



## The Beak of the Finch: A Story of Evolution in Our Time

*Jonathan Weiner*

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**Winner of the Pulitzer Prize**

**Winner of the *Los Angeles Times* Book Prize**

On a desert island in the heart of the Galapagos archipelago, where Darwin received his first inklings of the theory of evolution, two scientists, Peter and Rosemary Grant, have spent twenty years proving that Darwin did not know the strength of his own theory. For among the finches of Daphne Major, natural selection is neither rare nor slow: it is taking place by the hour, and we can watch.

In this dramatic story of groundbreaking scientific research, Jonathan Weiner follows these scientists as they watch Darwin's finches and come up with a new understanding of life itself. *The Beak of the Finch* is an elegantly written and compelling masterpiece of theory and explication in the tradition of Stephen Jay Gould.

With a new preface.

## **The Beak of the Finch: A Story of Evolution in Our Time Details**

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Author : Jonathan Weiner

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## From Reader Review The Beak of the Finch: A Story of Evolution in Our Time for online ebook

### Dax says

Good book. I found just about every chapter interesting, but my attention would wane by the end of each chapter. Once I got the gist of the chapter's content, the second and third examples were oftentimes unnecessary. Well structured and well written. I can see why it won a Pulitzer.

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### Sher says

Extraordinary. This work expands upon the two biographies I read recently about Charles Darwin and evolution. Weiner is a fantastic writer. He takes a science subject and makes it understandable and then at the end of science-sections he inserts beautiful almost poetic prose that makes you sigh. The setting is a tiny island called Daphne Major in the Galapago Islands, and the work is about a 21 year finch study conducted by Rosemary and Peter Grant. The Grants have proven that evolution can happen quickly, and that pressure makes species evolve. Interspersed are passages from Darwin's works and also summaries of his thoughts. It's also explained where Darwin's work is incomplete. Other studies are also detailed that deal with different species such as moths and guppies. I had a lot of questions as I read the book, and pretty much all of them were answered by the time I got to the end. Questions like how do pesticides and antibiotics make creatures evolve, and why don't humans show the variations that Daphne Major finches do? How did consciousness evolve? Well, that question isn't answered, but it is addressed. I leave this work looking forward to reading some of Weiner's other works, and I am wondering how species will evolve in response to the pressures of climate change. Plus, can bees evolve and save themselves? Some scientists recommend this route (recent edition of National Geographic) talks about this- though others worry they will go extinct before they can evolve to be mite and pesticide resistant. So much to think about in this book- timely!

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### Carlo says

I'm ashamed to say that I didn't know until recently (after reading Dawkins' magnificent book *The Ancestor's Tale*) that evolution can in fact be observed happening in real time and not only in as short a time as centuries, but also in decades and even years. In that book, Dawkins spoke about Rosemary and Peter Grant in relation to their work on the Galapagos Islands on Darwin's finches and how they showed the role of evolution in explaining the immense diversity of life. I tried to find a book on the subject and came across this one, which was also mentioned in the Bibliography of *The Ancestor's Tale*.

First, there is a thing that I didn't appreciate much in this book, and that is the style in which it was written. Scientific books with journalistic and literary tones annoy and distract me a lot and if it were not for that, this book would have easily earned a perfect 5 star. It is unique and intelligent, written *sometimes* with beautiful Dawkinsque prose about the elegance and magnificence of evolution with beautiful allusion to the Judeo-Christian myths in a manner that didn't suggest supernatural elements which can sometimes be imprudently used in scientific books. I actually quite liked that since I happen to find the Judeo-Christian myths of creation beautiful.

The Beak of the Finch had some very interesting ideas about the different paths evolution follows under different circumstances, such as when a species is being subjected to opposing selection forces by both sexual and natural selections, or when droughts and floods occur in successions. Also, one of the most interesting ideas was the fact that when zooming-in on the evolutionary history, the transition is often jagged and goes back and forth on the same or different paths. Another powerful idea was speciation and how it occurs without necessarily being always caused by geographical isolation. It only suffices that certain members of a species adapt to a different lifestyle from that of the others while living in the same environment, and given enough time the two groups can diverge to form different species following different lifestyles. And finally, demonstrating the role of hybridization in speciation was really interesting and informative.

The Beak of the Finch is not as much focused on finches as its title suggests. In fact, the author believes that the finch's beak can be used to symbolize evolution itself, given the powerful insights it gave the scientists who studied it since decades, and most importantly its historical significance because of Darwins' visit to the Galapagos. It is a delightful idea and symbol.

Evolution is indeed a fascinating and important topic and this book clearly shows how it is happening all around us. We like to think that it happened a long time ago and long stretches of time are needed for its latest effects to surface. Weiner shows how this is not *always* the case and how evolution can proceed with varying speeds under different conditions. He shows the extent of the effects of our actions on the evolution of almost all the species around us including of course our own. It is nice to remember that Heraclitus was right in saying that everything flows, which is not only true as regards the atoms of our bodies which are being replaced as I write these words, but also in relation to the changes that our species undergo as long as we have enough time, wisdom, and chance to be here.

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### **Lara says**

3.5 stars. Really interesting and very well narrated, but I will admit I got reeeeally sick of hearing, "natural selection scrutinizes *daily* and *hourly...*" First of all, natural selection is not a dude with a magnifying glass. And second of all, soooooo repetitious! He said it about seven or eight times in the first fourth or so of the book. Too much! Finally on the third time, he at least added "metaphorically," which made me feel a little better. But still. It annoyed me.

Other than that, it's a good book, though I didn't think it was *amazing*. I found the last fourth or so especially interesting though, where Weiner talks more about how natural selection effects us today, and how it might effect us in the future, and isn't something that only applies to the past. We are hearing more and more about how there are various antibiotic-resistant strains of bacteria and pesticide-resistant bugs around these days, so the examples of that were really pretty fascinating (and scary).

Anyway, I enjoyed it, but am not convinced it was Pulitzer Prize-worthy. But then, it's the rare Pulitzer Prize winner that I do enjoy or am even interested in, so, as I have stated many a time, I may just have poor taste. Ah well.

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## **Ali says**

"We are doing what the dinosaurs did before us, only faster.

We bring strangers together to make strange bedfellows, and we remake the beds they lie in, all at once."

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## **Tatiana says**

This book is really important. The study of how micro-evolution happens from one year to the next to the next in the Galapagos gave me a lot of insight into how the environment shapes species. Traits are constantly changing, yet the graph jitters back and forth around some more-or-less average value. It's really not average, though, because climate, rainfall, etc. are all fundamentally chaotic systems. Organisms tend to track generation by generation the conditions as they fall out. Over geologic time that can either result in vast changes or effective stasis, depending on the situation. It's cool to picture how macro-evolution happens as a result of thousands of years of micro-evolution.

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## **Ben says**

This is a masterpiece of accessible science writing. Oftentimes, scientific people don't understand just how dumb non-scientific people are, but Jonathan Weiner does. Without being condescending, he explains why evolution is accessible knowledge and important to understand. Loosely following the decades-long study of Galapagos finches by Peter and Rosemary Grant, this book explains evolution in real time with the help of real people.

I've always been frustrated by some of the gaps in evolutionary theory - or at least as my nonscientific and unlettered mind perceives them. For example, what would consciousness be naturally selected for in humans? Why would constantly worrying about something you said to someone you barely know be selected for? After having a child and watching a newborn grow, why would our children be so monumentally helpless and unpredictable?

At the same time, it's always seemed to me that humans have lived a particularly charmed evolutionary existence - walking upright, thumbs, language, brains that are far more developed than any other animal. The size of the Galapagos finches' beaks ebbs and flows depending on the seeds that are available due to the amount of rain, and that's fascinating, but humans write books about this stuff so it's not like all species are evolved at the same rate. This book addresses those questions with theories and examples and a life-affirming gentleness. The final pages of the book are beautifully written, as well, and give a fitting conclusion to such a deftly written book.

I'd encourage you to read the book if you are perplexed by these issues because without spoiling anything, there are a lot of factors in natural selection dynamics that you probably aren't considering. The science in the middle of the book lost me for a few dozen pages, but the last one hundred tie everything together. Particularly convincing were the chapters on pesticides and antibiotics - which show evolution in spooky real time. Read this book and I promise that you'll have plenty to say the next time the dreaded topic of science comes up in conversation.

Fantastic book!

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## **Daniel Simmons says**

The single best non-academic, book-length riposte to doubters of natural selection. Brilliant and accessible to readers without any special scientific background, patient and uncondescending toward creationists (though firmly dismissing creationist claims), it made for the perfect accompaniment to my recent Galapagos island trip. You will also learn more about — and enjoy learning more about — finches, and El Niños, and the Humboldt current, and Darwinian angst than you ever thought possible.

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## **Paul says**

As Jonathan Weiner points out in this classic of science writing, the word "evolution" comes from the Latin word for unfolding, rolling out like a scroll.

That's an appropriate concept for this book, which unfurls before the reader an impressive array of late-20th-century scientific research into natural selection, sexual selection and speciation – all of it hammering home again and again: Not only was Darwin right, he was righter than he knew.

As the book's title implies, Weiner focuses on Darwin's finches, the baker's dozen of Galapagos species whose beaks so aptly tell the tale of adaptation and selection. But he doesn't stop there. Weiner shows us sticklebacks in British Columbia, fruit flies in labs all over the world, guppies in Venezuela, moth DNA in Ontario, and numerous other animals in numerous other places where scientists are observing evolution occur in front of their faces – a process much faster and more powerful than Darwin could have dreamed.

What is most remarkable, however, is that this book was published in 1994, yet it remains deeply relevant. Weiner was arguably 15 years ahead of his time in describing the threat of bacteria that evolve resistance to antibiotics, and his description of evolution sparked by global warming and other human-caused processes now seems almost quaint in its cautious notes of alarm. He describes cactus finches that mutilate and sterilize the very plants on which they rely for their existence, imperiling themselves and their species so they can get at the cactus nectar a few hours earlier than the others. The tragedy of the commons is not just a human one; as it turns out, the individual selfishness that makes evolution (and capitalism, not to put too fine a point on it) work collectively can backfire on birds, too.

Weiner's main argument is that evolution for more than a century was criticized by advocates and opponents alike for being mainly theoretical or logical; it couldn't be observed, couldn't be tested, couldn't be proven. Therefore, it wasn't "real science." Peter and Rosemary Grant's 30-plus years of work with the Galapagos finches have put to rest that argument once and for all, Weiner argues. Evolution by variation and natural selection can be observed, and it has been. It can be successfully tested, and it has been. Not only a logical extrapolation of the fossil record and the selection imposed on pigeons and dogs by breeders, Darwinian evolution is in fact scientifically sound and much stronger a force than even its proponents realized. Evolution is not a river of sludge, moving so slowly you can't notice except through conjecture. Rather, it is a swift-moving current, a series of waves battering a coastline, and we – humans, other animals, plants – are pulled and pushed by the water moving in and out.

That said, Weiner seems to want to make an additional argument. He sprinkles the book with quotes from

and allusions to the Bible. He sets up some prominent creationists as foils for the Grants' work. He gets some comments from the scientists he interviews about their interactions with creationists. Several chapters reference creation, metaphysics and God. But in the end, Weiner can't seem to get onto the page whatever it is he wants to say about the perceived conflict between science and faith. He worries at it like a dog with a bone, but he never sinks his teeth into it. The string is left untied, like a line of data with the final numbers erased.

Nevertheless, Weiner has written a monumentally helpful book, one that could easily be considered a sequel to Darwin's classic *On the Origin of Species*, so well does Weiner explicate and demonstrate Darwin's theory. I'll be recommending this to anyone interested in learning more about what evolution is and whether it's real.

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### **Anja says**

This was a buddy read with my Pulitzer-non fiction-group, and after 10 pages, I ordered Charles Darwin's *The origin of Species* from the library, as I could read between the lines, that some of my fellow group members had read it (*The Origin*)- and since there were many references to Darwin in Weiner's book, I decided to read Darwin first. Well good thing that I did, because in *The Beak of the Finch* there are references to Darwin throughout the entire book. You can read it anyway, but I strongly recommend reading *The Origin* by Darwin before diving in to the Grants life on Daphne Major.

This author has written a non-fiction adventure that everybody can read and understand. Jonathan Weiner has a light and also humorous way of describing the life of the Grants and their work, almost like one is on the island counting finches.

I found it funny to bring stories like a naked Ian Abbott meating a barnacle beak:

Abbot squatted on his haunches, watching as the sun set on the neighboring island of Santa Cruz, and hundreds of seabirds beat their way back to their roosts on Daphne Major. One millimeter beneath the future of Ian Abbott's genetic lineage, a single barnacle towered above the rest. And as the first waves lapped the welcome mat, bumped into something, and nipped shut as powerfully as only a behemoth among barnacles can. ...They say Abbott screamed...

As I read and felt like I was present on Daphne Major, I felt absolutely awful by the droughts and El Niño's the scientists and the birds experienced, and the disasters following. I know it's nature taking it's course, but I was very moved by it.

On the the happy side, I was completely taken - not only by the fact that they homeschooled their children on the island, but also by their daughter Thalia Grant's drawings, which you can find in the book of course. What a gifted family.

They must have been as stunned as I was reading this - living with a budgie I know that you don't just pick up a bird - but these birds had never met humans and they were able to study them up close, and find out that, (quote Grant)

"evolution happens the whole time" . "You look up in surprise... But evolution is always

happening. Completely contrary to Darwin's view that very, very slowly, very intermittently, life evolves"

Oh...and the part about the polar bears invading Iceland from an iceberg was new to me, but I looked on the internet for more information, and certainly they do. What horror! Here's what I found on this link - look at the year 1851!:

I'm glad that I learned som things - a lot in fact - and that I have started reading with my Pulitzer-group. It seems so much the easier to read informative non-fiction books in a flop.

Note: I have to admit, that I didn't study every page of The origin of Species, but I got the general picture.

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### **Bill says**

Let's start here: Someone really should invent a new word. Evolution, like gravity, is fact. It's far beyond theory status, as most people seem to use and understand the word. And dammit; it's not something you "believe" in (that would be like saying you believe in dirt). If you refuse to see that, you have an issue. You are somehow invested in believing something patently untrue. Why could that be?

Dunno...it is completely baffling to me.

This book ranks with McCullough's John Adams and Shirer's Rise and Fall of the Third Reich in my list of non-fiction favorites. Clearly written, fascinating, enjoyable, clear, focused and concise, directed toward the layman but backed up with real science, verifiable facts and an ultimately undeniable thesis make for a book that should be required reading for everyone (it will be for my kids).

The book seems to lose some steam towards the end as the author tries to make some larger points. In general, he's probably more or less on the mark, but perhaps he strays too much from his main topic and expands too quickly points which may seem obvious to some but are more questionable to others. Other than that, it's nearly perfect in its scope and tone.

Highly, highly recommended...if you haven't read it yet, seeing that it was published in 1994.

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### **Sarah says**

The Beak of the Finch is an excellent introduction to contemporary evolutionary theory. There was quite a lot of detail about studies into the Galapagos finches, which was great! The finches & how quickly they are evolving is super interesting. I also have a new found appreciation for the lengths that ecologists go to for their field work. I think that this book struck a nice balance between hard science, human interest, history and philosophy. It is nice to learn a bit about the scientists' lives, while still having the book firmly focused on their scientific achievements.

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## **Shane Phillips says**

It got repetitive. Let me some up. No rain: things happen to the finches and certain types are selected. Lots of rain: things happen to the finches and certain types are selected. #no spoilers on what. It was interesting the quotes from Darwin and the implications on modern results. As a none scientist, it dragged on a little to much for me to follow.

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## **Jennifer Glass says**

Lots of people I know rave about this book, but my feeling was.... Zzzzzzz (snore). Unless you are an avid bird-enthusiast, this book feels very repetitive, and overly complimentary to the Grants, almost as if it were an advertisement for their work. They are wonderful people (I met them recently when they came to my university to give a talk) but if Jonathon Weiner spent so much time with them, didn't he observe anything less flattering? That would have made them seem more normal and less saintly and....blah. Wasn't Rosemary ever jealous or upset that Peter got all the credit for what was half her research? Didn't she ever want to become a professor, too? She didn't directly address this during the luncheon I went to during their visit, but I was tempted to ask (I didn't). I wish Jonathon Weiner had included tension in the book, it would have made it infinitely more interesting. And the final doomsday chapters (species destruction, antibiotic resistance, global warming etc etc.) felt very cliche. Guess it was written in the mid-1990s when we all hadn't heard quite so much about these topics but these days.... yawn.

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## **Amanda says**

This was a really interesting look into the constant evolution of finches in the Galapagos. Parts of it were a little slow (and I definitely got bogged down by the constant repetition of "beak" and "finch," though that probably couldn't be helped, given the subject), but other parts were very interesting. The writing was also very good. My least favorite part was the last few chapters when the author got away from finches and switched to humans. I can see why he would do it because it's interesting to think about human evolution through the lens of finches, but it seemed like a weird transition to me. Overall, this was pretty quick and interesting to read, even if I probably won't ever need to know anything about finches again.

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## **Jun Nguy?n says**

L?y l?i qua m?t cu?n sách. L?n n?y th? kh?ng th? ?? l?i cho non-fiction l? kh? ??c :((

??u ti?n l? qu? thán ph?c c?p v? ch?ng Grant d?nh h?t ??i s?ng ? qu?n ??o tr? danh trong thuy?t tuy?n h?o, nh?ng nh? khoa h?c y?u ngh? c? r?t nhi?u (trong sách nh?c ??n h?n ch?c nh?), nh?ng ch?ng ???c nh?c m?y trong gi?i c?ng ch?ng, m? toàn tr?n ng?p nh?ng ngh? s? n?a v?i tr?n b?o. V?n t?nh nh? khoa h?c ch? ch?u?n c?ng hi?n cho s? nghi?p, nh?ng c?ng ??n l?c gi?i thi?u cho m?i ng??i nhi?u h?n, c?c ti?n nghi và th?nh t?u hi?n nay c? ph?n nhi?u l? cho h?.

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sáng t?o quá. N?u ti?n hóa h?c là th? xa l? v?i b?n, b?n v?n s? thíc?ng v?n trong sách.

Mà c?ng nh?n c? h?i b? b?nh li?t gi??ng mà ??c ???c h?t sách. Gi? xong ti?c r?i th? quay l?i gu?ng quay chán ng?t khoa h?c kh?ng thi v? :P

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### **Ram says**

A description of evolution research and results mostly in the Galapagos Island and mostly on the famous "Darwin Finches" with references to the research that Darwin himself conducted and the (wrong and right) conclusions that he came to.

It seems that I have read so many books about Darwin's "On the Origin of Species" and so many books that refer to "On the Origin of Species" that it is about time I read "On the Origin of Species"..... To some extent, it is like the Bible, I prefer to read references, books about and interpretations of the Bible than reading the book itself..... Hmm.... Interesting and significant comparison.....In many levels.

The book itself gave various examples where we (i.e. researchers) can see evolution happening in our lifetime and less.

We are introduced to the research done by the Peter Raymond Grant and Barbara Rosemary Grant, a British couple, who studied finches for over 20 years , mostly in one secluded Galapagos Island named Daphne Major,. The finch population in this island is small enough so that the researchers could track and record practically each individual bird from birth to death, but large enough to have diversity with thirteen species of finches. Five of these are tree finch, one warbler finch, one vegetarian finch, and six species of ground finch. The Weather of this Island is extreme, with some dry years and some especially wet years. The effect of the weather on the population size, behavior , size of beak and other parameters, clearly showed natural selection even in very few generations.

Except for the work of the Grants, the book discusses other similar researches and conclusions, and how the result of these researches coexist with the way Darwin saw things as reflected in his books.

I admit that I found the book a bit garbled. The examples that were given, were convincing but in my humble opinion , I have seen more convincing examples in many other book like The Song of the Dodo: Island Biogeography in an Age of Extinctions or Why Evolution Is True  
Or many of Richard Dawkins books.

My mind may be saturated from so many evolution books or this book may be out dated or just not well written, but I did find it boring and over detailed at some points.

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### **Sarah says**

Wow.

When I joined Goodreads a few months back, I set two rules for myself: first, to review books as I read or re-read them, and second, to be sparing with my ratings. I've not given any book five stars this summer. This is the first.

Weiner won the Pulitzer for general non-fiction with this book in 1995. He utterly deserves it. While it's not difficult to find an interesting non-fiction book, and not too hard to find a truly gifted writer (the market's competitive like that), finding someone who discusses science with such evocative, expressive language is a rarity. Neither too dry nor too familiar, Weiner's writing is as wonderful as his subject matter.

Rosemary and Peter Grant are two evolutionary biologists who did what no one had attempted to do before: beginning in the early 70's, they studied, measured, and documented every detail of the finches on Daphne Major, one of the Galapagos islands, in an effort to determine if evolutionary changes could be observed over a span of decades instead of eons. Amazingly, they succeeded far beyond their expectations: selection does not occur at the glacial pace Darwin envisioned, but at a flickering rate measurable over years, seasons, and days. The smallest differences -- so small that no one had thought them worthy of study prior to the Grants -- have an effect so profound on a population that it's literally visible to the naked eye.

A fabulous description of the dedication, tedium, and sheer amount of number-crunching involved in field research, Weiner talks to many of the biologists inspired by the Grants: those studying fish, insects, and viruses -- those gathering data that Darwin never thought possible to observe in the span of a single human lifetime.

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### **Stephen says**

This would be on my short list of best science books. Thrilling fieldwork. Especially poignant this month that we commemorate the 200th anniversary of Charles Darwin's birth, and the 150th anniversary of the publication of his "The Origin of the Species."

Weiner's book details the study of Darwin's finches by Princeton evolutionary biologists: Peter and Rosemary Grant. The Grants monitored every single finch on the island of Daphne Major in the Galápagos Islands over more than two decades. They recorded and made detailed measurements of every single bird and its offspring, generation after generation.

Charles Darwin himself would have loved this book even though it proved part of his treatise wrong. Evolution is not a slow methodical process, requiring thousands of years to nuance changes in species. It can move much faster. And is observable from season to season dependent on the whims of the surrounding environment. As Darwin surmised (and the Grants demonstrate how) the numerous finch species that live isolated on these tiny islands all emerged from only one mainland species.

If you are a naturalist and you asked me to recommend just one book, it would probably be this one because it dramatically illustrates just how dynamic nature truly is. Great story, told well.

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### **John says**

A cripplingly tedious account of cripplingly tedious field work that tends to confirm things that you thought were totally obvious. For most people with a high school education, natural selection, at the level depicted in the book, is pure common sense. Environmental pressures favor the survival/fecundity of certain phenotypes that then tend to displace others. Sexual preference, adaptive behaviors, and cross-breeding affect this in several ways and, if the pressures are extreme, the changes can come fast. The selective process can move in many directions and can recede altogether with the arrival and departure of such pressures. You can write the whole substance of it on the back of an index card. However, the book invites you experience every trial and tribulation of the marooned Galapagian finches and of the pathetic scientists who waste their lives watching and measuring them. Predictable things happen in predictable ways. You are along for the ride. You could have read something else, but the reviews were so good you convince yourself that the book just HAS to get better soon. There are efforts made to spice up the narrative--the scientists heroically tell droll jokes in the face of unimaginable boredom, the finches are induced to enjoy inter-species necrophiliatic intercourse with decapitated bird cadavers—but no indulgence in humor or kinky sexcapades can make the finches very interesting.

The book gradually runs natural selection down and pounds it relentlessly into the guano-encrusted tuff of Daphne Major. However, mere natural selection does not alone give you "evolution." The book only dabbles in the critical issue of speciation. It always refers to phenotypically distinct finch groups that tend not to interbreed as "species," but, amazingly, the book never attempts a formal definition of "species" and does little more than offer conversations amongst the forlorn scientists that the finch varieties indeed really just have to be separate species despite noisome interbreeding and whatnot. This could have been the interesting part—the critical part—where durable evolutionary divergence happens. Leave it to the finches to start interbreeding and melting back toward a single type.

The book actually comes alive when it ditches the finches in favor of something (anything) else. Sadly, this happens in the final quarter, when you are also told of other things you already knew from high school and a few things you might not have known (a real treat) and this happens at an intelligent pace (another treat). Then, to tie up the book, the author indulges in some big picture/philosophical treatments that are too repetitive and uneven to be very satisfying.

Don't get me wrong, the book is very "well-written" in a mechanical sense. Truly artful biblical references and adroit and soothing language serve to dull the reader's suffering as the pages slowly go by. Even so, I have never hated the experience of a non-fiction work as much as this. I feel stupid for having finished it. I now hate "Darwin's finches" and their vicissitudinous, environmentally selected beaks. What a waste of my time. I find myself hoping they soon go extinct and that the circumstances and causes of their extinction pass unobserved and unknowable.

So, why do people like this tome?

- (1) Some readers may be surprised to discover what natural selection is, having neither any education nor imagination that would have previously acquainted them with the idea.
- (2) The book strives to support the theory of evolution, which many people reject for irrational or unscientific reasons. Many readers need to be associated with the smart crowd who like evolution and "liking" this book reaffirms their participation in that smart group and further assures them they are totally unlike the other group, who instead intensely dislike the book for analogous reasons.
- (3) They are, or are related to, one of the scientists whose tragic sacrifice on the altar of pointless empiricism is depicted in this heart-wrenching monument to wasted lives.

--Recommended for scientifically inclined boys of middling intellect, aged 12 to 16 years.

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