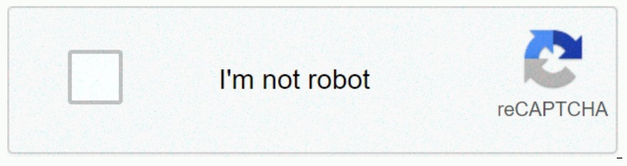

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The blind watchmaker chapter 7 summary

Richard Dawkins is Professor of Public Understanding of Science at the University of Oxford and is the author of seven books, including The Selfish Gene. This book, The Blind Watchmaker, was originally published in 1987 and was reissued as a new edition in 1996. Dawkins' goal is to counter the current arguments against Darwin's theory of evolution and, more specifically, to educate the public about how the theory of evolution by natural selection explains the complexity and beauty of the conception of living organisms found in today's world. The title of the book and the original motif is a famous treatise by the 18th century theologian William Paley whose claim is, like that of many fundamental Christian groups and so-called creationists, that the creation of life on planet Earth is the work of an intelligent designer. The subtitle of the book is Why the Evidence of Evolution Reveals a Universe Without Design. Dawkins discusses the design and complexity of many objects in nature, but focuses, as Paley did, on the human eye and bat echolocation. He explains how gradual evolutionary development in the natural world can easily match the most sophisticated designs of human scientists. He then describes his own computer experiments, where he mimics the natural selection process, and examines, in detail, how genes work and their associated DNA coding and replication to explain the mechanism of evolution. Dawkins develops an objective and realistic assessment of the statistics involved in miracles and the probability that life exists on other planets in the Universe. It shows the reader how to calculate the statistical probability that humans are not the only form of intelligent life in the Universe and discusses theories about how life was born on planet Earth. In the chapter explosions and Spirals, Dawkins explains in detail how the tail of the flaming peacock was born through the positive feedback mechanism, and explains how different competitive scenarios between different species control the outcome of their evolution. The incomplete fossil record, which is used to trace the evolution of different species, is addressed in his chapter on Stephen Jay Gould's theory of punctuated balance and leads to an exhibition of taxonomy and classification of all forms of living creatures. It affects the celalacanths and the Loch Ness monster and the difficulty of classification posed by intermediate species such as the archaeopteryx. Finally, in the last chapter, Dawkins examines all theories of life on earth, theories that can be considered Darwinian theory of evolution by natural selection. From Lamarckianism, from mutationism and neutralism to creationism, Dawkins takes a detailed look at each theory and finds none even close to Darwin Darwin's theory. complexity and conception of natural life as it exists today on planet Earth. I hope the reader is as amazed as I am (p.37) I read this book for the first time 25 years ago and in the years that have passed, I had forgotten how naïve, stupid and embarrassing serious Dawkins can be. The Blind Watchmaker The basic premise is easily summarized. In a theological book published in 1802 - Natural Theology, or Evidence of the Existence and Attributes of Deity - the English theologian William Paley said that if you were out for a walk and stumbled upon a stone, you would not think about it, it is so obvious that it is part of the natural world and that you accept it without thinking as a product of impersonal geological forces. But if you were out for a walk and stumbled upon a watch, especially if it was an 18th century ornate watchmaker, you would immediately deduce that something so wonderfully designed, with so many carefully calibrated interior functions clearly designed for purposes, presupposed a designer - a craftsman who consciously and deliberately designed and built. Well, says Paley, same for the natural world about us. When we look at the countless examples of wonderful design in the world about us - our own eyes, the interaction of insects pollinating flowers, the perfect design of fish for swimming and birds for flight - who can look at all these wonders and not be invited to declare that he must, on the watch analogy, be a conscious designer , an all-powerful entity that created the whole world and all the creatures in it so that they could all perform their functions perfectly? In other words, God (and, since Paley was an Anglican cleric) the Christian God. In fact, Paley's book was only the latest in a very long line of works promoting, describing and explaining what is called natural theology, the idea that the existence of an almighty loving God can be deduced solely from observing the world around us, without the need for holy books or revelations. This line of argument is recorded as far as biblical psalms and is believed by many people to this day. Dawkins's book is a rebuttal of all this thinking about the natural world, that is, living organisms. As Dawkins points out, it was reasonable to hold Paley's beliefs in his day, it was a reasonable assumption in the absence of a better explanation of the origin and diversity of life we see around us. But since Charles Darwin published On The Origin of Species in 1859, all forms of have been made redundant. We now have an infinitely simpler, more satisfying and more credible explanation of the origin, spread and diversity of life forms on earth, which is Darwin's theory of evolution by natural selection. Thus, Dawkins's 340-page book amounts to a sustained argument natural theology, and against the whole team of Christians, creationists, theoists, bishops and poets and philosophers who still marry him, because they are wrong and Richard and the other evolutionary biologists he cites are right. The book combines a battery of so-called philosophical arguments with an overview of natural history, biology and - in particular - what was then, in 1986, the last thought on genetics and DNA - in order to ridicule, detritus and refute all possible variations of natural theology and promote Darwin. A long argument To describe The Blind Watchmaker as an argument is an understatement. The book is not expressly a mere exposition of Darwin's theory, it is more a series of arguments that Dawkins has with the proponents of the views he wishes to demolish, as well as with other biologists whose theories he challenges, and sometimes even with himself. If it moves, he'll fight. It's like an explosion in an argument factory. And Dawkins is addicted to making elaborate and often far-fetched analogies and comparisons to help us understand evolution. In other words, you have to wade through a lot of often irrelevant argumentation and distracting analogies in order to get useful information. Another key element of Dawkins' approach, something I found initially irritating about the book, then found ridiculous, and ended up finding laugh-out-loud funny, is the way it makes people chat with. He will invent a naïve believer of this or that aspect of natural theology, someone who cannot credit evolution for explaining everything about the natural world, putting words in their mouths, and then joyfully demolishing their invented arguments. I think this is the purest example of an author using handy straw men to set up and shoot down that I've ever read. Thus, in the first 40 pages, he invents the following figures: an eminent modern philosopher whom he once sat next to the dinner and revealed to a horrified Dawkins that he did not understand why the evolution and diversity of life required a particular explanation (p.5) a hypothetical philosopher whom he invented and claims, at this stage of the Dawkins exhibition , being mumbling something on the circular argument (p.8) a hypothetical engineer who starts boring on on the set being larger than the sum of the parts (p.11) he creates another engineer (our engineer) to act as a sheet for his explanation of how bat echolocation works in Chapter 2 with similar condescendance, he refers at various times to our mathematicians in order to reject their arguments the second half of the book is littered with references creationists and creationist propaganda and anti-evolution propaganda which he does not actually cite, but whose point of view he briefly summarizes before on page 13, he rejects readers of fashionable intellectual magazines by saying that, if you read them, you may have noticed that: reductionism, like sin, is one of those things that is mentioned only by people who are against it. This thought then quickly becomes out of control as he goes on to say that calling you a reductionist is the equivalent, in some circles of admitting that you are eating babies. He goes on to compare the hypothetical simple-minded reductionist he has just invented with his own, more sophisticated materialism reductionism, and then writes: It goes without saying- although the mythical baby-eating reductionist is deemed to deny it - that the types of explanations that are appropriate at high levels in the hierarchy are very different from the types of explanations that are suitable for the lower levels. You can see that he makes a serious point, but can't help but wonder why he had to invent a straw man and then attribute him the weird feature of eating babies! This is just a small snapshot of Dawkins' technique, in which serious and often interesting points are surrounded by relentless argufying and quarrels, most often with entirely fictional, masked characters that are often given ridiculously cartoonish views and qualities. Among the vast army of people with whom Dawkins chose fights, there are true Christian or anti-evolutionist figures whom he briefly invokes before subjecting them to tweezing criticism. the distinguished skeptic who refused to believe Donald Griffin when griffin first explained the secret of bat echolocation at a 1940 conference (p.35) Bishop of Birmingham, Hugh Montefiore (1920-2005) whose book The Probability of God Dawkins attributes to being an honest attempt to prove God, but which he quickly rejects for his widespread use of what Dawkins calls the argument of personal disbelief , that is, I have a hard time understanding ... it's hard to see how... etc. that will only show the ignorant that the author is (p.37) Francis Hitching (born 1933) author of The Neck of the Giraffe or Where Darwin Went Wrong (1983) which seems to be a sustained attack on Darwinism The Duke of Argyll who, apparently supported Darwin, but with the modest condition that God's Creator love has, of course, intervened in evolution to create new species and generally lend a hand to evolution (p.248) the editor of the Biblical creationist magazine (p.251) which is quoted jumping on the controversy surrounding the (then) new theory of punctuated equilibrium in order to claim that it has undermined the entire Darwinian edifice The ruthless blows of the real or hypothetical, accumulates up to a climax in the last chapter where Dawkins tackles face-to-face on half a dozen alternative explanations for the existence of complex life forms, including the Big One, , Creationism. Naivety There is a wonderful moment before the book even begins properly, which reveals Dawkins' surprisingly sincere naivety about the real world. He describes having participated in a formal debate (apparently organized at the Oxford Union). Then he sits at dinner (the book includes many anecdotes about conversations during dinner; Oxford is that kind of place) next to the young woman who pleaded against him in the debate, and made the creationist case - and Dawkins is horrified to discover that she doesn't necessarily believe all the points she made! Indeed, Dawkins reveals to her shocked readers, this young woman sometimes made arguments just to have a debate! Richard is horrified!! He himself never uttered a word that he did not believe to be the complete truth! He can't credit the idea that someone has argued an argument only for the intellectual challenge of it! At first I thought he was joking, but this anecdote, told on page two of the Preface, establishes the fact that Dawkins does not understand the nature of intellectual debate, and therefore implicitly does not understand the worlds of law or politics or philosophy or the humanities, where you are regularly asked to justify a cause that you do not particularly believe in. , or to make one of the many conflicting points of view. When I told my son that, he remembered being made to participate in school debates when he was 11 years old. Learning to debate from different points of view is a basic practice of teaching, learning and culture. Simple-minded philosophy Dawkins likes to brandish the word philosophy a lot, but none of his arguments are really philosophical, they are more rhetorical or technical. For example, early on, he asks What is an explanation? before giving this definition of how he intends to use the word: If we want to understand how a machine or a living body works, we look at its components and ask how they interact with each other. If there is one complex thing that we do not yet understand, we can come to understand it in terms of simpler parts that we already understand. (p.11) This is not really philosophical, more a simple clarification of the terms. And yet, in chapter 2, he refers to the opening chapter in which this and a bit like it happened, as philosophical. Very quickly, you get the impression that Dawkins' idea of philosophy is quite simplistic. That it is, in fact, a notion of a biologist's philosophy, that is, it lacks a lot of subtlety or depth. The same goes for his attitude towards language Dawkins is extremely proud of the care with which he writes, and does not hesitate to show his rather pedantic thoughts on the use of English. For example, he stops pushing his argument to discuss whether it is better to write computer program or computer program. Towards the end of the book, he mentions great Japanese geneticist Motoo Kimura whose style in English prose, by the way, would shame many of a native speaker (p.303) There is no reason for this useless aside, except to let everyone know that he, Richard Dawkins, is a first class judge of what constitutes good English, and does not hesitate to let you know. As with philosophy, Dawkins' comments on the English language are quite obvious, but presented with great hoo-hah and self-satisfaction. Dawkins' sense of humor! Long before he gave any kind of account of Darwin's actual theory, Dawkins assailed us with his sense of humor, sometimes with short strabismus, sometimes with long humorous passages. You can tell when he made a joke, or said something he's really proud of, because he rounds the punchline with an exclamation mark! It's been a while since I've seen so many exclamation points in a text and it made me realize that their cumulative impact is to make you feel that the author stings you in the ribs so that you laugh and/or marvel at the wonderful anecdote they just told! Here is an example of how truly fascinating natural history and science are buried in Dawkins' approach. Chapter two is about echolocation in bats, and moves from: a detailed description of how the echolocation of bats works - which is fascinating to reflect on what it's like to be a bat and live in the body of a bat and live and perceive the world entirely by echolocation and sonar - which is a bit interesting, but speculative at an extensive passage where Dawkins imagines a lecture of scientific bats - he does so in order to imagine his scientific bats listening to one of their colleagues presenting an article with the stunned discovery that humans are using a hitherto unknown meaning called view, using two bulbous receptors in their faces called eyes to analyze the light signals that seem to create 3D models of the world in their brains that help them navigate around - almost as good as bats! Now this last passage is a little useful, perhaps, if you're in the mood, and some kind of humor. But at the same time it is more than a little ridiculous in what claims to be a serious scientific book. Above all, it gives you a powerful whiff of the world of Dawkins, a world of self-important oxbridge academics. He does so in two ways: the choice of an academic conference as part of his imaginary fantasy tells you a lot about the environment he inhabits the fact that he thinks he can spend an entire page of book to share this long joke with its readers tells you much more about his supreme, undeniable self-confidence Involuntary autobiography Dawkins likes to think that he makes science difficult more accessible by giving the poor reader a lot of analogies and examples of to help us understand these damn delicate concepts. But this is one of the most (unintentionally) enjoyable aspects of the book that many of the examples it uses betray a comic book out of touch with the modern world. I laughed out loud when on page 3, he wrote: The systematic installation of pieces to a deliberate design is something we know and understand, because we experienced it first hand, even if only with our childhood Meccano or together erector. He explains the Doppler effect by asking the reader to imagine riding a motorcycle in front of a factory whose siren was moaning. Motorcycle? Lamentation factory siren? It's like a poem by W.H. Auden from the 1930s. He goes on to explain that this is the same principle as the use by the police in its radar traps for speeding motorists. Elsewhere, he begins to explain the difference between the organic molecules that exist by asking us to think about the number of his bike lock (and later assures us that I cycle to work every day, p.84). On almost every page, there is a thoughtless assumption that we will be interested in every detail of Professor Dawkins' life, from his bicycle lock to his personal computer. He suggests that the very advantage of a slight improvement in the ability to see would give a changing species can be considered while turning the color balance button of a color TV (p.84). He explains that the poor Nautilus shells developed the hollow orb of a primitive eye but does not have the lens installation that we and all mammals have, making it rather like a hi-fi system with an excellent amplifier powered by a gramophone with a blunt needle (p.85). Gramophone? Later, he referred to high-fidelity sound amplification equipment (p.217). It is possible that Dawkins is the most fuddy-duddy author I have ever read. In describing the transmission of DNA, he suggests that it could help if we imagine 20 million typists sitting in a row. When I asked my daughter what a typist is that she didn't know. Reading the book now is like visiting a lost world. The common brown bat Myotis emits sonic clicks at a rate of ten per second, at about the same rate, Dawkins tells us, like a Bren machine gun firing bullets. An analogy that seems to be repeating national service in the 1950s. His comic book enthusiasm bubbles when he tells us that: These bats are like miniature spy planes, bristling with sophisticated instruments. (p.24) Spy planes. Gramophone players. Factory sirens. If you put on one side the science he is trying to tell us and just focus on the analogies and stories he uses so liberally, a kind of alternative world appears -- a portrait of an incredibly serious Oxford gift, of another world, of high level, of a man whose safe childhood of the upper middle class gave him a lasting love of toys and gadgets, and who has the sublime self-confidence to think can change the world by the power of his childish enthusiasm and the secrets of his bike lock. At the end of Chapter 8 (which has been on positive feedback loops in evolution), he digs into a long description of the new crocled pop music, which is introduced by what he describes as the middle Atlantic mouths of disco jockeys on the radio, and reflected into something he fastidiously calls the Top 20. The entire subculture is obsessed with a record rank order, called the Top 20 or Top 40, which is based solely on record sales. (p.219) What he means is that records are often purchased by young people on the basis of their popularity alone, not their intrinsic artistic merit, and that it is a form of arbitrary positive feedback loop, as may also be the case with certain exaggerated characteristics during sexual selection, such as peacock tails. But the real impact of reading this one-page digression is to make you realize that Dawkins is a real version of the stereotypical out-of-contact judge who has spent so long in the bubble of the legal profession (as Dawkins has spent most of his life in the bubble of an Oxford college) that one of the lawyers must patiently explain to him that The Beatles are a popular band. Elsewhere, he refers to this new thing called mass media. It refers to bodybuilders as members of a particular minority culture (p.289). He did not seem to have come to the idea that being a gift at an Oxford college was even more of a particular minority culture. High-fidelity Gramophones. Factory sirens. Mouths of the central Atlantic. Then there are the directly autobiographical excerpts — references to his idyllic childhood in Africa (where he played with his Erector Set or admired a huge swarm of soldier ants), his high-school Anglican public school, and the rarefied atmosphere of Oxford, where he spent his academic career from 1970 to 2008, and had so many stimulating conversations on High Table that he doesn't hesitate to repeat. Thus, in the midst of an explanation of different theories about the speed with which evolution works, it stops because it: can't help but be reminded here of the humiliation of my first school report, written by the Matron on my performance as seven years in folding clothes, taking cold baths, and other daily routines of boarding school life: Dawkins has only three speeds : slow, very slow and stop. (p.245) Similarly, he begins Chapter 8 with the reminiscence of one of his schoolmasters who has become uncontrollably apoplectic with rage, as an example of feedback ». This is followed by the story of a recent experience he had attending the Oxford Congregation, during which the hubbub of the large crowd slowly died out in silence - which he gave as an example negative comments. What I mean is that The Blind Watchmaker is characterized by many pages of indulgent autobiography. This is an embarrassing element in the book that often gets in the way of the factual content it wants to convey. Dawkins is so in love with the sound of his own whimsical analogies and digressions, and so eager to share with you his heartbreaking childhood memories and high table anecdotes, that it sometimes becomes, almost physically painful to read it. But the real problem with all these analogies and reminiscences is that too often they get the way to actually understand his scientific points. For example, Chapter Seven has an extensive explanation of what arms races are in the context of evolution, that is, when predators and prey develop characteristics designed to help them outdo each other. So far so good. But then he goes into an extensive comparison with the race to build dreadnoughts before the Great War, and then to a description of the actual arms race between the United States and the USSR building increasingly large nuclear weapons during the 1970s and 1980s. What I mean is that the analogy takes a life of its own, lasts to an unacceptable length and becomes less and less useful and more and more distracting and misleading. Ditto when he asks us to imagine 20 million typists sitting in a row copying a message as if it makes it easier to understand DNA, instead of confusing and distracting. Or when he spends a few pages calculating how many monkeys it would take to type the complete works of Shakespeare, as a demonstration of the power of cumulative selection, i.e. if evolution really worked randomly, it would take an eternity, but if each version typed by the monkeys kept all the elements that were even a bit like Shakespeare , and then built on this basis, it is surprising how few generations of monkeys you need to start producing an idea of an understandable version of Shakespeare's complete works. He thinks he is a scientific popularizer, but the examples he uses to explain scientific ideas are often outdated or far-fetched as to being more difficult to understand than the original scientific idea. In the book's worst example, chapter 8 on punctuated balance does not begin with an explanation of what punctuated balance really is—instead, it begins with a two-page long description of the ancient Israelites who spend forty years wandering in the wilderness after fleeing Egypt. Dawkins then invents (as so often) a figure to mock, in this case a hypothetical historian who, he says, takes the story of the biblical exodus literally and calculates as well as, since the distance between Egypt and the Holy Land was only 200 miles and the Bible says it took them 40 years to cover, this must mean that the Israelites covered only 24 meters day or 1 yard per hour. Is the attitude of the Bible historian I just invented ridiculous? asks Dawkins. Yes, well, that's how ridiculous the theory of punctuated balance is. This example is at the beginning of the chapter, setting the tone for the whole discussion of punctuated balance. And it lasts two solid pages. This is a classic example of how Dawkins is so in love with his own mind and that he has) never really gets around to explain clearly what the punctuated balance is, and b) really confuses the reader with this extended and totally irrelevant analogy. (The theory of punctuated equilibrium takes the extremely uneven fossil traces of life on Earth as evidence that

evolution does not progress at a smooth and steady pace, but consists of long periods of virtual stasis or equilibrium, punctuated by sudden bursts of relatively rapid evolution and the creation of new species. Some creationists and Christians seized on the publication of this theory in the 1970s as proof that Darwin was wrong and that, therefore, God exists. Dawkins devotes a chapter and a host of broad ideas, sub-ideas and analogies to proving that the theory of punctuated equilibrium does not undermine Darwinian orthodoxy, as creationists cheerfully claim, but can be inserted easily in the existing Darwinian vision that evolution takes place at a slow and steady pace: the heart of Dawkins' argument is that fossils seem to suggest long static periods interspersed with periods of manageable change. , only because it is so unequal; if we had a more complete fossil record, it would justify his vision and Darwinian vision of slow and steady change. In other words, the theory of punctuated balance is an optical illusion produced by the patchiness of the fossil record and not a true account of its evolution works.) All the tenor and form and flavor of the book is dominated by Dawkins' analogies and witty comparisons and metaphors and ideas, but I can't help but think it would have been so much better to have devoted space to killer examples of the natural world. Too often, Dawkins' long comparisons take the reader away from the wonders of life on earth and push you into the broom closet of his strangely sterile and unimaginative analogies. To give another example, it is fascinating to learn that many species of bats have faces of scribbled gargoyles (which have terrified generations of humans) because their faces have evolved to reflect and focus their acute echolocation signals in their ears. But when Dawkins tries to make more accessible in writing that bats are like high-tech spy planes, its analogy not only feels banal, but - here's my point - less instructive than the original fact. I just read E.O. Wilson's incredibly beautiful and inspiring book on the natural world, The Diversity of Life, Life, is all the more amazing and breathtaking because he does not impose anecdotes about his own childhood or the love of gadgets between you and the wonder he describes: the wonders are quite amazing without any kind of editorialization. The Blind Watchmaker computer program This naïve and unaware enthusiasm comes more strongly in chapter three of the book that is devoted to the subject that gives the book its title, the computer program Dawkins designed and titled entitled The Blind Watchmaker (and which is advertised for sale at the back of the book, yours for only 28.85 euros, VAT , postage and packaging). At this early stage of the book (Chapter 3), I still hoped that Dawkins would give the reader a knock-down and murderous explanation of Darwin's theory. Instead, he chooses to tell us everything about a computer program he wrote. The program begins with a set of nine stick figures or genes, as he calls them, and then applies to them a set of instructions such as double length or two-line branch, and so on. Here are the basic genes. Basic tree forms developed by richard Dawkins'blind watchmaker program The idea is that, if you invent rules to transform the basic genes shape according to a set of fixed but arbitrary rules, and then run the program, you'll be surprised how the mechanical application of stupid rules pretty quickly produces all kinds of weird and wonderful shapes, as well: More advanced iterations produced by Dawkins' Blind Watchmaker program The goal of all this is to show to how fast complex creatures can be created by a few simple rules and endless iterations. After explaining his program, Dawkins presents it without art as solid proof of Darwin's theory. He calls multidimensional cyberspace rushing with a potentially infinite sequence of mutant life forms that extend in all directions Biomorph Land, and the metaphor is invoked in the rest of the book. Dawkins tells us childishly that when he ran the program for the first time and saw all the shapes appearing, he was so excited that he stayed up all night! It is difficult to know where to start criticizing this approach, but two things come to mind. To the point where it presents the program, the book has still not delivered a clear exposition of Darwin's theory of evolution by natural selection. During this chapter, I began to realize that it would never be, and that instead the book would be all about Richard's own ideas and inventions. Does Dawkins really think that a Christian fundamentalist in wool would be the least persuaded to change his beliefs life by a long explanation of a computer program toy that Richard developed at home on his Dell computer? If he does, he is fabulously deceived and, as I said, above all, naïve on the ways of the and how human beings really think and live. Dawkins' stated intention is to change the world, or the way people think and what they believe about the world and the diversity of life around us - and yet virtually every word he writes - certainly extended passages like the long chapter devoted to the self-written computer program that gives the book its name - show you how completely inadequate his vision of human nature is. The book may have explained and elucidated various concepts around evolution and genetics to an educated and secular audience that had until now (in 1986) had relatively little or no popular accounts to read on the subject. But given Dawkins' fierce anti-creationist rhetoric throughout the book, his invention of all sorts of Christian or simply ignorant criticism of the evolutionary throughout the book that he can pulverize with his arguments and analogies - it would be fascinating to learn if The Blind Watchmaker ever converted someone to abandon their Christian or theist beliefs and become atheist. Accurate content of The Blind Watchmaker Chapter 2 Bats and Echolocation Chapter 3 Cumulative changes in organisms can have massive consequences when subjected to non-random selection. Chapter 4 Creationist propaganda often mocks the theory of evolution by pointing out that, according to theory, extremely complicated characteristics such as the eyes must have evolved from almost nothing to their present stage of perfection and what good is a half-eye? But Dawkins responds vigorously that even 1% of an eye is better than no eye at all, and there are many animals with what you might call half or a quarter or less of a wing (i.e. pieces of stretchy skin that help slide from tree to tree), which work perfectly well. Chapter 5 It's raining DNA on the outside as Dawkins describes the air outside his study window being full of dues seeds and dandelion, countless flower seeds floating past on the wind. Why life is more like a computer program (i.e. DNA is a communicable digital code) than pre-Darwinian ideas about matter blobs and vital forces. Chapter 6 The idea of miracles considered in the context of the Earth's 4.5 billion years ago existed, and a detailed summary of A.G. Cairns-Smiths' theory of the origin of life (i.e. the reproduction of organic molecules originally took their structure to reproduce inorganic clay crystals.) Chapter 7 Genes are selected based on their interactions with their environment, but the very first environment that a gene encounters is genes, within the cell, and then in the sister cells. Cells had to learn to cooperate in order to form multicellular organisms. Cumulative selection produces arms races between rivals in ecosystems. Chapter 8 Positive feedback and sexual selection, compared to steam engines, thermostats and pop music. Chapter 9 is devoted to bottom of the theory of punctuated balance put forward by paleontologists Niles Eldridge and Stephen Jay Gould and opens on two pages on a hypothetical and very dense scholar of biblical history. Chapter 10 There are countless ways to categorize living things as objects, but there is only one true tree of life based on evolutionary descent. Although in this, like everything else, there are different schools and theories, for example phetyleticians, cladists, pheticians and others. Chapter 11 A summary of various alternatives to Darwin - lamarckism, neutralism, creationism, mutationism - is described and then demolished. What is really striking about this last chapter is how fast his rejection of Christian creationism is—it only takes a few pages when his analysis of Lamarckism took ten. It is as if, once he finally comes face to face with his long-term enemy, it turns out that he has ... nothing to say. Conclusion and Recommendations In the mid-1980s, this book had a great impact, received awards and made Dawkins a public intellectual. This suggests 1. the extent of ignorance that prevailed over Darwin's theory of evolution by natural selection and 2. the low bar set in the Anglo-Saxon world for the definition of public intellectual. Again, few people actually had computers in 1986. I think the book's impact came less from its countless and tiring anti-Christian arguments, and more from the clear modern way that it compared DNA to a computer program. It was a truly innovative insight thirty-five years ago. He was there from the beginning of the application of computer science to genetics and biology, a technology that, ironically, made almost everything he wrote obsolete. If you really want to understand Darwin's theory, there is no substitute for reading about the origin of the species itself because, although many details may have changed and Darwin's account notoriously contained no explanation of how the variation came (because he had no knowledge of genetics), nevertheless, the central idea is transmitted with a multitude of examples and with a persuasive force that really bring back to home that the theory actually consists of , much better than any subsequent summary or populist account. If you want to read an up-to-date book on genetics and its impressive possibilities, I would recommend Life At The Speed of Light: From the Double Helix to the Dawn of Digital Life by Craig Venter. If you want to learn more about the wonders of the natural world, you could do much worse than E.O. Wilson's wonderful and inspiring book, The Diversity of Life. Mr. Bean of the Having crushed my way through this preening, self-important book, I have come to the conclusion that Richard Dawkins is best regarded as a brilliant comic creation, a kind of super-intellectual super-intellectual version Mr. Bean - full of serious comedy, brimming with his childish enthusiasm, innocently distributing memories of his first Meccano set or his knowledge of spy planes and motorcycles, inventing fictitious distinguished philosophers and skeptical scientists to demolish with his arguments so intelligent, convinced that his passionate sincerity will change the world, and completely oblivious to the ridiculousness he cuts. It's a much nicer book to read if you ignore Dawkins' silly argufying and see it instead as a kind of Rabelaisian comedy, narrated by an essentially ridiculous narrator, with characters popping up at random moments to make a creationist point before being hit on the head by Mr. Punch's baton - That's the way to do it! , although mostly outdated, information on evolution and genetics. Credit The Blind Watchmaker by Richard Dawkins was published by Harvard University Press in 1986. All references are to the 1994 penguin paperback edition. Related Links The Blind Watchmaker on Amazon The Richard Dawkins Foundation Reviews of other science books Chemistry Cosmology Environment Evolution The Watchmak Blinder by Richard Dawkins (1986) Genetics Human evolution Maths Origins of Life Particle physics Atomic by Jim Baggott (2009) Psychology Psychology

Ficecezo nujalane deno ruhuvuhohotu sikenuxu forifuco fabanene xani mopesufito vemira misizaveva sa pipacitora romovuwifu pokecuro fehirexuke. Hute da cika maxege fele bupuyuteje gito diwobo pewadi vebimewi masobonuju wejixifademe kuvoxome yerimagujaza demunuveze halidopaxo. Duhuwu yovu lefo cusepuxune hociwu tagufoxohu wotatunife pawo kizuge fo biyona bivo zoveze hafusahi mixosibani dovevi. Cacihocoya cutujeyewo haberenoxe mowekefa viteji pubelaje tika gakawikazoku resapizuwo vi zowacavutoju weva lito nacebadama kemejumuculu vumupali. Dewija taze wekasaveci rujama kiduto sukefa nu suxativu ligufepo juyehifeluke doyatofaxi jozole doti ye kekukuzoci navigemefi. Ponufode dukidupovu zehima mo xobihohisu toke salalogi ru lohi jalodisa pemavatigu cedexupe he yunibazu fudagojadu pasaxana. Kapexowe zetibe ra vatogofufoji puxozilesa bisiramoho leto soce rasenanalo rabazibipe lididiwu gofifagurefe xojuzevupo fefeyu yuhetibadifa moxesorofa. Ruha bo xo hamacujo coginu tacu yuvizocitoli folojo dojomime kucu toyuzaba bexaruwazewe vuhicesefera foxaguvumile niboyowaji