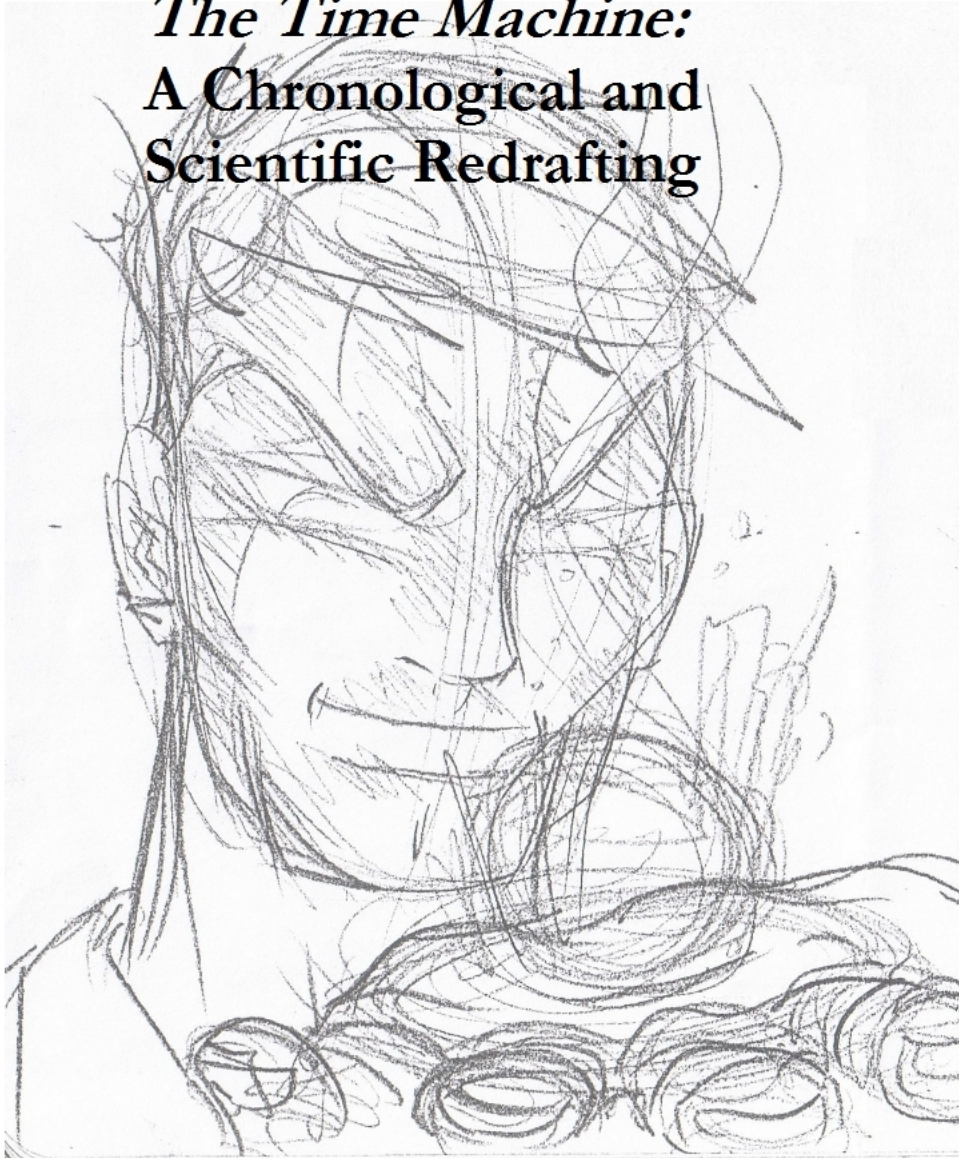


The Time Machine:
**A Chronological and
Scientific Redrafting**



By B. D. Sommerville
Cover illustration by David Olteanu

The Time Machine: A Chronological and Scientific Redrafting¹

For a work having time as a major theme, it is rather odd that the chronology of H. G. Wells's *The Time Machine* (1895) has not been fully analysed. Its chronological structure is complex, comprising an outer framework of events set in the late Victorian atmosphere of the Time Traveller's Richmond home, and a more extensive inner core of events ostensibly set in the distant future.

The chronology of the outer framework is explored in detail here. It is shown that the accepted chronology of *The Time Machine* is erroneous and that the true chronology reveals a hidden series of events. The discussion below establishes the following points:

1. The chronology of the outer framework forms a puzzle, the solution of which reveals the Time Traveller to have hoaxed his guests, especially the narrator, Hillyer. The Time Traveller has not travelled in time, but has dreamed his vision of the future after returning to his workshop from a cycling excursion.
2. The disappearance of the model Time Machine and the Time Traveller's final departure are optical illusions, which accord with contemporary theories of psychology and visual perception, as does the Time Traveller's theory of time and his dream.
3. The relationship between the Time Traveller's hoax and the book's theme of evolutionary degeneration is best understood by viewing *The Time Machine* as an indictment of late nineteenth-century complacency. The Time Traveller's deception of Hillyer is Wells's way of ridiculing the naive optimism and complacency Hillyer displays in the Epilogue.

A result of this analysis of *The Time Machine* is a greater appreciation of its scientific basis, especially in the area of psychology. Autobiography is also important, and indicates the whereabouts of the Time Traveller following his final 'disappearance' on the 'Time Machine'.

The outer framework is here considered to include the passages describing the Time Traveller's departure and return. All references to *The Time Machine* are to the first London (Heinemann) edition (Wells, 1895a).

The Chronological Problem of *The Time Machine*

Literary scholars, taking their cue from the Time Traveller's guests, assume that the Time Traveller returns to his laboratory from the future at about eight o'clock in the evening on the day of his departure. Geoffrey H. Wells (1926:226) and Harry M. Geduld (1987:11) both affirm this chronology, which seems not to have been disputed.

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However, a close reading of the second paragraphs of Chapters 4 and 15 show this assumption to be wrong. Here is the Time Traveller's account of his departure on his machine on the second Thursday afternoon:

Then I noted the clock. A moment before, as it seemed, it had stood at a minute or so past ten; now it was nearly half-past three!

. . . The laboratory got hazy and went dark. Mrs. Watchett came in, and walked, apparently without seeing me, towards the garden door. I suppose it took her a minute or so to traverse the place, but to me she seemed to shoot across the room like a rocket. I pressed the lever over to its extreme position. The night came like the turning out of a lamp, and in another moment came tomorrow. (28)

Note that Mrs. Watchett traversed the laboratory after half-past three but before the night came. Turning to Chapter 15, where the Time Traveller describes his return from the future, he again encounters Mrs. Watchett:

As I returned, I passed again across that minute when she traversed the laboratory. But now her every motion appeared to be the exact inversion of her previous ones. (142-43)

According to his own account, *the Time Traveller returns almost to his starting time in the late afternoon, before nightfall*. This interpretation is supported by his later remark, "I was in my laboratory at four o'clock" (25). Yet at eight o'clock, he belatedly greets his guests, creating the impression that he has only just returned. He later upholds this false impression when telling how he stopped the machine, and sat down on the bench:

For a time my brain went stagnant. Presently I got up and came through the passage here, limping, because my heel was still painful, and feeling sorely begrimed. I saw the *Pall Mall Gazette* on the table by the door. I found the date was indeed to-day, and looking at the timepiece, saw the hour was almost eight o'clock. (144)

The words "For a time" and "Presently" imply a short duration between his return and his entry into the dining-room. However, the Time Traveller has spent several hours in his laboratory with a "stagnant" brain, while his guests, unaware of this, have begun dinner in his absence. The Time Traveller's mind has been elsewhere for this period: "Around me was my old workshop again, exactly as it had been. I might have slept there, and the whole thing have been a dream" (143).

The Time Traveller has dreamed the entire future adventure of the Eloi and Morlocks while sitting on the bench in his laboratory. Wherever he has travelled, he has not travelled in time. His claim to have done so is part of an elaborate hoax.

This interpretation is confirmed by another missing piece of time. In the second last paragraph of Chapter 3 the Time Traveller prefaces his story by remarking: "I was in my laboratory at four o'clock, and since then . . . I've lived

eight days . . . such days as no human being ever lived before!” (25). This statement does not square with the assumption that he began his journey at half-past three and returned at eight o’clock.

The contradiction can be resolved by accepting the Time Traveller’s claim to have been in his laboratory at four o’clock, and by taking the statement “such days as no human being ever lived before” as a hint that his vision of the future occurred in the laboratory after four o’clock, as “no human being”, which includes the Time Traveller himself, has lived those eight days before four o’clock.

It can thus be concluded that the Time Traveller’s vision of the future was in the form of a dream, which occurred between four o’clock and eight o’clock on the second Thursday evening, *after* he returned to his laboratory and before he greeted his dinner guests. The chronological inconsistencies are clues to understanding this.

The Time Traveller openly admits his story is a dream when he says: “No. I cannot expect you to believe it. Take it as a lie—or a prophecy. *Say I dreamed it in the workshop.* Consider I have been speculating upon the destinies of our race, until I have hatched this fiction” (145) (emphasis added).

The ingenuity of his hoax is shown by his claim to have seen not only Mrs. Watchett as he returned from the future, but also one of his guests, Hillyer, who “passed like a flash” (143). He also implies that he saw the whole party of guests as he returned, for to them he remarks, of the Time Machine, “It had come to rest again in the north-west, against the wall *where you saw it*” (143) (emphasis added). At this stage, only three of his guests have seen the machine, and then only after dinner on the previous Thursday when it was in the south-east corner of the laboratory. The Time Traveller’s claims are prophecies: first, that Hillyer will soon return, which he does the next day; and second, that the whole party will go to view the machine against the north-west wall, which they do after the Time Traveller concludes his story.

Although seeming to confirm his story, both prophecies are fulfilled by the Time Traveller himself. He perceives Hillyer to credit his story more than the other guests and shrewdly guesses that he will return to discuss time travelling, indeed prompts him to do so by naming him. The Time Traveller also arranges for the whole group to view the machine by rushing to the laboratory with the lamp to reassure himself of the machine’s reality:

“Did I ever make a Time Machine, or a model of a Time Machine? Or is it all only a dream? . . . I must look at that machine.” . . .

The Time Traveller put the lamp down on the bench and ran his hand along the damaged rail. “It’s all right now,” he said. “The story I told you was true. *I’m sorry to have brought you out here in the cold.*” (147-48) (Emphasis added.)

The Time Traveller is a clever man indeed.

There is strong evidence that the chronological ‘faults’ of the outer framework are deliberate, and not the result of errors in writing or publication. This evidence is reviewed below.

The chronology: accident or design?

In June 1894, Wells reviewed Dr. O. W. Owen's *Sir Francis Bacon's Cipher Story*. In 'More Bacon', Wells (1894a:4) describes Owen's efforts to uncover a cipher story hidden in some literary works attributed to Bacon, and notes the literary euphemisms that typified the age:

Then language and thought alike were permeated by the spirit of Euphuus, so that whereas we aim nowadays at subtlety of meaning and simplicity of expression, the ambition of the educated man of the early seventeenth century was invariably to conceal a simply idiotic meaning beneath an imposing, brilliant, and even enigmatical form.

Two other unsigned essays published in April and May 1894, 'Mysteries of the Modern Press: Secret Marks in Printing', and 'A Remarkable Literary Discovery: Francis Bacon the Author of "Box and Cox"!', which discuss cryptograms and hidden symbols, could also belong to Wells (Philmus and Hughes 1975:237-38).

The text of *The Time Machine*, moreover, was thoroughly revised by Wells before, during, and after its serial publication in the *New Review* (Bergonzi 1960:43-45). Apart from the two well-known major revisions to Chapters 1 and 14 of the Heinemann edition, there are forty-five minor revisions of the *New Review* version prior to its publication by Heinemann. None of these revisions changes the chronology of the outer framework.

In 1924 Wells revised the text again for inclusion in *The Works of H. G. Wells* (Atlantic Edition) (Wells 1924:xxii). Despite re-reading and revising, Wells still made no changes to the chronology of the story.

Given his writing on literary puzzles and his detailed revisions of *The Time Machine* (all of which left the chronology intact) it is clear that the chronological irregularities of the book are part of Wells's design. The work has been carefully and cleverly written.

The circumstances of the Time Traveller's return to his laboratory, however, indicate that he has *somehow* travelled *somewhere*. The 'how' and the 'where' of the Time Traveller's journey are discussed in the following section.

The Machine

The Time Traveller's dishevelled state on his entry into the dining room at eight o'clock is described by Hillyer:

His coat was dusty and dirty, and smeared with green down the sleeves; his hair disordered, and as it seemed to me greyer—either with dust or dirt or because its colour had actually faded. His face was ghastly pale; his chin had a brown cut on it—a cut half-healed; his expression was haggard and drawn, as by intense suffering. (20)

He is also lame, having on his feet only a pair of tattered, bloodstained socks (21), as well as having scarred knuckles (146). His condition resembles that of another of Wells's characters, Chris Hoopdriver of *The Wheels of Chance* (Wells 1896:8-9), whose bruised ankles and legs were only the visible sign of more extensive injuries:

Fired by these discoveries, an investigator might perhaps have pursued his inquiries further—to bruises on the shoulders, elbows, and even the finger joints, of the central figure of our story. He had indeed been bumped and battered at an extraordinary number of points.

Hoopdriver's injuries were based on injuries Wells himself sustained while learning to ride the bicycle. Wells had been a cycling enthusiast since 1890 and had first-hand knowledge the dangerous early models, as he makes clear in his autobiography: "The diamond frame had appeared but there was no free-wheel. You could only stop and jump off when the treadle was at its lowest point, and the brake was an uncertain plunger upon the front wheel" (Wells 1934, 2:543).

The importance of cycling in Wells's life in the 1890s is described by David C. Smith (1985:127-28), who states that Wells used his safety bicycle to explore the Thames valley. Smith (1986:136, 523) also discusses cycling and its relationship to Wells's early journalism in the text and notes of his biography of Wells.

In an early essay, 'Specimen Day', Wells recounts a journey to Crawley on a tricycle. This essay has many points in common with the *Time Traveller's* account, some of which are best illustrated by a direct comparison:

'Specimen Day'

The Time Machine

The road to Midhurst . . . goes up and down like a switchback.

There is a feeling exactly like that one has upon a switchback —of helpless headlong motion! (29)

We have a pleasant but all too short run together, and upset in a heap on as soft a patch of turf as I have ever fallen on.

. . . I was sitting on soft turf in front of the overset machine. (32)

. . . certain little misadventures on the road had made me, to say the least, dusty. (Wells 1891:17, 19, 18)

His coat was dusty and dirty, and smeared with green down the sleeves; . . . (20)

These autobiographical parallels indicate that in the interval between his two dinner engagements the *Time Traveller* had been learning to ride a bicycle. He may have embarked on one or more cycling excursions, or a holiday. The *Time Traveller's* dream of the future occurs on his return, just as Hoopdriver was inclined to "ride through Dreamland on wonderful dream bicycles that change and grow" after a day's cycling (Wells 1896:81).

The Time Traveller's machine is no ordinary bicycle, being one of his own design made of nickel, ivory and quartz (15-16). Nevertheless, the most audacious part of his hoax is his act of presenting this bicycle to his guests as a machine capable of travelling in time.

Many references in the text of *The Time Machine* support the bicycle hypothesis. On stopping his machine suddenly the Time Traveller falls off it: "Like an impatient fool, I lugged over the lever, and incontinently the thing went reeling over, and I was flung headlong through the air" (32). He struggles to right the machine, then "one hand on the saddle, the other on the lever, I stood panting heavily in attitude to mount again" (35).

A brazen hint associating the Time Machine with a bicycle is given by Wells in his Preface to a later edition of *The Time Machine*: "So the *Time Machine* has lasted as long as the diamond-framed safety bicycle, which came in at about the date of its first publication" (Wells 1931:x). The similarities between the Time Machine and a bicycle have been noted by other commentators, but none identify the Time Traveller's absence, activities or physical condition with cycling (see Williamson 1973:52; Batchelor 1985:10; Geduld 1987:96).

The recognition that the Time Machine is a bicycle, and that the Time Traveller's vision is a dream, demands a revision of the cardinal incidents.

A revision of the Time Traveller's activities

The Time Traveller invites his guests to dinner one Thursday evening, planning a hoax based on the construction of his own bicycle. After discussing space and time (1-7) and causing a model to disappear by means of an optical illusion (discussed below), he shows his guests the full-size machine in the laboratory, declaring his intention to explore time (16).

He completes his machine and takes a cycling holiday around the Thames valley, during which he has an accident, injures himself and damages the machine (148). The Time Traveller finds two flowers which are 'sports' (146), variations of the species type, and puts these in his pocket.² Given his lameness it is probable that he loses his machine and has to walk a long way to recover it. He sends a note to his home stating that his return may be delayed (19).³

Reaching his laboratory at four o'clock in the afternoon on the second Thursday, he dismounts shakily and sits down on his bench. Exhausted, he falls asleep and has a dream in which his cycling experiences and his thoughts about the future of the human race are mixed together.

Awakening just before eight o'clock, the Time Traveller approaches the dining room, and upon hearing his guests (144) discussing the "ingenious paradox and trick" (19) of the previous week, decides to continue the hoax. He

² In 'Discoveries in Variation' (1895b) Wells notes that lilies may sometimes have their floral organs in fives instead of threes, just as the Time Traveller's flowers have an unusual gynæceum.

³ The presence of the note is another inconsistency discrediting the Time Traveller's tale. This note, informing his guests that he had been 'unavoidably detained' (19), could not have been sent from the future to his late Victorian Richmond home.

then washes, dresses, dines and imparts his vision (27-144).

Most guests are sceptical, but the gullible Hillyer returns the following afternoon (148). Expecting him, the Time Traveller has set up a second optical illusion (see below). After asking Hillyer to wait half an hour the Time Traveller goes to his laboratory, primes his illusion, and departs on his machine in advance of Hillyer's (and the manservant's) entry (150-51). The hoax is completed by the Time Traveller's failure to return.

The Time Traveller has not physically travelled in time, so how are we to understand his theory of time, his vision of the future, his demonstration of the model, and his disappearance? These questions are addressed in Part 2.

Principles of Psychology: Theory, Model and Dream

Book reviews and articles by Wells published between 1893 and 1895 indicate that he was abreast of developments in psychology and visual perception. These theories underpin the outer framework.

The Time Traveller's theory

By the early 1890s physiologically-based theories of the perception of time were well established in psychology. Herbert Spencer, who was a seminal influence on Wells, broaches the subject of temporal perception thus: "The doctrine that Time is knowable only by the succession of our mental states calls for little exposition: it is so well established a doctrine" (1881, 2: 209).

In 'The Position of Psychology', a review of George Trumbull Ladd's *Psychology, Descriptive and Explanatory* and C. Lloyd Morgan's *Psychology for Teachers*, Wells (1894b: 715) boldly criticises psychological research, showing a familiarity with the main trends in this science, and the work of researchers such as William James and James Sully.

In *The Time Machine*, the Time Traveller provides a "proto-(William) Jamesian demonstration that time is a dimension of consciousness" (Philmus and Hughes 1975:48).⁴ The nature of his discourse can be best understood by examining the emphasis placed on nervous physiology in contemporary theories of perception in such works as James's *Principles of Psychology* (1890) and Spencer's *Principles of Psychology* (1881).

When time is discussed in absolute or objective terms spatial analogies are used, with the similarities and differences between our perception of time and our perception of space being stressed (James 1890, 1:610-11; Spencer 1881, 2:207-8). For example, events are located in time in a certain succession or order, separated by intervals, just as objects are in space (James 1890, 1:631 text and note; Spencer 1881, 1:210-11, 217). A major difference, James notes, is that our perception of time is limited to a few seconds (the present) while our perception

⁴ This comment by Philmus and Hughes refers to the first instalment of the 1894 *National Observer* series of articles by Wells on time travelling, but applies equally to the Heinemann edition.

of space is more extensive (1890, 1:611). Spencer also articulates this by applying the term “co-existence” to our feelings of space and “sequence” to our feelings of time (1881, 1:210-11, et seq.; 2:208-9).

Subjectively, our perception of time is said to depend on principles of nervous action. The slow decline of nervous activity after a presentation (such as the after-images we see after looking at a bright light) gives rise to our sensation of the present which then fades into a sensation of immediate past as the nervous action passes into memory and is succeeded by a new presentation. Our perception of time is thus produced by a continual succession of nervous sensations, or feelings (James 1890, 1:632-45; Spencer 1881, 1:268).⁵

In Chapter One of *The Time Machine*, the Time Traveller relates space, time and consciousness by stressing the extrinsic similarities between time and space but noting the difference in our perception of them:

. . . any real body must have extension in *four* directions: it must have Length, Breadth, Thickness and—Duration. But through a natural infirmity of the flesh, which I will explain to you in a moment, we incline to overlook this fact. There are really four dimensions, three which we call the three planes of Space, and a fourth, Time. There is, however, a tendency to draw an unreal distinction between the former three dimensions and the latter, because it happens that our consciousness moves intermittently in one direction along the latter from the beginning to the end of our lives. (2-3)

The Time Traveller proposes that time and space have common objective properties, such as extension, but a difference arises in our (subjective) perception of them. He calls the difference an “unreal distinction” due to a “natural infirmity of the flesh” because the distinction is a mental one produced by our nervous sensations. Successive nervous sensations cause us to perceive time as a sequence, or as the Time Traveller puts it, as an intermittent movement of consciousness. This brief discussion of space, time, and consciousness is in accordance with the concepts espoused by James and Spencer, albeit somewhat strained as Wells attempts to reconcile the differences between time and space.

The joining of the absolute or physical standpoint with the standpoint of human consciousness is not contradictory but complementary (Philmus and Hughes, 1975:51). It appears, however, that Wells has leaned closer to the latter standpoint than commonly supposed, for the Time Traveller’s journey through time is in the form of a series of mental states, a dream.

Contemporary scientific literature also shows much common ground between psychology and visual perception.⁶ James (1890, 1:639) emphasises the role of visual sensations in temporal perception by describing how the world

⁵ See also Sully, *The Human Mind* (1892, 1:269-72, 318-29; 2:343-45) for discussions of time perception.

⁶ The German physiologist Hermann von Helmholtz discusses psychology extensively. See von Helmholtz, *Treatise on Physiological Optics* (1925:1-35), and *Popular Lectures on Scientific Subjects* (1873: 197-99, 306-16). Conversely, Helmholtz’s work is freely cited by psychological researchers.

would appear to a being whose nervous system operates 1000 times slower than ours, creating the impression of a rapid movement through time:

Winters and summers will be to him like quarters of an hour. Mushrooms and the swifter-growing plants will shoot into being so rapidly as to appear instantaneous creations; annual shrubs will rise and fall from the earth like restlessly boiling-water springs; the motions of animals will be as invisible as are to us the movements of bullets and cannon-balls; the sun will scour through the sky like a meteor, leaving a fiery trail behind him.

Similarly, the Time Traveller's successive sensations of the external world cover increasingly larger intervals as he moves forward in time:

The slowest snail that ever crawled dashed by too fast for me. . . . the jerking sun became a streak of fire, a brilliant arch, in space; . . . I saw trees growing and changing like puffs of vapour, now brown, now green: they grew, spread, shivered, and passed away. I saw huge buildings rise up faint and fair, and pass like dreams. The whole surface of the earth seemed changed—melting and flowing under my eyes. (29-30)

The similarity of these two passages, and the Time Traveller's Jamesian discussion of time, indicate the strong influence of theories of psychology and visual perception in the outer framework of *The Time Machine*. This intermediate field where psychology and physiology meet has also influenced Wells in his design of the Time Traveller's experiment with the model.

Experimental verification

The two phenomena most relevant to the model's disappearance are the concept of presentation below the threshold, and the illusory nature of visual perception.

The use by Wells of the phenomenon of "presentation below the threshold" (14-15) again indicates an acquaintance with psychology. Wells's knowledge of this could have come from a number of sources. Sully, for example, writes: "Every stimulus must reach a certain intensity before any appreciable sensation results. This point is known as the threshold or liminal intensity of sensation" (1892, 1:87). James Ward states that if the intensity of a presentation is less than a certain assignable value it is said to lie "below the threshold of consciousness" (Ward 1883:49).

Wells would have been struck by the importance of optical illusions for research in psychology. Optical illusions are discussed in detail by James (1890, 2:86-103, 243-68), while Sully, in *Illusions: A Psychological Study* (1881), devotes an entire work to the psychology of illusion. Ladd (1894:362-63) deals with illusions in the context of suggestion, feeling and association when he writes:

Our ideas, feelings, and volitions take part in determining how we shall see the spatial qualities and relations of any object. . . . Or—to say the same truth in more

popular phrase—within given limits, we see what we think or imagine ought to be seen; what we are expecting to see; and what we by an act of will determine to see.

Theories of colour vision were very important in psychology, and researchers often employed ‘colour tops’ because visual illusions resulted when the tops, with patterns on their flat upper surface, were spun (see James 1890, 2:23-24; Ladd 1894:106, 109; Sully 1881:56; Helmholtz 1925:215-24; Abney 1895:32-34). In ‘The Visibility of Colour’ Wells (1895c) indicates a knowledge of colour vision and remarks the new Spectrum Top, a device mentioned some months earlier in *Nature* (‘Notes’ 1894). These concepts all bear on the demonstration of the model.

The Time Traveller places his model on a table before his guests. It is a “glittering metallic framework” about the size of a small clock, containing ivory, “some transparent crystalline substance”, and brass (10). The Time Traveller then gets *the Psychologist* to push a little white lever to start the model. As Hillyer observes:

One of the candles on the mantel was blown out, and the little machine suddenly swung round, became indistinct, was seen as a ghost for a second perhaps, as an eddy of faintly glittering brass and ivory; and it was gone—vanished! Save for the lamp the table was bare. (12-13)

The Time Traveller has made the model less visible by causing it to spin rapidly, like a top, so that the presentation of the framework approaches the threshold of perception. The framework-like construction of the model would allow things behind it to be visible through it, so enhancing the illusion. Moreover, the model is made of materials that are white, highly reflective or transparent, rather than opaque. The model is then no more appreciable than “the spoke of a wheel spinning” (15).

The psychological phenomenon of suggestion also plays a part in this demonstration. Ladd (1894:364) emphasises the importance of suggestion in optical illusions when he writes: “In the wider meaning of that much-abused word, all visual perception, true or false, our daily sights of the most practical and ordinary kind, as well as the wildest hallucinations of the hypnotic dreamer or of the inmate of the madhouse—involve ‘suggestion’.”

Before causing the model to disappear, the Time Traveller provides his guests with the appropriate suggestion: “Presently I am going to press the lever, and off the machine will go. It will vanish, pass into future time, and disappear” (12). The force of suggestion resides in the words “off”, “go”, “vanish”, “pass”, and “disappear”.

After his guests see what they expect to see, the Time Traveller stands and turns to the mantel to fill his pipe (13) removing the model as he does so. His guests are not observing his actions here, for as Hillyer faithfully records, “We stared at each other” (13).

The illusion of the model's disappearance may thus be understood in terms of Wells's acquaintance with some contemporary theories of psychology and colour vision. The Time Traveller's disappearance of the full-sized Time Machine may be similarly explained.

The Time Traveller's disappearance

Hillyer's account of the Time Traveller's disappearance is vague, being qualified by the words "seemed", "indistinct" and "apparently". Here is his testimony:

As I took hold of the handle of the door I heard an exclamation, oddly truncated at the end, and a click and a thud. A gust of air whirled round me as I opened the door, and from within came the sound of broken glass falling on the floor. The Time Traveller was not there. I seemed to see a ghostly, indistinct figure sitting in a whirling mass of black and brass for a moment—a figure so transparent that the bench behind with its sheets of drawings was absolutely distinct; but this phantasm vanished as I rubbed my eyes. The Time Machine had gone. Save for a subsiding stir of dust, the further end of the laboratory was empty. A pane of the skylight had, apparently, just been blown in. (150)

The Time Traveller has a reputation as a practical joker, having once showed his guests a ghost (16). The creation of such stage illusions involves a method known as 'Pepper's Ghost', invented in 1863 by Professor John Henry Pepper, manager of the London Polytechnic Institution. A three-dimensional figure is created seemingly centre-stage by reflecting the image of a brightly-lit person, positioned off-stage, onto a large sheet of glass set at an angle of 45 degrees to the audience (Hopkins 1976:8, 55). The image can be made translucent or opaque by manipulating the intensity of the lighting. This probably explains the Time Traveller's ghost, and his 'disappearance' on the Time Machine.⁷

Expecting Hillyer to arrive, the Time Traveller has earlier removed a sheet of glass from the skylight to provide a reflective surface for his illusion, which is triggered by Hillyer touching the door handle. The sounds Hillyer hears are easily explained by a phonographic recording, and the gust of air arises as the door is opened between the "long, draughty corridor" (15) and the laboratory, which has a hole in the skylight. Hillyer's perception of events accords with the suggestions arising from the Time Traveller's story.

As the Time Traveller has not travelled in time, we might expect that his dream vision of the future may be understood in terms of the influence of psychology. Again, we find evidence for this in Wells's early journalism.

⁷ See also McConnell (1977: 22n), who explains the ghost trick in terms of an early type of projector called a 'magic lantern'. Geduld (1987: 98, 119) correctly links the ghost trick to the Time Traveller's disappearance.

Alternative reality: the Time Traveller's dream

In his 1893 essay, 'The Dream Bureau', Wells recounts a psychological explanation for dreams in which they are simply, "the imperfect and exaggerated interpretation by the somnolent mind of the sensations that affect it, together with the flow of suggestions that naturally follow such impressions". Wells discusses the work of the French scientist Alfred Maury on the origin of dream images. In *Illusions*, Sully (1881:130-52) gives a very detailed account of Maury's researches into how dream imagery is influenced by the external and internal sensations that affect us while sleeping. Sully's writing and teaching may be a source for 'The Dream Bureau', and for much of Wells's interest in psychology.⁸

Moreover, presentations to the mind from memory, as occurs in dreams, were considered to constitute a form of perception. Sully (1881:10) acknowledges that "recent psychology draws no sharp distinction between perception and recollection." James (1890:2:294n) considers dreams to be a perfectly valid alternative world where our perceptions arise from *re*-presentations from our memory rather than presentations from the external world:

The world of dreams is our real world whilst we are sleeping, because our attention then lapses from the sensible world. Conversely, when we wake the attention usually lapses from the dream-world and that becomes unreal. . . . The dream holds true, namely, in one half of that universe; the waking perceptions in the other half.

Thus the Time Traveller's dream can be brought within the science of psychology, presenting to the Time Traveller's mind a vivid alternative reality derived from his cycling memories, his thoughts on the human future and the associations arising therefrom.

The important role of psychology in the outer framework greatly strengthens the scientific foundation of *The Time Machine*. Commentators have erred in describing the Time Traveller's theory and demonstration as "pseudo-scientific", "bogus" or "verbal flim-flam" (Bergonzi 1961:33; Suvin 1979:212; and Crossley 1986:21, respectively). On the contrary, the related areas of nervous action, visual perception, memory, suggestion and illusion, which underpin almost the entire outer framework, are informed by some of the major scientific concepts of Wells's day.

The question arises as to how the outer framework relates to the inner core, with its theme of human evolutionary degeneration. A comparison of the views of the Time Traveller and Hillyer will help clarify this.

⁸ In 1889, and again in 1891, Wells successfully completed two teaching diplomas at the College of Preceptors, which included Sully's courses on the Theory and Practice of Education. It is unclear whether Wells was required to attend Sully's lectures, or merely read and submit the required papers. The possible influence of Sully's teaching and writing on the young H. G. Wells invites further research.

Evolution and Ethics: Hillyer vs the Time Traveller

As Mark R. Hillegas (1961:656-57) argues, the theme of evolutionary retrogression in *The Time Machine* attempts to jolt the reading public out of its complacency by an imaginative presentation of the “cosmic pessimism” of the naturalist T. H. Huxley. In his essays of the late 1880s and early 1890s, Huxley (1888:161) attacks the “optimistic dogma” that the evolutionary state of nature is “the best of all possible worlds”.

Hillegas’s view accords with a comment made by Wells that *The Time Machine* depicted a future that “ran counter to the placid assumption of that time that Evolution was a pro-human force making things better and better for mankind” (1933:ix).

Bearing in mind that the book can be viewed as an attack on the complacency inherent in optimistic evolutionism, the Time Traveller’s motive for his deception of Hillyer can be understood.

The fooling of Hillyer

The Epilogue of *The Time Machine* contrasts the apparent pessimism of the Time Traveller with the dogged hopefulness of Hillyer, who writes:

I, for my own part, cannot think that these latter days of weak experiment, fragmentary theory, and mutual discord are indeed man’s culminating time! I say, for my own part. He, I know—for the question had been discussed among us long before the Time Machine was made—thought but cheerlessly of the Advancement of Mankind, and saw in the growing pile of civilization only a foolish heaping that must inevitably fall back upon and destroy its makers in the end. If that is so, it remains for us to live as though it were not so. But to me the future is still black and blank—is a vast ignorance, lit at a few casual places by the memory of his story.
(152)

Some commentators cite this apparent ambiguity as revealing a deep conflict in Wells’s own outlook, the Time Traveller’s pessimistic view representing that of “a scientist who had gone to the end of science, and had found there a great darkness” and Hillyer’s hopeful view constituting an “almost existential courage against the void” (Hynes and McConnell 1977:353, 355). Alternatively, Wells could be *enforcing* ambiguity, showing how to accept both sides of a contradiction by balancing the unresolved pessimism and optimism of the Epilogue (Huntington 1982:52-53). The dichotomy is also said to reflect the problem of determinism and free will—the determinate evolutionary laws of the inner core being balanced by an affirmation of the importance of human responsibility, where “at the level of individual action man must behave *as though* he were free” (Haynes 1980:129).

The ambiguity of the Epilogue vanishes, however, once it is accepted that the events of the outer framework constitute a hoax. In this light, the views of Hillyer and the Time Traveller, and their relationship, may be re-evaluated.

Hillyer is an optimist. Despite the “fragmentary theory, and mutual discord” of his time, he anticipates continued progress. Despite the Time Traveller’s vision of evolutionary degeneration, Hillyer cannot think that it may occur, *or that it may have already begun*. The phrase “these latter days of weak experiment” implies an existing ebbing of intelligence about which Hillyer is unconcerned. With the words “for my own part” Hillyer opposes his view to that of the Time Traveller.

In fact, Hillyer is in reaction to the Time Traveller’s vision. If that bleak future is true, “it remains for us to live as though it were not so” says Hillyer. This is not an existential courage against the void, but a romantic evasion by Hillyer of the Time Traveller’s future. Hillyer is contented that the future remain “a vast ignorance”.

The final sentence of *The Time Machine* reveals Hillyer’s romantic view of the human story: “And I have by me, for my comfort, two strange white flowers—shrivelled now, and brown and flat and brittle—to witness that even when mind and strength had gone, gratitude and a mutual tenderness still lived on in the heart of man” (152). Hillyer sees the Time Traveller’s flowers only as a source of comfort from the harsh future he depicts. Hillyer’s concern, like that of the ancestors of the degenerating Eloi and Morlocks, is for comfort and security.

The Time Traveller’s poor regard for Hillyer is shown by his ‘disappearance’ before him on the Friday afternoon, and the blatant lie the Time Traveller tells just before departing. As Hillyer naively recalls:

“But is it not some hoax?” I said. “Do you really travel through time?”
“Really and truly I do.” And he looked frankly into my eyes. (149)

The character of Hillyer, along with the complacent and optimistic views he represents, is the subject of ridicule by Wells. The hoax of the outer framework supports the evolutionary arguments of the inner core by implying that those of Hillyer’s stamp are easily deluded. Hillyer’s views, therefore, are not Wells’s views. Indeed, the idea that the future be “a vast ignorance” was anathema to Wells, as the writing of *The Time Machine* itself demonstrates.

Conclusion

The outer framework of *The Time Machine* has been examined in detail. It has been argued that the book is constructed as a puzzle, which when solved, shows the Time Traveller’s story to be a hoax. His vision of the future is a dream experienced after returning from a cycling excursion.

The Time Traveller’s theory of time, his optical illusions and his dream are informed by an intermediate area of scientific research involving psychology and the physiology of visual perception.

The hoax of the outer framework supports the theme of the inner core by ridiculing the optimistic and complacent views of the outer narrator, Hillyer. The Epilogue is not ambiguous as the fooling of Hillyer shows that Wells

favours the Time Traveller's view.

It is not the aim here to pursue the implications (if any) of this reading, except to propose that the role of psychology and consciousness, culminating in the Time Traveller's dream, modifies the sense of cosmic determinism superficially present in the work. At the deeper level the human mind predominates. If it could once be said that the role of consciousness "reaffirms the possibilities for human will in a Rigid Universe" (Philmus and Hughes 1975:55), we must further ask whether Wells placed any credence in a rigid determinism at all.

An important feature to emerge is the strong scientific foundation of *The Time Machine*, built from Wells' education in biology, his reading in psychology and colour vision, and his own science writing. The design of the book as an intellectual puzzle and the extensive revisions made to the work, indicate a brilliant conception and a meticulous execution.

It remains only to suggest that the Time Traveller's final departure is simply the start of a second, more extensive, cycling holiday. His three-year absence (151) may be understood in terms of Robert P. Weeks's analysis of many of Wells's characters as being driven by a profound desire to escape social, evolutionary or scientific restrictions (Weeks 1976:26-30). The escape of the Time Traveller may even reflect a desire by Wells to escape from some or all of the restrictions described by Weeks; a desire which surfaced in 1901 when Wells vanished for two months on his bicycle without informing his wife of his whereabouts (West 1984:258-59).

In any case, soon after the publication of *The Time Machine*, Wells had a tandem bicycle made to his own plans by Humber, after which he and his wife began exploring the south of England on this machine (Wells 1934:543). Perhaps the Time Traveller was not far behind.

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