



Time Travel in Fiction

By

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If you survived the last chapter's deep plunge into the esoterics of modern physics, you are to be congratulated. In a few thousand words we went through the true nature of the universe, of gravity, introduced the concept of entropy, pointed out that the Earth drags the universe around with it when it rotates, and finally concluded that time travel is not only *not* prohibited by our current understanding of the universe, it might actually be allowed! This isn't to say that it will always be allowed. As we learn more we may well find a universal law that prohibits ever interacting with our past, or that the past no longer exists in the space-time continuum. In fact, either of those possibilities appeals more to common sense than our current state of ignorance which we call science. Still, let me reiterate: Modern physics allows for the possibility of time travel, as disturbing as that may seem.

In this chapter we will leave the heavy lifting behind and concentrate on the fictional aspects of the time travel genre. Time travel stories basically come in two varieties. The first variety uses time travel merely as a plot device to transport the modern protagonist to an interesting, historical venue. There he acts just like the natives, buckling his swash across the Spanish Main, serving with Charles Martel at Tours, or partaking of the orgies of the later Roman era.

These "Time Travel As Convenient Vehicle" stories are no different than any other type of historical romance and they need pay little attention to the oddities of time travel. Dirk Spiff, intrepid time traveler, jumps in his machine and takes off for Ancient Rome. There he encounters the beautiful Livia, daughter of Claudius Petronus, Roman patrician. He falls in love with her, helps her father take over the senate, and is nearly killed for his troubles before winning the day and the fair Livia. Maybe he gets back to his own time, and maybe he doesn't. It depends on how well he likes living in an era without modern supermarkets.

The rules for writing a Time-Travel-As-Convenient-Vehicle story are the same as for any adventure, and we will say no more about it here.

The second type of time travel story is what I call a *real* time travel story. This type of story is concerned with but one thing, the time travel paradox.

"What paradox?" you ask. The obvious one, of course. It is usually stated as follows: *You get in your time machine and go back several decades where you kill your grandfather as a child. But if you killed him before your father was born, how can you exist? And if you don't exist, how can you go back in time to kill him?*

Good question. The Gaelic response avoids the problem by stating, "As though anyone knew who their grandfathers truly were, anyway!" This superficial response to the

problem actually covers a deeper truth at the heart of the paradox, which involves the mutability of history.

There is a principle in science called “causality.” Simply stated, causality holds that the cause must always precede the effect. If time travel is possible, then causality is out the window. This, more than anything else, is the emotional bar to believing that time travel is truly possible. For to be able to travel back into the past, the past must still exist somewhere ... somewhen. Every moment from the Big Bang to the eventual death of the universe must be prerecorded, to happen exactly as it was set up to happen when the universe was created whole and in one piece, unchanging, but four dimensional.

The idea that all events are predestined does not sit well with those of us who believe that we have some freedom to change things. And though there have been numerous religions and philosophies that believe we mere mortals cannot escape our ultimate fate, that notion is not widely held in the modern world.

Yet, if time travel is possible, how can it be otherwise?

Simply put, can time travelers affect history? If your hero goes back to Washington, DC on the night of April 14, 1865, will he be able to save Lincoln from John Wilkes Booth? When he gets to the box office at Ford's Theater, will he discover the play sold out? And if he gets inside, will he be able to reach the corridor behind the presidential box before Booth arrives? If he intercepts Booth, perhaps in the ensuing struggle with the time traveler, Booth's gun will accidentally discharge, pass through the open doorway, and hit Lincoln in the head. Then Booth, his mission accomplished, will enter the box, jump down onto the stage, shout “Sic, Semper, Tyrannous!” and hobble off to his destiny. More likely, after leaving his machine hidden in a clump of bushes outside of town, our traveler will be walking along a narrow lane when a team and wagon come along and sideswipe him. He will end up lying unconscious in a Civil War era hospital with two broken legs at the moment of the assassination.

All of the above are likely if history is immutable in the universe in which your time traveler moves. The governing rule for such a universe is “What will be, will be!” or perhaps, “What was, is!” If you decide that history is immutable, then you must live with that rule no matter how inconvenient it is. Your plot must conform to the known facts of history, and no amount of striving on the part of your hero should be able to change things, not even a little bit.

Immutable history stories have all of the inevitability of a Greek tragedy. This isn't an accident, because the Greek tragedy is the source from which they ultimately descend. In many Greek plays, the hero consults the Oracle of Delphi, who forecasts the future in terms of a riddle. Naturally, the hero misunderstands the riddle and in his attempt to avoid his fate, takes the precise action to seal that very fate. The drama doesn't involve the question of whether or not he will go to his doom — we and the ancient Greek audiences take that for a given — but only in the surprising turn of events that guarantees that doom. If the character boards the ship for Crete, we know that was the wrong choice. Likewise, if he misses the ship, that was the wrong way to go. The hero's actions lead straight as an arrow toward the fate that he is attempting to avoid. You know it, the audience knows it, and only the hero doesn't know it.

While writing a “history is immutable,” story, the known events are dangerous to the story's protagonists. If the time travelers attempt to keep President Lincoln from being assassinated, they will either die or be injured themselves, or might possibly bring on that

assassination through their action. This is vital for the reader, who knows that Lincoln is going to die. The fascination is in learning how the time travelers contributed to the death.

The second sort of pure time travel story is one in which history is mutable. If you don't like the way things turned out, then go back in time and fix them. This type of story concentrates not on the inevitability of events, but rather on how history is changed. In his classic short novel, *Lest Darkness Fall*, L. Sprague De Camp followed the adventures of a modern man who is mysteriously transported back to Rome after being struck by lightning. The Rome in which he arrives isn't Imperial Rome. Rather, it is the Rome of the Visigoths and the Vandals.

The story follows his efforts to establish himself, first by introducing the art of distilling and then by building the world's first printing press. The plot involves his efforts to stave off the coming of the Middle Ages, misnamed the Dark Ages. At the end of the book he has largely succeeded, changing all future European and American history in the process.

Since we identify with the hero, we aren't too concerned that the author has completely wiped us out in the process. The novel is good enough that we have transferred our allegiance from our own time to the time traveler's Rome. We are happy that, through the time traveler's efforts, the Interregnum will be cut short by centuries. The fact that our own timeline will never come to pass doesn't faze us at all. (A timeline is the sequence of all events that go to make up a particular history. If history changes, then you are on a different timeline.)

One of the most classic "History is Mutable" stories ever written involved the trial of a laboratory scientist accused of blowing up the world's only working time machine – which cost several billion dollars to construct. At first the defendant refuses to explain his actions, and finally does so, but only because he wants the powers-that-be to understand why they must never build another time machine. On the night of its destruction, the time machine was hijacked by a religious fanatic who, armed with an automatic rifle, was headed for Golgotha to save Jesus Christ from the cross. The defendant destroyed the machine to prevent him from succeeding. "Just think," he asks at the end of the story, "how the world would be different if he managed to save Christ!" Since the common people would not understand the need to stop the fanatic, and indeed, would be in sympathy with his aims, the whole affair is hushed up and the charges are quietly dismissed.

This example illustrates why time travel stories have such a powerful effect on readers and writers alike. They force us to examine attitudes so deeply buried that we aren't even aware that we have them any longer. They allow us to ask *What If* and sometimes we don't like what we conclude.

A variation on the "History is Mutable" theme is the "History is Mutable, But We Don't Want To Change" approach. In these stories there is always a police agency, typically the Time Patrol, that works throughout the ages to prevent time travelers from screwing up the past. The best of these is Poul Anderson's *Time Patrol* series of novelettes. In these, he explores all of the basic ramifications of the History is Mutable story, including one where the hero decides to change history on his own, and another where he learns that his overlords aren't averse to a little rearranging of history for their own benefit.

The *Time Patrol* series is an example of "History is Mutable, Sort Of" genre. Anderson states that the timeline is like a strong rubber band, difficult to stretch out of shape, and quick to spring back. What happens if you go back in time and kill your great-great-great-grandfather? Not much. Despite that particular ancestor's sudden disappearance from

the scene, you still manage to collect the same genes from some other ancestor and you are essentially the same person despite the loss. That assumes, of course, that your many-times-removed ancestor isn't Julius Caesar or Napoleon Bonaparte. Remove those two individuals from history before their time and you have a major mess on your hands!

Anderson explains the problem by stating that there are times when history comes to a nexus, a weak point in the timeline, where small nudges by time travelers can bring about drastic changes in the course of history. One story deals with the effects of rogue time travelers killing a Roman general and his son in the Second Punic war. The result is a charming society in North America based on the Celtic culture rather than the Roman one. Manse Everard, the hero of the *Time Patrol* series, must work to restore the "proper" timeline, despite the fact that his actions will destroy the beautiful heroine's people and culture. For if the "Roman timeline" – our timeline – is to be restored, the "Celtic timeline" must be destroyed. In time travel stories, a character's allegiance must be to his own timeline, regardless of how awful the history leading up to his time has been. Why? Because that is the history that produced the character.

Let us perform a mental experiment. If you had the opportunity, would you go back in time and strangle Adolf Hitler in his crib? Sounds tempting, doesn't it? One small case of infanticide means that most of the 30 million people killed in World War II would have survived to live full and meaningful lives. Or does it? Was Nazi Germany the product of Adolf Hitler or of the conditions that plagued the Weimar Republic following World War I? And if the conditions produced Nazism and Hitler, rather than vice versa, wouldn't things have gone on pretty much the same without him? What if the Nazi fuhrer had been someone with enough sense to leave the fighting to the professional soldiers and the German tactical blunders of Dunkirk, the invasion of Russia, and the Battle of Stalingrad had never happened? Had the Germans not made so many mistakes due to Hitler's micro-management, maybe they would have won the war!

Even had Nazism never come about, can we truly say we would prefer the world that would have resulted? There would still have been Stalin, another of God's lesser efforts, to deal with. One thing World War II did was cause rapid technological advancement. Would it have been a better world or a worse one were the invention of radar, jet aircraft, atom bombs, and computers delayed until well into the twenty first century? And for those of you who reflexively state that we would be better off without nuclear power, let me remind you that the world's oil supply won't last forever. Perhaps we invented nuclear power "just in time!"

Killing Hitler as a baby would have profound and unpredictable effects on the course of history, and whether the net effect would have been better or worse is an argument we can have until the sun grows cold. But one thing we know for certain is that a world without Adolf Hitler would be a changed world. On a personal note, my parents met in San Antonio in 1945 because my father was stationed there with the Army Air Corps. If some time traveler killed Hitler as a baby, I might never have been born. You may have the same problem. To my way of thinking, Michael McCollum never having been born is a pretty significant change! You, of course, may disagree.

All of this is speculation, of course, and the only way we can find out for sure would be to invent a time machine and do the experiment. Should we ever have the opportunity, it would behoove us to exercise caution. This is the *proper* timeline because it is *our* timeline. People who developed on alternate timelines will have other opinions, and presumably, that

difference in viewpoint would lead to conflict. There are innumerable science fiction stories to be written based on that concept alone. I know, because I am planning to write one.

But is any timeline “proper,” or are all timelines equally deserving of existence? How does the Time Patrol know what was “supposed” to happen? Poul Anderson has answered this question by devoting a considerable portion of his fictional police organization to studying the past of cultures who lack writing, and therefore, have no recorded histories. The Danellians, the far future beings that established the Time Patrol in the first place (“the first place” is one of those expressions that will have to be scrapped if we ever invent time travel) are loath to forbid time travel because it is part of *their* proper timeline. Besides, it gives the author a convenient hook onto which to hang his adventures – anytime, anywhen. If you are interested in writing time travel stories and haven’t read Poul Anderson’s *Time Patrol* stories, then I strongly urge you to do so at once. You will learn far more from them than from reading this chapter.

Because of the inherent complexity of the concepts involved (“Dear God, please make it didn’t happen.”), the pure time travel story is difficult to write. So, to make sure everyone understands the concept, let us review a time travel story with which most people are familiar. I refer to that movie favorite, *Back to the Future, Part I*.

In *Back to the Future*, Marty McFly, insecure scion of a dysfunctional family, assists Doc Brown, eccentric scientist, in his time travel experiment in the parking lot of Twin Pines Mall in Hill Valley, California. After successfully sending Doc’s dog forward 60 seconds in time, a group of crazed Libyans show up and Marty accidentally transports himself back 30 years while trying to get away from them in the DeLorean time machine. Transitioning instantaneously from 1985 to 1955, leaving the mall 30 years in the future, Marty crashes into a farmer’s barn and barely escapes with his hide free of buckshot. In the process, he runs over one of the pine trees growing in the farmer’s front yard.

In a much changed Hill Valley, he meets his parents, saves his father from being run over by a car, is knocked unconscious for his efforts, and wakes up to find his future mother stroking his brow and looking at him with love in her eyes. This, then, is the basic time travel paradox in full bloom. “If you go back in time and prevent your parents from marrying, how are you ever going to be born?” In this case, Marty’s siblings begin to disappear one by one from the picture he carries in his wallet. Their presence in the photograph decreases as Marty’s efforts in the past make his parents’ future marriage ever more improbable.

The rest of the movie involves his efforts to set up his parents with a date in order to ensure his own future birth, and to get back to his own time. Toward the end, he himself begins to disappear to the point where his hand becomes partially transparent.

Now it’s only entertainment, but could this actually happen in real life? Actually, it could. There is a very famous experiment in which scientists pass light through parallel slits to form interference patterns on a screen, thereby proving that photons act like waves even though they are particles. The weird part is that you still get interference patterns if you send the photons through the slits *one at a time*. In effect, each photon passes through *both* slits simultaneously. This proves that the position of a photon is only a matter of probability, and by extension, the same can be said for the position of a human being. The light-through-the-slits experiment forms the basis for that most maddening of all sciences, quantum mechanics.

But I promised not to delve too deeply into the physics, so I’ll stop. Marty’s sudden bout of transparency at the school dance is merely a measure of the probability of his

existence. Luckily, his milquetoast father decks the school bully, wins the fair damsel, and changes his own life forever. When he returns to 1985 to deal with the Libyans, Marty returns to a changed future. One of the subtle points of the movie that many people don't notice is the name of the mall. If you look quickly as the exhausted Marty is running up to the mall just in time to see the Libyans attack his former self, you will note that the name on the sign behind him is *Lone Pine Mall*, not *Twin Pines Mall* as it was at the beginning of the picture. Remember, Marty ran over the second pine tree when he was escaping the farmer's shotgun.

That particular subtlety made the movie for me and it shows the genius of Stephen Spielberg. A lesser director would have dwelled on that sign, pounding the point home *ad nauseum*. Spielberg left that clue on the screen less than two seconds and sent an electric chill up the spines of everyone who noticed it.

When Marty returns home he finds that his dysfunctional family has disappeared, to be replaced by confident, successful, professional people. His mother is no longer fat and his father no longer an insecure fool. And, of course, he now has that 4x4 truck he always dreamed about.

What has happened here? Quite simply, Marty McFly has changed the timeline with his trip back to 1955. The world is no longer what it was; it's better, at least for him. Punching out the villain has changed his father's life, and with it, his mother's. No telling what it's like for other people. The villain, Biff, probably doesn't like the change. After all, he has been transformed from a bullying boss to a car-washing toady. But then, that is the art of fiction. Seeing the villains get their just desserts makes us all feel good.

What makes *Back to the Future* work as a movie and as a time travel story is not the great intellectual puzzles inherent in the time travel paradox. It's the fact that we sympathize with Marty and root for him as he tries to resolve his dilemma in 1955 (his impending non-existence), while trying to generate 1.21 *jiggawatts* (Apparently, Steven Spielberg doesn't know how to pronounce "gigawatts") of energy so that he can return home. We sympathize with him and feel his frustration as he tries to redirect the romantic interest of his future mother, fights Biff and his gang, and struggles to decide whether he should warn Doc Brown about the Libyans.

Then, when he has us all wrapped up worrying about these mundane matters, Steven Spielberg pulls a fast one on us and deals us a surprise that none of us saw coming, namely the transformation of Marty's personal timeline. That is what makes the movie great – characters we can identify with and an ending none of us predicted. As the credits roll, we realize that the story is a unitary whole, that all the subplots were necessary parts of that totality, and that even the seemingly extraneous details (the lightning strike on the clock tower) are important! The whole story is tied up neatly into a bow and delivered to us on the silver screen.

It is this feeling of satisfied inevitability that we most crave from the time travel story. When we get it, the thrill is like an electric shock through our bodies. When we don't, then we tend to savage the writer even more than for other types of fiction. That is what makes the time travel story so challenging to write.

So, are there time travel stories in your personal future? Barring the invention of a time machine, you will have to find out by time traveling at the steady rate of one year per year. Just remember, what will be, is; and what won't be, isn't!

Only time will tell.

The End

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When the super giant star Antares exploded in 2512, the human colony on Alta found their pathway to the stars gone, isolating them from the rest of human space for more than a century. Then one day, a powerful warship materialized in the system without warning. Alarmed by the sudden appearance of such a behemoth, the commanders of the Altan Space Navy dispatched one of their most powerful ships to investigate. What ASNS Discovery finds when they finally catch the intruder is a battered hulk manned by a dead crew.

That is disturbing news for the Altans. For the dead battleship could easily have defeated the whole of the Altan navy. If it could find Alta, then so could whomever it was that beat it. Something must be done...

4. Antares Passage - US\$4.50

After more than a century of isolation, the paths between stars are again open and the people of Alta in contact with their sister colony on Sandar. The opening of the foldlines has not been the unmixed blessing the Altans had supposed, however.

For the reestablishment of interstellar travel has brought with it news of the Ryall, an alien race whose goal is the extermination of humanity. If they are to avoid defeat at the hands of the aliens, Alta must seek out the military might of Earth. However, to reach Earth requires them to dive into the heart of a supernova.

5. Antares Victory – First Time in Print – US\$7.00

After a century of warfare, humanity finally discovered the Achilles heel of the Ryall, their xenophobic reptilian foe. Spica – Alpha Virginis – is the key star system in enemy space. It is the hub through which all Ryall starships must pass, and if humanity can only capture and hold it, they will strangle the Ryall war machine and end their threat to humankind forever.

It all seemed so simple in the computer simulations: Advance by stealth, attack without warning, strike swiftly with overwhelming power. Unfortunately, conquering the Ryall proves the easy part. With the key to victory in hand, Richard and Bethany Drake discover that they must also conquer human nature if they are to bring down the alien foe ...

6. Thunderstrike! - US\$6.00

The new comet found near Jupiter was an incredible treasure trove of water ice and rock. Immediately, the water-starved Luna Republic and the Sierra Corporation, a leader in asteroid mining, were squabbling over rights to the new resource. However, all thoughts of profit and fame were abandoned when a scientific expedition discovered that the comet's trajectory placed it on a collision course with Earth!

As scientists struggled to find a way to alter the comet's course, world leaders tried desperately to restrain mass panic, and two lovers quarreled over the direction the comet was to take, all Earth waited to see if humanity had any future at all...

7. The Clouds of Saturn - US\$4.50

When the sun flared out of control and boiled Earth's oceans, humanity took refuge in a place that few would have predicted. In the greatest migration in history, the entire human race took up residence among the towering clouds and deep clear-air canyons of Saturn's upper atmosphere. Having survived the traitor star, they returned to the all-too-human tradition of internecine strife. The new city-states of Saturn began to resemble those of ancient Greece, with one group of cities taking on the role of militaristic Sparta...

8. The Sails of Tau Ceti – US\$4.50

Starhopper was humanity's first interstellar probe. It was designed to search for intelligent life beyond the solar system. Before it could be launched, however, intelligent life found Earth. The discovery of an alien light sail inbound at the edge of the solar system generated considerable excitement in scientific circles. With the interstellar probe nearing completion, it gave scientists the opportunity to launch an expedition to meet the aliens while they were still in space. The second surprise came when *Starhopper's* crew boarded the alien craft. They found beings that, despite their alien physiques, were surprisingly compatible with humans. That two species so similar could have evolved a mere twelve light years from one another seemed too coincidental to be true.

One human being soon discovered that coincidence had nothing to do with it...

9. Gibraltar Earth – First Time in Print — \$6.00

It is the 24th Century and humanity is just gaining a toehold out among the stars. Stellar Survey Starship *Magellan* is exploring the New Eden system when they encounter two alien spacecraft. When the encounter is over, the score is one human scout ship and one alien aggressor destroyed. In exploring the wreck of the second alien ship, spacers discover a survivor with a fantastic story.

The alien comes from a million-star Galactic Empire ruled over by a mysterious race known as the Broa. These overlords are the masters of this region of the galaxy and they allow no competitors. This news presents Earth's rulers with a problem. As yet, the Broa are ignorant of humanity's existence. Does the human race retreat to its one small world, quaking in fear that the Broa will eventually discover Earth? Or do they take a more aggressive approach?

Whatever they do, they must do it quickly! Time is running out for the human race...

10. Gibraltar Sun – First Time in Print — \$7.00

The expedition to the Crab Nebula has returned to Earth and the news is not good. Out among the stars, a million systems have fallen under Broan domination, the fate awaiting Earth should the Broa ever learn of its existence. The problem would seem to allow but three responses: submit meekly to slavery, fight and risk extermination, or hide and pray the Broa remain ignorant of humankind for at least a few more generations. Are the hairless apes of Sol III finally faced with a problem for which there is no acceptable solution?

While politicians argue, Mark Rykand and Lisa Arden risk everything to spy on the all-powerful enemy that is beginning to wonder at the appearance of mysterious bipeds in their midst...

11. Gridlock and Other Stories - US\$4.50

Where would you visit if you invented a time machine, but could not steer it? What if you went out for a six-pack of beer and never came back? If you think nuclear power is dangerous, you should try black holes as an energy source — or even scarier, solar energy! Visit the many worlds of Michael McCollum. I guarantee that you will be surprised!

Non-Fiction Books

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16. The Astrogator's Handbook – Expanded Edition and Deluxe Editions

The Astrogator's Handbook has been very popular on Sci Fi – Arizona. The handbook has star maps that show science fiction writers where the stars are located in space rather than where they are located in Earth's sky. Because of the popularity, we are expanding the handbook to show nine times as much space and more than ten times as many stars. The expanded handbook includes the positions of 3500 stars as viewed from Polaris on 63 maps. This handbook is a useful resource for every science fiction writer and will appeal to anyone with an interest in astronomy.