The Effects of Chaos: Lessons Learned From Crichton's *Jurassic Park*

Isaac Lay

Center for Advanced Research and Technology

English 11H

Mrs. J Silva

January 26, 2024

Abstract

In the Web Application Development lab at the Center for Advanced Research and Technology (CART), teams were tasked with creating websites for stores which could be found inside of the Jurassic Park shopping centers. To prepare for the project, in their English class, students read Michael Crichton's 1990 novel, Jurassic Park and focused on the character, Ian Malcolm. Malcolm argues that science shows Jurassic Park, as a business, will fail due to the playout of chaos theory. Furthermore, learning life lessons through the chaos in Jurassic Park are explored as well as a discussion of how these lessons can be applied to one's everyday life. These lessons include when doing anything in life people should have a plan to fall back on. Nature will find a way even in the harshest conditions and total control is a rickety goal to achieve.

The Effects of Chaos: Lessons Learned From Crichton's *Jurassic Park*

Introduction

In Michael Crichton's *Jurassic Park* the mathematician, Ian Malcolm, strongly believes that the park, as a business venture, will fail because of chaos. The entrepreneur John Hammond, like many entrepreneurs would, ignored Ian's prediction. John Hammond's end goal is to gain worldwide notoriety and a large amount of wealth from his genetically modified dinosaur amusement park. Ian Malcolm tries to prove his theory that the park would fail because of chaos and eventually the park does fail just as he had predicted. Chaos does not have to be seen as negative. In fact in the novel Chaos can act as a source of life lessons for the reader. John Hammond has an arrogant attitude about his park and never had any backup plans in place to remedy unexpected events. Playing into this John Hammond had no backup plans for when nature found a way for the dinosaurs to reproduce when they were specifically engineered not to. Finally, John Hammonds goal of total control over his dinosaurs led to the ultimate downfall of his business with his lead computer programmer betraying him. Ian Malcolm's prediction of the park's downfall was due to his belief in chaos theory which has a highly interesting scientific basis.

Scientific and Literary Origins of Chaos Theory/Butterfly Effect

Chaos theory has been proven from as early as 1960 (cite source). Chaos theory is the scientific theory that initial conditions can lead to strikingly large changes in a system. Chaos theory was first researched by Edward Lorenz. Lorenz was a meteorologist who grew up with a fascination with mathematics and the weather (Chodos & Oulette, 2003, para. 2). Lorenz created a skeleton of a weather system using several equations. Using a primitive computer every minute he could calculate a day's worth of weather information. One day he created a sequence of data

and wanted to explore it further so instead of starting his run with the beginning numbers he used the numbers in the middle of his previous run. Lorenz left that to run and when he came back he discovered that the run he had just conducted had diverged from his previous run. Instead of this run of his equations having the same results as the last it was wildly different. Lorenz first thought his computer had malfunctioned but in reality he plugged in numbers that had omitted the thousands place and smaller (Chodos, 2003, para. 5). The slightly different input caused his data to be wildly non similar. Chaos theory was first formulated around predicting the weather, but chaos has been used in literature since the 1950s. Ray Bradbury's short story "A Sound of Thunder" suspensefully reveals how a little thing in the past could change the future. Eckels goes on a safari to the past in which they hunted a T-Rex. There were policies in place to keep the people on the safari from changing the future. One such rule was to not stop off the path the company had created to protect the past from the future. The group walks down the path to where the T-Rex is, their prey. Eckles gets thrown to the floor by fear. The fear that is instilled onto him makes Eckels do exactly what the leader of this safari prohibited. He stepped off the path. Bradbury writes, "a small thing that could upset balances and knock down a line of small dominoes and then big dominoes and then gigantic dominoes, all down the years across Time. Eckels' mind whirled. It couldn't change things. Killing one butterfly couldn't be that important! Could it?" (Bradbury, 1952). When he had stepped off the path he had killed a butterfly and that one small teenie tiny change created a future where the English looked like gibberish. His seemingly small mistake of stepping off the path which killed a butterfly led to a huge change in the future. Another one of Bradbury's works that displays chaos theory is "The Pedestrian". In his story the main character, Leonard Mead, is taking a night stroll. The streets are empty and everyone besides him is glued to their televisions. An autonomous police car pulls up to him to

ask him what he is doing. He just says he is walking to see and to get fresh air. The police car usually does not see this behavior and acts strangely to Mead's response.

In "The Pedestrian" Bradbury writes, 'Leonard Mead waited in the cold night. "Just walking, Mr. Mead?" "Yes." "But you haven't explained for what purpose." "I explained; for air, and to see, and just to walk." "Have you done this often?" "Every night for years." The police car sat in the center of the street with its radio throat faintly humming. "Well, Mr. Mead," it said. "Is that all?" he asked politely. "Yes," said the voice. "Here." There was a sigh, a pop. The back door of the police car sprang wide. "Get in" (1951, para. 5). Leonard Mead tried to explain that he was just going for a walk. This confused the police car because nobody walks outside anymore. After the car understood Leonard Mead was walking just to walk the police car decided to arrest Mr. Mead. The car did this to prevent Mr. Mead from spreading his "regressive tendencies" (Bradbury, 1951, para. 6).

Chaos Theory at Play in *Jurassic Park*

Chaos Theory is the center of many novels and in *Jurassic Park*. Ian Malcolm has the deepest understanding of chaos theory because of his mathematical background. He is the one who first brings it up and predicts it will lead to the downfall of the park. Malcolm says, "They are sensitive to initial conditions: tiny differences become amplified" (Crichton, 1990, p. 47). Malcolm is explaining how initial conditions change the outcome of the same event. He is explaining this to Gennaro when he inquires why Malcolm predicts the park will need to be shut down. Gennaro views Malcolm's theory not as certain or correct but he understands it. On page 150 John Hammond says, "He's got his theory that complex systems can't be controlled and nature can't be imitated. I don't know what his problem is. Hell, we're just making a zoo here"

(Crichton, 1990). Hammond's view is very negative on Malcolm's theory and he just thinks this simple project will work out fine. John Hammond and Dennis Nedry both lack a solid understanding of chaos theory. John Hammond's overconfidence and lack of contingency plans proved that he did not understand the effects of chaos on his park. Dennis Nedry put too much trust into his own programs and because John Hammond wanted total control over his park and overworked Nerdy, Nedry betrayed Hammond. Nedry did not understand how every little thing affects the whole park. His disabling of the electric fences led to the very first escape of the dinosaurs which created a death spiral into the downfall of the park.

Consequences of Chaos Theory

The instabilities within Hammond's infrastructure lead to many non-infinitesimal consequences. The main source of instability was Hammod's lead computer programmer, Dennis Nedry. He was frustrated with his pay and the stress he had endured trying to fulfill the unrealistic goals of complete control. It is revealed that Nedry was in contact with BioSyn, one of InGen competitors, and if Nedry was able to steal dinosaur embryos he would make a quick one million five hundred thousand dollars. To do this Nerdy first dropped the phone lines so nobody could stop him from leaving and then he disabled the electric fences containing the T-Rex. He took a break and used that time to steal the embryos as well as taking one of the jeeps so he could get to the boat that was leaving the island. Nedry's misconduct led to the T-Rex escaping and wreaking havoc on the people doing the dinosaur tour. Dr. Grant, Tim, and Lex get lost within the forest of the park. Ed Regis gets eaten by the T-Rex and Ian Malcolm gets picked up and dropped, breaking his leg from the fall. It was not just Nedry that caused a mass increase in the park's chaos. Henry Wu, the chief geneticist at Jurassic Park, created the dinosaurs that were on the island but he missed one crucial detail. The amphibian DNA he used to fill in the

gaps of the broken dinosaur DNA allowed the dinosaurs to reproduce. This behavior was unexpected because the dinosaurs were all created as female but the DNA that filled in the gaps of their genetic code allowed them to switch their gender. The chaos of the park increases as panic sets in seeing more dinosaurs on the island then documented and how they had no control over it. In light of these events a closer examination reveals valuable lessons one could learn from unforeseen circumstances and unchecked instability.

Lessons Learned from Chaos

The chaos that unfolded in Jurassic Park demonstrates the absolute importance of meaningful planning and foresight in both big and small projects. Human factors can easily influence the outcome of these projects, as demonstrated by Denis Nedry's mischief driven by his poor financial gain and overall dissatisfaction. Hammond's ignorance over management of his employees became the catalyst for the cataclysmic events that followed. Additionally, the complete oversight of Henry Wu as his role as chief geneticist demonstrates how important the most imperceptible details are. His oversight created dinosaurs that could switch their genders, as an outcome of using amphibian DNA, meaning they could reproduce. The chaos that these omissions caused paints Michael Crichton's *Jurassic Park* as a cautionary tale accentuating the necessity of changing plans in times of crisis and generating rugged contingency strategies. Fundamentally, the downfall of the park functions as a reminder that the biggest projects need good management and the willingness to adapt to unpredictable challenges.

Conclusion

Michael Crichton's *Jurassic Park* acts as a novel that interweaves both chaos theory and the consequences of human oversight. *Jurassic Park* explores the effects of chaos and further research reveals Edward Lorenz's research and discovery of the butterfly effect. Additionally, its literary applications are showcased by Ray Bradbury's "A Sound of Thunder" and "The Pedestrian". Ian Malcolm's strong understanding of chaos theory created the main plot of *Jurassic Park*. He predicts that the park will fail which proves to be eerie accurate. John Hammond's overconfidence, lack of backup plans, and desire for complete control sets the stage for the event cascade that leads to the downfall of the park. The problems encountered prove the importance of creating backup plans and keeping employees happy. Ultimately, *Jurassic Park* is a thrilling but also interesting novel that interweaves the valuable life lessons found in chaos with a gripping novel.

References

Bradbury, R. (1952). *A Sound of Thunder*.

Bradbury, R. (1951). *The Pedestrian*.

Chodos, A., & Ouellette, J. (2003, January). *This Month in Physics History*. American Physical Society. https://www.aps.org/publications/apsnews/200301/history.cfm

Crichton, M. (1990). *Jurassic Park*. Ballantine Publishing Group