guaspari maintains: "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"(228). Stoppard's reconciliation of incongruities proves that there is no sharp line separating between one concept and another. It is inconvenient to approach a work of art with preconceived ideas as the text itself reveals its secrets to the reader. This belief is the basis for the postmodern interpretation of the work of art. Pauline Marie Rosenau states;

The post-modern reader enters the center stage and assumes an unprecedented autonomy. No longer is the reader a passive subject to be entertained, instructed, or amused S/he is given the freedom to attribute meaning to the text ... Meaning does not inhere in a text; it resides in the interaction between the text and the reader(25).

Arcadia unifies 'Classicism' and 'Romanticism' in various degrees as Stoppard believes that they do not necessarily oppose each other. Kathleen M. Wheelles states: "Classic and romantic are not opposites..."(3). Therefore Stoppard merges science with love and vice versa in his play, since both are unpredictable. In the Online article **Love and the Second Law of Thermodynamics** Allyn Jackson eliminates this traditional separation between science and love :

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. The play provides ample evidence for this view (2).

present. In an Online article Daniel Mc Gary maintains: "Arcadia is a play with a past, or rather a play in which the past asserts itself in the face of a confused present"(1). Still the present remains vague due to the incomplete information extracted from the past. The characters build on these fragments to achieve a kind of confirmation about certain matters. Building on prohibitions from the past strengthens the interrelation between past and present. Paul Delaney declares: "Arcadia alternates between two different time periods and raises questions about how the past impinges on the present and how the present can understand (and misunderstand) the past"(261). The characters of Sidley Park in the 20th century base their study upon clues from the past trying to overcome the time gap between 1809, 1812 and 1993. They go backwards attempting at a reinterpretation of history through a challenge of time. David Guaspari writes: "If the play's ruling art is history, its ruling mystery is time- especially, the fact that the past is ...heartbreakingly lost- and the desperate human desire that time's losses be annulled or overcome"(224). Hannah depends on Noakes's sketchbook for information about the history of the garden. The garden interests her as well as the identity of the hermit, as she is writing a book about hermitage. She laments the romantic conversion of the landscape due to Noakes's scheme:

HANNAH: There's an engraving of Sidley Park in 1730 that makes you want to weep. Paradise in the age of reason... And then Richard Noakes came in to bring God up to date. By the time he's finished it looked like this (the sketch book). The decline from thinking to feeling you see (27).

The decline of the neoclassical landscape in gardens is what Hannah really laments as she considers reason as the guardian of human behavior, taming romantic emotions. Jeffrey Kramer states: "Hannah laments the decline from thinking into feeling, and the decline of the neoclassical garden"(10).

Stoppard's *Arcadia* confirms the link between 'Classicism' and 'Romanticism' that used to be claimed as two separate entities.

utopian happiness, though Septimus later correctly, ascribes its much darker aspect (1).

'Et in Arcadia eg' refers to death not to perfection. Lady Croom's unintended mistake has a twofold function. On the one hand it provides a sense of comedy as it shows that this class claims knowledge while they lack it. On the other hand it indicates the doing with 'Classicism' and its replacement by 'Romanticism'.

The second scene of *Arcadia* takes us directly into the 20th century. Three characters try to solve the mysteries of the past, Hannah, Bernard and Valentine. Mr. Gerry Kowarsky states:

In the present, three researchers are working on projects related to the events of 1809. A scholar, Bernard Nightingale is looking for evidence, to prove his theory that the great Romantic poet, Lord Byron, seduced Mrs. Chater at Sidley Park and killed her husband in a duel... Another literary detective, Hannah Jerwis... is investigating the mysterious hermit who lived and died in the Sidley Park garden after its Romantic refashioning. Meanwhile Valentine Coverly... a student at Oxford is analyzing the hunting records at Sidley Park to develop a formula for population change. Valentine's research is based on the same sort of mathematics Thomasina was exploring (1).

Literature joined with science produces a comprehensive idea of life. This combination attempts to overcome the prevalence of misconception and chaos. Michael Karwowski states: "[In] *Arcadia* we have Art combined with Science in an attempt to present a comprehensive bridge across incomprehension and chaos"(165). The confused present tries to clear up matters with the help of the past in *Arcadia*, whether these fragments are Septimus's profilio, Thomasina's notebook, or the letters found in Byron's library inside 'The Couch of Eros'. These fragments are important as they are supposed to clear the confusion of the

SEPTIMUS: My lady, I was alone with my thoughts in the gazebo when Mrs. Chater ran me to the ground, and I being in such passion, in an agony of unrelieved desire- (72).

Mrs. Chater is actually having affairs with nearly everyone around. Lady Croom tells Septimus:

LADY CROOM: Your trollop was discovered in Lord Byron's room.

SEPTIMUS: Ah. Discovered by Mr. Chater?

LADY CROOM: Who else (70)?

The loose morals of the upper class are criticized by Stoppard as they present a contradiction between what is expected and what takes place. The superficiality of the aristocracy is manifest in their attempt to evade discussing bold topics and prefer to keep their children in ignorance. Thomasina's uncle Mr. Brice blames Septimus for his explanation of the term 'carnal embrace' and tells him that he is supposed to keep the girl in ignorance." As her tutor you have a duty to keep her in ignorance"(11). These words are ironic as the tutor's mission is to eliminate ignorance not create it.

The misinterpretation of words adds to the comedy in *Arcadia*. Lady Croom's speech with her architect Mr. Noakes, who intends to modernize their garden, presents another misinterpretation of words. She considers her garden as paradise on earth, hence translates "Et in Arcadia eg! as perfection on earth, whereas the actual meaning is associated with death. In an Online article titled *Arcadia: The Story So Far*, Lady Croom's indicted:

The phrase 'Et in Arcadia eg, as quoted by Lady Croom, first appeared in a 17th century picture by Guevcino. It depicts a skull which has been by shepherds, with an inscription which translates as 'Even in Arcadia there am I' [Death]. Lady Croom misinterprets the phrase to suggest a kind of

in a formal manner but the principle he discusses is mixed with ordinary life events, colored with comedy. Hence the idea of 'carnal embrace' starts as a question directed to the tutor, develops into the principle of heat absorption and the impossibility to stir things apart, then moves to an application of the physical meaning of the term in relation to sex, revealing the affairs in the play in a rather comic manner. For example Septimus's playing with words converts Mr. Chater's anger to a praise of his dutiful wife:

CHATER: I have heard of your admiration, sir!
You insulted my wife in the gazebo yesterday evening!

SEPTIMUS: You are mistaken. I made love to your wife in the gazebo. She asked me to meet her there, I have her note somewhere...

CHATER: Will you fight or not.

SEPTIMUS: 'The Couch of Eros' will take the town. You see I have an early copy- sent to me for review. I say review, but I speak of an extensive appreciation of your gifts and your rightful place in English literature...

CHATER: (Shrewdly) Did Mrs. Chater know of this before she- before you-

SEPTIMUS: I think she very likely did.

CHATER: (Triumphantly) There is nothing that woman would not do for me! Now you have an insight to her character. Yes, by God, she is a wife to me, sir.

SEPTIMUS: For that alone, I would not make her a widow (6-8).

Stoppard's treatment of the morals of this upper class is sarcastic. Thomasina asks her tutor Septimus whether he is in love with her mother; Lady Croom asks Septimus whether Mrs. Chater wears drawers or not; and Septimus gives himself excuses for his relationship with Mrs. Chater as an outlet for his unfulfilled desires towards Lady Croom:

continues to turn pink just as before. Do you think this is odd?

SEPTIMUS: No.

THOMASINA: Well, I do, you cannot stir things apart(4-5).

Valentine, the mathematician of Sidley Park in the present, repeats Thomasina's concept of the difficulty of stirring things apart but in a more advanced manner. He is working on population growth, doing his research through his computer. He repeats Thomasina's assumption that there is no possibility of pulling things apart, after they are mixed. Valentine adds to Thomasina's discovery of the impossibility of stirring things apart the computer's indication that chaos is approaching:

VALENTINE: The ordinary-sized stuff which is our lives, the things people write poetry about- clouds- daffodils- waterfalls- and what happens in a cup of coffee when the cream goes in- these things are full of mystery, as mysterious to us as the heavens were to the Greeks... When you push the numbers through the computer you can see it on the screen. The future is disorder (48).

The difficulty to stir things apart means that there is no possibility of undoing what has been done. This principle is applied to the conversion of temperature from one state to another and the impossibility of going backwards. Kru Fri Vincent Wong states:

When we consider a mass of hot water in a room at a lower temperature, experience tells us that the water will cool to the room temperature eventually... The second law helps to predict the direction of this spontaneous process (90).

These words justify the principle of the expected heat-death of the universe. Stoppard does not insert science in *Arcadia*

death of the universe. The stars would run out of fuel and the whole universe would become merely a void. The Online article **The Arrow of Time** treats this aspect of thermodynamics:

Thermodynamics is the branch of theoretical physics which deals with the laws of heat motion, and the conversion of heat into other types of energy. The word is derived from the Greek words *therme* ("heat") and *dynamics* ("force")... It has been claimed that the second law means that the universe as a whole must tend inexorably towards a state of entropy. By an analogy with a closed system, the entire universe must eventually end up in a state of equilibrium, with the same temperature everywhere. The stars will run out of fuel. All life will cease. The universe will slowly peter out in a featureless expanse of nothingness. It will suffer a "heat- death"(1-2).

The term 'carnal embrace' in itself is a combination of sexual as well as scientific interpretation. Thomasina's first question is a yearning for knowledge in addition to an eagerness to receive sexual education, a demand that contradicts the conservative nature of her age. Consequently Septimus tries to evade a direct definition; yet Thomasina's cleverness forces him to define the term in an unexpected manner, combining sex and Maths..

Thomasina's cleverness is outstanding throughout the play. She hints at the 'Second Law of Thermodynamics' nearly a century before its actual discovery explaining the theory in association with the stirring of jam into rice pudding. Her discovery is related to the difficulty of stirring things apart:

THOMASINA: When you stir your rice pudding, Septimus, the spoonful of jam spreads itself round making red trails like the picture of a meteor in my astronomical atlas. But if you stir backward, the jam will not come together again. Indeed, the pudding does not notice and

Singapore and India, he has become one of the most English of Englishmen... His idea of Arcadia, of an idyllic environment, is the English countryside. Yet he spends most of his time in cities,..., and has a very cosmopolitan nature... Stoppard has no background in philosophy, physics, metaphysics, mathematics... but his plays are filled with knowledge references to these and other specialized fields (22).

The events of *Arcadia* take place in Sidley Park in 1809, 1812, 1993. A room in a very large country house is the permanent setting in the play where Thomasina Coverly, a thirteen years old pupil is receiving her Maths lesson. Septimus, her tutor gives her a problem related to algebra and asks her to work on it. The first sentence uttered by Thomasina is totally unexpected, as she asks about the meaning of the term 'carnal embrace'. Her question arouses an atmosphere of astonishment amongst the audience. The Nineteenth Century is conservative, hence Thomasina's inquiry is rather odd. Septimus tries to evade the issue giving her a vague definition of the term saying: "Carnal embrace is the practice of throwing one's arms around a side of beef"(1).

The thirteen years old student corners her tutor till he defines the term properly, drawing her attention to stick to Fermat's last theorem, the topic of their lesson:

SEPTIMUS:... Carnal embrace is sexual congress, which is the insertion of the male genital organ into the female genital organ for purposes of procreation and pleasure. Fermat's last theorem, by contrast, asserts that x , y and z are whole numbers each raised to power of n , the sum of the first two can never equal the third when n is greater than 2 (3).

'Carnal embrace' has another meaning associated with the world as a whole. The 'Second Law of Thermodynamics', that is hinted at by the genius Thomasina predicts the approaching heat-

Stoppard's Treatment of Incongruous Concepts in Arcadia

By Mona Wahsh

Lecturer at Ain Shams University

Women's College for Arts, Science & Education

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Throughout his career Tom Stoppard (1937-) has written plays that stimulate different interpretations that justify describing him as a perpetual innovator. Recycling parts of extant works of art is a special technique traced in most of his works starting from **Rosengrantz & Guildenstern Are Dead** (1967), to his most recent nine hours trilogy, **The Coast of Utopia** (2002).

In addition traveling through time is another characteristic of Stoppard's style. His masterpiece **Arcadia** (1993) displays the above features in a rather progressive manner where Stoppard recycles literary schools, concepts and scientific ideas, merging the past and the present together. 'Classicism', 'Romanticism', the 'Second Law of Thermodynamics', 'Newton's Theories of Motion', the linear development of events and the possibility of future prediction, the 'Chaos Theory', and 'Fractal Geometry' are all discussed in **Arcadia**, mixing science with art. This is something expected from a playwright who is fond of overwhelming his plays with concepts and ideas. Rodney Simard states: "Stoppard's plays reflect the postmodern obsession with ideas, which form the basis of his work and are most often his subject matter"(49).

In **Arcadia** Stoppard proves that modern scientific achievements develop from past accomplishments. Furthermore science, literature, reason and emotion, 'Classicism' and 'Romanticism' do not necessarily oppose each other. They mix and merge together without being strictly separated by what we call a Chinese wall. The objective of this paper is to trace Stoppard's treatment of these incongruous concepts which reflect Stoppard's contradictory character. In that respect. Mell Gussow maintains:

Stoppard's life and his work are crowded with apparent contradictions. Although he was born in ...Czechoslovakia... and spent his early years in