

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 1 : List of fiction employing parallel universes - Wikipedia

*The Science Book for Girls: and Other Intelligent Beings (Books for Girls) [Valerie Wyatt, Pat Cupples] on calendrierdelascience.com *FREE* shipping on qualifying offers. Studies show that many girls' interest in science falls off during the preteen years.*

Books[edit] Margaret Cavendish , Duchess of Newcastle, wrote *The Blazing World* , a book far ahead of its time, in which the heroine passes through a portal near the North Pole to a world with different stars in the sky and talking animals. The hero Niels Klim slips into a cave and reaches Nazar, a planet inside the hollow Earth, where societies and beings represent satirical comments to existing contemporary ones. Edwin Abbot , mathematician and theologian, wrote *Flatland* , also known as *Flatland: A Romance of Many Dimensions*. It recounts the story of a two-dimensional world inhabited by living geometric figures: A feature film adaptation of this novella was made in , called *Flatland*. Wells wrote what is apparently the first explicit paratime novel, *Men Like Gods* , complete with a multiverse theory and a paratime machine. In *The Last Battle* it transpires that all the worlds are joined together by a form of heaven. This novel was well received and influenced Philip K. The story takes its protagonist through several versions of Earth as it might have been if history had gone a little differently. The book has been translated into Spanish, Italian, and German. She called it the "possibility worlds" theory of history. Piers Anthony wrote the " Of Man and Manta " series *Omnivore, Orn, and Ox*, â€”76 in which a group of three scientists explores worlds in parallel universes. The difficulty to travel between both worlds can be seen as symbolic for reaching adulthood and can be taken literal at the same time. The protagonist reads the story of this world in a book until he understands that he may take part in and save it, and eventually the imagination of Earth. David Brin wrote *The Practice Effect* , which is the story of a scientific researcher who finds themselves stranded in an alternate dimension that has unique natural laws that allow objects to become improved as they are used, rather than degrade. Terry Pratchett and Stephen Baxter wrote *The Long Earth* , the first of a series of novels about a possibly infinite series of parallel worlds that are similar to Earth. Beam Piper , the author of the *Paratime* series, wrote several stories dealing with alternate realities based on points of divergence far in the past. The stories are usually written from the perspective of a law-enforcement outfit from a parallel reality which is charged to protect the secret of temporal transposition. Several teenagers travel into a parallel world occupied by the mythological beings of Earth. Depicts the multiverse as being divided into an enormous set of "normal" universes, including ours the beyond , and one intelligently created universe set apart from all others Lyrian. The *Wheel of Time* by Robert Jordan series the world of dreams, and the *Mirror Worlds* which represent what could have been had various events in history happened in different ways. These worlds have alternate histories, in which some people may exist only in a few worlds. Along with her new friends and past kidnappers Jonathan and Sam, she hunts through time and space for the polarites that are gradually being stolen. In *A Sudden Wild Magic* a group of benevolent witches set out to stop the magicians of Arth who steal ideas, technology, and innovations from Earth. In *Hexwood* , the machine Bannus sucks potential Reigners from all over the universe into the Wood. In *The Homeward Bounders* Jamie is made into a Homeward Bounder by "Them" which means he must constantly travel from world to world until he finds his home again. Donaldson , main character Thomas Covenant is transported to another world called *The Land*. Each time he travels to *The Land* corresponds to an injury in the real world that leaves him unconscious. The final book elaborates the same idea as C. For example, Britain and Russia are still fighting the Crimean War in As the story develops, the world of fiction also emerges as another parallel universe and the characters learn how to move between them. The German series *Perry Rhodan* sometimes deals with parallel universes and "pararealities. Travel to another universe results in a "strangeness shock" that can disable electronics and leave intelligent beings unconscious for some time. They explore various parallel universes. In their world, Japan won World War II, and because of their strong religious Shinto beliefs, their Gods did not die out, and they were able to use this magic to help strengthen their

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

technology. However, their sun died out prematurely, and so they have come to our world to steal the energy from our sun to save their world. The novella spawned a film of the same name that deals with the same plot and use of parallel universes. I, Q is a Star Trek novel by Peter David and John de Lancie in which God attempts to destroy the multiverse in a large multi-universe maelstrom which the protagonists attempt to stop from within a newly created universe caused by the maelstrom. Certain people, called Travelers, are able to go between the territories through portals known as Flumes. It is claimed that by traveling through a Flume, Travelers land on their destination territory exactly when they need to be there, suggesting time travel. In a quantum physics experiment gone wrong a Neanderthal scientist is accidentally transported into the universe of Homo sapiens. In Mirror Dreams and Mirror Wakes by Catherine Webb , there are mirror universes, one a magical universe where technology barely works, the other a scientific universe where magic barely works. In the Stravaganza series by Mary Hoffman various people travel between present-day England and an alternative, somewhat magical Renaissance Italy called Talia. They claim to be from a parallel universe which has been overrun by a rogue terraforming system that has destroyed their entire universe. They have sent instructions to our world on how to build machinery to let them across. In The Divide trilogy by Elizabeth Kay â€” , Felix Sanders crosses into a parallel universe where magic and magical beings exist while science and human beings are considered mythical. The parallel worlds become connected due to experiments with quantum computers. The same alternate world in which post-war Britain falls under Communist rule also appears in his novels Music, in a Foreign Language and Sputnik Caledonia A part of the story also plays in one of these parallel worlds, the Demonata. The time travel mechanism incorporates the concept of the multiverse. These alterations are known as "walking in Shadow". They travel to an alternate present where the northeast coast of North America has been settled by Norsemen. To complicate matters, the name of the reporter is also "Daedalus Howell" and a preface to the book reads "Based on a true story. Rose is a novel where the main character Drea is actually from another dimension on Earth named Eugenica.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 2 : The best science fiction books | Books | calendrierdelascience.com

Studies show that many girls' interest in science falls off during the preteen years. In an effort to keep girls tuned in to science, this book demonstrates that science is fun and that it is for girls. In this title in the Books for Girls series, lively text and illustrations help kids.

But the field has certainly given it the old college try in imagining what they might be like. As such, this list is nothing more or less than some of the aliens I have enjoyed getting to know in the pages of books. Some are foes, some are friends, some are neither or misunderstood decent-folk. In an effort to limit the possibilities at least somewhat, the following criteria apply: The book must be good enough to read regardless of how cool the aliens are. The aliens must be fleshed out to where you would know what to expect if suddenly meeting them. They must be unique and memorable. But they demand obedience and a rigid code of conduct that rankles the human spirit. Actually, the Aalaag are a conquered race themselves, fleeing from some unnamed but awesomely powerful enemy that took their home worlds. They are in essence warriors, tall and proud, each with a collection of personal arms and possessing a Spartan outlook on their condition. Every single Aalaag views duty as the highest virtue, and all duty is directed towards one day regaining their lost worlds. The races they themselves conquer are used to exploit resources in support of this ultimate goal. Our hero is Shane Evert, a gifted linguist who leads a translator-courier corp in the service of the alien leader, First Captain Lyt Ahn. The book title refers to the use of a Pilgrim as a universal motif of the human condition, which becomes a symbol for the nascent resistance movement. Absorbing, warmly human – at times captivating – the novel is Dickson at his finest, and that is a high level of writing indeed. Forget about whatever you think of L. Ron Hubbard as the founder of Scientology. Just read his mammoth 1, paperback pages novel *Battlefield Earth*. It is rollicking space opera the way space opera is supposed to be. Only they have the secret to instantaneous teleportation. And one of their biggest operations is the Intergalactic Mining Company, which knocks natives back to the Stone Age and then systematically strips their planet of all available ore, almost down to the very core. A tip of the hat must be made to the Selachees, another alien race in the book that is unique and crucial to the outcome. One novel, however, thoroughly explored the culture of the Thranx while detailing how humans came to partner with them. Everything just seems to fit in this novel – by the end of it, you are so much pulling for the insectoid Thranx to form an alliance with humans that you would immediately recognize any instance of Foster not treating a Thranx as a Thranx even though there is plenty of room for individualism within the species. But he handles the race perfectly. And I happen to really like praying mantises. They literally are little green men, but what they truly are – first, foremost, and always – are assholes. Being an asshole seems to be their major occupation. They invade Earth by the millions literally overnight, speaking English with something like a Brooklyn accent, and proceed to make utter nuisances of themselves. With disastrous, even fatal, results. They like nothing better than to tell you who your wife is sleeping with, give national defense secrets to other countries, comment on human shortcomings – anything to be as big a pain in the ass as possible. Both novels won both the Hugo and Nebula awards – the first time anyone has accomplished such a back-to-back feat. *Speaker* is much different in tone, backdrop and subject material, even though Ender is still the major character. Very touching in places, and a must for any sci-fi reader interested in comparative religion. Before that scares you off, I am most decidedly NOT interested in such, but loved the book anyway. If nothing else, the concepts of framing humans from other planets, ramen non-humans whom we communicate with as though they were human, and varelse non-humans with whom no communication is possible, such as intelligent viruses should be remembered at the inevitable time when we come into contact with interstellar beings. The Overlords make life better for everyone and end many of our persistent woes, all while sitting aloof in their gigantic starships positioned over major cities. Mankind adapts, as is his nature. But the Overlords will not reveal themselves for fifty years and the reason why incorporates the Jungian concept of racial memory. No spoiler coming, but this

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

inclusion is probably why so many professors love to teach the novel. Anyway, of course there is a secret to why the Overlords are doing what they do. Together they are one of the most successful collaborations the field has ever seen. Anyway, anyone who has read the book has to think of the Fithp as elephants. As humans are a culture of individuals, as ants are a colony culture, the Fithp are a herd culture. Excellent treatment of that basic premise – and being herd creatures, they do not understand the concept of diplomatic compromise – you either dominate or you submit. In particular, the internal politics of an intelligent herd engaged in difficult conquest are handled with admirable skill. So a guy publishes a novelette and it wins the Nebula – mere months after the guy publically denounces the awards themselves! Then it wins the Hugo. Along with the John W. Campbell award because, after all, the guy is new. Drac and humans are at war. One human fighter pilot and one alien fighter pilot are marooned on a world where existence is difficult to say the least. They are forced to pool resources just to stay alive. Spoiler alert next sentence: An untimely death and our human is forced to raise the alien progeny as his own. Both the book and the movie are essentially the story of one human and one alien interacting, with a beginning and an ending tacked onto either end. You will absolutely know the Drac, especially if you have both seen the movie and read the book. The Drac are included here because they fit the criteria; I own many Longyear books mainly as a result of the sheer pathos in *Enemy Mine*, but find the majority of his stuff barely readable. Cute and cuddly, the Fuzzies are. But the novel explores a rather important theme: Is this lifeform just a critter, over which we can claim dominion, or a thinking creature in its own right, in which case exploitation – and even murder – rears its ugly head? Sequels followed, not always written by the originator – none are as enjoyable as the original. Lots of stories and novels over several decades. Regardless, these tongue-in-cheek tales of derring-do and human ingenuity in the face of human diplomatic incompetence have sold quite well for many years. In most of them, there is an insidious plot behind whatever the current weird aliens are doing that is being masterminded by the Groaci. No slouches at the diplomatic bargaining table, the Groaci are nonetheless almost incapable of dealing squarely. The books are pun-filled and light-hearted, but the Groaci are badass unless put on a leash. Almost not included on the list, as they are rather a two-dimensional race. Many of those words were as a result of cranking out short story after short story for the magazines back in the day. The League is a thinly-veiled if veiled at all allegory of 19th-century robber-baron capitalism. So what about the Ythri? The best way to include that race in this list – and they are worthy of inclusion – is via the *Earth Book* although Ythrians also appear in other works by Anderson. Well over half of Robert A. The someone they are looking for has a little trouble taking no for an answer, as well. Not truly disobedient, and with no desire to cause harm, just kind of literal-minded in following instructions and always a little hungry. Canadian author Robert J. Even though the events in the novel deal with the Forhilmors coming to Earth and interacting with a human paleontologist, it could be said that the aliens are simply bystanders – Sawyer uses that encounter to tackle really mind-blowing concepts of creation, cosmology, and why life exists at all. Nevertheless, the reader would love to have Hollus as a dinner guest and would be proud to have that [person] as a friend. Satisfies the criterion of knowing what those folks are really like. But as a digression: Take three good friends. One is a fundamentalist assured of his salvation. The third is an atheist who looks strictly to chemical processes. Remember, they are all good friends. *Calculating God* is the book they should discuss around a campfire. Several books resulted, and happily some of the latter ones are just as good as the first. They really have to be read in order, though, as the Chtorran infestation multiplies and human reaction changes accordingly. A God maybe, but not a person. It spawned a few sequels with the usual slight lowering of quality and is a stunning example of meticulous alien-creation. Humans are at the hunter-gatherer stage. The Yilane are 4-foot tall, erect intelligent reptiles descended from dinosaurs. Theirs is a matriarchal society whose technology is based almost exclusively on the manipulation of the biological sciences. They literally grow plants and animals that are modified to perform such diverse functions as microscopes, boats, and living blankets. The Yilane are tropical whereas the humans are temperate. But impending climate changes push the two societies towards one another and conflict erupts. Kerrick, the human protagonist, is uniquely situated – he was captured by the

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Yilane at an early age and raised among them. This upbringing is the true beauty of the book: As Kerrick learns, so do we. And quite an education it happens to be, as readers end up truly knowing a completely alien culture â€” without any sacrifice in good storytelling whatsoever.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 3 : Intelligent design - Wikipedia

The Science Book for Girls: and Other Intelligent Beings by Valerie Wyatt, Pat Cupples Studies show that many girls' interest in science falls off during the preteen years. In an effort to keep girls tuned in to science, this book demonstrates that science is fun " and that it is for girls.

On the Web, there are now numerous ways to expand your hunt beyond Amazon. Abebooks is a consortium that connects you to thousands of used-book stores around the world. Another search site is the Berkeley-based Bookfinder. You can also search a growing number of individual stores online, including the Portland-based Powells and Bolerium Books in San Francisco, which specializes in rare books on labor issues and radical history. Utne Reader Bookshelf Meanwhile, your local library can be a great help, too, thanks to a practice called interlibrary loan. Tell the pros as much about the book as you can. Title and author are most important, but publisher and publication date or even a good guess at it can be helpful too. Gets in trouble with drugs. Judge sentences her to Africa to help at an orphanage. The kids get kidnapped sometimes to either be used for soldiers or sold. One wants the best of everything even though it is beyond her means and she loses it all. The poorer sister is the happier of the two. The book alternates between her perspective and the perspective of an alien living on the same planet. The alien finds her hiding in a cave, approaches her, and they tentatively eventually become mutuals. An example of one of the short stories was about this kid who wore shoes for a few months straight without taking them off to fend off bullies from killing a turtle. Another one of the short stories was about a boy who wanted to whiten his teeth with whitener, but in the end, his teeth had liquified because he kept them on for too long. Poor family, dad not one to show affection. Boy was all excited to wear it to school, Dad was quietly proud. Kids made fun of boy because jacket was a knockoff and he got in a fight over it, I think the coat was torn, he never wore it again, and dad never mentioned it. Grouchy retired sea captain, irritated by a rainbow, captures it, rolls it up and stows it in a hatch in his little home. Neighborhood boy frees the rainbow which unfurls into the sky. Beautiful and fun water color illustrations. Sea captain sees the error of his ways! He wrote about his life in Africa including some funny experiences. I think he worked for The York Times. Some American paper for sure. Thanks I have been trying to find it, but difficult without title or author! Cannot remember title or author. Some funny experiences he had in Africa. I think he worked for the New York Times? But was based in Africa. Thank you for helping me! The woman is also battling for custody of her daughters with her cheating ex husband. Things escalate with her and the man eventually. R rated book, I am an adult. He has a pocket sized computer that he runs programs on written in BASIC, I believe and each book had programs you could run on your computer after typing them in. I remember in one book, The protagonist meets the president, who calls him a "Class Act", and our hero wonders if the President knows what he does on the side. Another adventure has our hero paired up with a dog in a secret base in i believe the Alaskan wilderness. Protagonist goes through a series of emotions like fear, anxiety, etc because an alien ship has landed. Protagonist describes the ship and the creatures coming out of the ship, as having hair "all over their head" - as if that was crazy weird. Big reveal at the end is that the protagonist is an extra-terrestrial and the aliens are humans from Earth. Really great story on perspective and looking at things egocentrically. And a kid really wants to meet a certain famous hockey player. But, the hockey player just happens to be her ex and father of her son that he knows nothing about I need help finding this book!! But, the hockey player just happens to be her ex and father of her son.. And this autistic kid really wants to meet a certain famous hockey player. The hockey player happens to be her Ex and the father of her son. And then in the end I think that they come back after all of this and I remember like an engagement between two of the characters. She is made fun if at school and her only friends are two brothers they are twins. When they grow up she gets pregnant by one of the brothers, and the other one dies. After a year or so she comes back and after a row of events she lives happily ever after woth the father of her child and the love of her life. It starts with a girl trying to find her twin sister in a garrage or some shady place. It is a fantasy

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

paranormal book maybe involves farie world non mages. The mother is leading a rebellion the king kills both mom and real princess thinking that the princess is the double. She ends up helping the little girls father find his daughter. The woman and the father end up falling for each other. I think this is romantic suspense. When he gets out of prison he looks for his missing sister and finds out that she was involved with some sort of mafia or something similar. To find and save her he has to work with the mafia people and was forced to blow up a train station. When I was younger I read this great book that I just remembered and cant get out of my head. It was this book about these two foster girls whos "aunt" who was a hippie had suddenly died in the bathroom one day and the girls had buried her in the backyard and pretended to live on like nothing happened surviving by cleaning rent cabins until they fighr about whether to tell the authorities or not and one of them wants to run away. It sounds like the story you summarized. Strong people were burdened with weights He eventually discovers that the drug is doing something to your brain and makes you forget stuff. So he tries to fool the device with an apple where he put his blood on. He stops taking the drugs and his memory becomes clear. He has some sort of girlfriend and convinces her to stop taking the drug too. And if you go against the law by having I think it was "good memories" or something like that, you get the death penalty. So once she goes off to college she disconnects from her family and her childhood love and marries a rich boyfriend. Once married the honeymoon phase was really but then he started to change first he would just raise his voice but then it get physical. When she got pregnant she thought thing had changed but was still cautious but one he was just angry hit her so hard she fell and ended up going into labour. Thankfully both the woman and her baby girl were okay but once at home she tried her hardest to shield her daughter from her husband but sometimes it would be so sudden that there was nothing she could do, it got so bad that her daughter would be crying completely silent in fear of her father. In desperate need for safety for her daughter she devises a plan where she packed up both of their necessities before hand. Once out of the neighborhood she raced to father who was the leader of a gang or club of some sort for protection she drove non stop no matter how tired es she got. Only when she was inside the gates was she relieved, she got the car and walked up to her shocked father she passes out leaving her daughter silently crying in the back seat. I think it was her first day of school and she wore her hair in braids with ribbons, and she got new shoes with ribbons, and she had buttons down her jumper. She may have brought her neighbors cookies at one point in the story. Has a wife and i think a kid. He hoes out to a bar one night and is supposed to bring his wife back ice cream and gets kidnapped or something. The kidnapper know everything about him. Brings him to a abandoned warehouse and then he wakes up in a hospital; however, he is living the what could have been life. He wears velvet and has golden hair. The setting was Africa Egypt I think a crime perhaps murder had occurred and he was going to solve it he was great at fighting too man i miss this book but cant remember the author of title. He spared her and eventually takes her back to where his people are on the other side of the mountains. Despite her escape attempts inevitably they fall for one another but he releases her anyway. Where his people have been hiding from the world is destroyed by an earthquake. The children are named after the cities he was in when they were born. She shows up and the head sister instantly hates her. Then the main girl gets a job at a bar as a waitress with great tips. His girlfriend had committed suicide but you find out she didnt she was killed by the lead sorority girl. She was actually killed by a sorority girl who is obsessed with. She tries to do the same to the main girl in the book. The boy and girl go to a hotspring and ride bikes up too it. I never got to finish the book to see who she ends up choosing but if anyone could help? The girls dad is a programmer. She goes to some convention with a friend on the outskirts of town where she meets a boy in a run down store and he has this device that allows them to smell foods. And hers and his hunger for real food continues to grow. They eventually run away together with many people after them.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 4 : How to Find That Book You've Spent Years Looking For

In an effort to keep girls tuned in to science, this book demonstrates that science is fun--and that it's It gives girls a positive and non-threatening look at science and science careers--although there's nothing stopping "other intelligent beings" from taking a peek, too!

A Hymn Before Battle by John Ringo – Earth is introduced to extraterrestrial life by the Galactics, who tell world leaders that an invasion by another alien race, the Posleen, is coming, and they are bringing with them a terrible book cover. He uncovers secrets that challenge the foundation of the current human government. A Talent for War is a good example of science fiction mystery. It is, however, arguably his most famous, and sets the stage for several well-regarded sequels. When the alien Mimics invade, Keiji Kiriya is just one of many recruits shoved into a suit of battle armor called a Jacket and sent out to kill. Keiji dies on the battlefield, only to be reborn each morning to fight and die again and again. On his th iteration, he gets a message from a mysterious ally – the female soldier known as the Full Metal Bitch. But a century later, Geary miraculously returns from survival hibernation and reluctantly takes command of the Alliance Fleet as it faces annihilation by the Syndic. Appalled by the hero worship around him, Geary is nevertheless a man who will do his duty. Henry, a retired Naval officer. Sven possesses a fierce if untutored intelligence and a genetic makeup that is Perhaps it is these unique abilities that bring Sven to the attention of OctoV. Armed with a SIG diabol – an intelligent gun – and an illegal symbiont called a kyp, Sven is sent to a faraway planet, the latest battleground between the Uplifted and OctoV. There he finds himself in the midst of a military disaster, one that will take all his courage – and all his firepower – to survive. But an even deadlier struggle is taking place, a struggle that will draw the attention of the United Free. Sven knows he is a pawn, and pawns have a bad habit of being sacrificed. And even a pawn can checkmate a king. There are internet rumors that there is no real David Gunn: All of the preceding came from a forum on the internet, so it must be true. Those who love schlock that stops just short of parody will be delighted. Once his training begins, one of the elusive and prophetic Trith appears to give Joe a spine-chilling prophecy that the universe has been anticipating for millions of years: Joe will be the one to finally shatter the vast alien government known as Congress. And the Trith cannot lie! But first Joe has to make it through bootcamp. The Founding by Dan Abnett – Apparently, there is a tabletop game out there called Warhammer 40, with a serious cult following. The game involves armies of humans, aliens, and robots spread across the galaxy. There are multiple spin-offs from the Warhammer 40k universe, including over books. The heroes are always in peril, violent action erupts every few pages, and the characters are drawn with enough complexity and humanity that you actually care what happens to them. And if you like it, there are fourteen more books in the series. As they travel from warzone to warzone in the Chaos-infested Sabbat Worlds system, the Ghosts must not only carry out the most dangerous of missions but also survive the deadly politics of the Imperial Guard. The bad news is that planets that are fit to live on are scarce – and alien races willing to fight us for them are common. So we fight, both to defend Earth, and to stake our own claim to planetary real estate. Far from Earth, the war has been going on for decades: Earth itself is a backwater. Everybody knows that when you reach retirement age, you can join the CDF. On his 75th birthday John Perry did two things: Then he joined the CDF. He has only the vaguest idea what to expect, because the actual fight, light-years from home, is far, far harder than he can imagine – and what he will become is far stranger. But the people out to get her have made one mistake.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 5 : 23 Best Military Science Fiction Books - The Best Sci Fi Books

Find helpful customer reviews and review ratings for The Science Book for Girls: and Other Intelligent Beings (Books for Girls) at calendrierdelascience.com Read honest and unbiased product reviews from our users.

A mousetrap consists of several interacting pieces—the base, the catch, the spring and the hammer—all of which must be in place for the mousetrap to work. Removal of any one piece destroys the function of the mousetrap. Intelligent design advocates assert that natural selection could not create irreducibly complex systems, because the selectable function is present only when all parts are assembled. Behe argued that irreducibly complex biological mechanisms include the bacterial flagellum of *E. coli*. Furthermore, they argue, evolution often proceeds by altering preexisting parts or by removing them from a system, rather than by adding them. This is sometimes called the "scaffolding objection" by an analogy with scaffolding, which can support an "irreducibly complex" building until it is complete and able to stand on its own. Specified complexity In , Charles B. Thaxton, a physical chemist and creationist, used the term "specified complexity" from information theory when claiming that messages transmitted by DNA in the cell were specified by intelligence, and must have originated with an intelligent agent. He provides the following examples: A long sentence of random letters is complex without being specified. A Shakespearean sonnet is both complex and specified. Dembski proposed the concept of specified complexity. Critics say that this renders the argument a tautology: John Wilkins and Wesley R. They argue that this procedure is flawed as a model for scientific inference because the asymmetric way it treats the different possible explanations renders it prone to making false conclusions. Fine-tuned Universe Intelligent design proponents have also occasionally appealed to broader teleological arguments outside of biology, most notably an argument based on the fine-tuning of universal constants that make matter and life possible and which are argued not to be solely attributable to chance. These include the values of fundamental physical constants , the relative strength of nuclear forces , electromagnetism , and gravity between fundamental particles , as well as the ratios of masses of such particles. Intelligent design proponent and Center for Science and Culture fellow Guillermo Gonzalez argues that if any of these values were even slightly different, the universe would be dramatically different, making it impossible for many chemical elements and features of the Universe , such as galaxies , to form. Scientists have generally responded that these arguments are poorly supported by existing evidence. Stenger and other critics say both intelligent design and the weak form of the anthropic principle are essentially a tautology ; in his view, these arguments amount to the claim that life is able to exist because the Universe is able to support life. Life as we know it might not exist if things were different, but a different sort of life might exist in its place. A number of critics also suggest that many of the stated variables appear to be interconnected and that calculations made by mathematicians and physicists suggest that the emergence of a universe similar to ours is quite probable. Intelligent designer The contemporary intelligent design movement formulates its arguments in secular terms and intentionally avoids identifying the intelligent agent or agents they posit. Although they do not state that God is the designer, the designer is often implicitly hypothesized to have intervened in a way that only a god could intervene. Dembski, in *The Design Inference* , speculates that an alien culture could fulfill these requirements. In , philosopher of science Robert T. Acknowledging the paradox , Dembski concludes that "no intelligent agent who is strictly physical could have presided over the origin of the universe or the origin of life. For example, Jerry Coyne asks why a designer would "give us a pathway for making vitamin C , but then destroy it by disabling one of its enzymes" see pseudogene and why a designer would not "stock oceanic islands with reptiles, mammals, amphibians, and freshwater fish, despite the suitability of such islands for these species". Coyne also points to the fact that "the flora and fauna on those islands resemble that of the nearest mainland, even when the environments are very different" as evidence that species were not placed there by a designer. Odd designs could, for example, " Behe suggests that, like a parent not wanting to spoil a child with extravagant toys, the designer can have multiple motives for not giving priority to excellence

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

in engineering. He says that "Another problem with the argument from imperfection is that it critically depends on a psychoanalysis of the unidentified designer. Yet the reasons that a designer would or would not do anything are virtually impossible to know unless the designer tells you specifically what those reasons are. Johnson puts forward a core definition that the designer creates for a purpose, giving the example that in his view AIDS was created to punish immorality and is not caused by HIV, but such motives cannot be tested by scientific methods. But, in assessing the value of an explanation, these questions are not irrelevant. They must be balanced against the improvements in our understanding which the explanation provides. Invoking an unexplained being to explain the origin of other beings ourselves is little more than question-begging. The new question raised by the explanation is as problematic as the question which the explanation purports to answer. Later it used a less religious image, then was renamed the Center for Science and Culture. Leaders of the movement say intelligent design exposes the limitations of scientific orthodoxy and of the secular philosophy of naturalism. Intelligent design proponents allege that science should not be limited to naturalism and should not demand the adoption of a naturalistic philosophy that dismisses out-of-hand any explanation that includes a supernatural cause. The overall goal of the movement is to "reverse the stifling dominance of the materialist worldview" represented by the theory of evolution in favor of "a science consonant with Christian and theistic convictions". Johnson stated that the goal of intelligent design is to cast creationism as a scientific concept. Leading intelligent design proponents have made conflicting statements regarding intelligent design. In statements directed at the general public, they say intelligent design is not religious; when addressing conservative Christian supporters, they state that intelligent design has its foundation in the Bible. Alongside a focus on influential opinion-makers, we also seek to build up a popular base of support among our natural constituency, namely, Christians. We will do this primarily through apologetics seminars. We intend these to encourage and equip believers with new scientific evidences that support the faith, as well as to "popularize" our ideas in the broader culture. Stuart Burgess, Phillip E. Dembski, and Stephen C. Johnson has stated that cultivating ambiguity by employing secular language in arguments that are carefully crafted to avoid overtones of theistic creationism is a necessary first step for ultimately reintroducing the Christian concept of God as the designer. Johnson explicitly calls for intelligent design proponents to obfuscate their religious motivations so as to avoid having intelligent design identified "as just another way of packaging the Christian evangelical message. This is not to say that the biblical issues are unimportant; the point is rather that the time to address them will be after we have separated materialist prejudice from scientific fact. Dembski in *The Design Inference*. The pragmatics of a scientific theory can, to be sure, be pursued without recourse to Christ. But the conceptual soundness of the theory can in the end only be located in Christ. Beckwith to leading Christian Reconstructionist organizations, and the extent of the funding provided the Institute by Howard Ahmanson, Jr. An open letter affirming the compatibility of Christian faith and the teaching of evolution, first produced in response to controversies in Wisconsin in , has now been signed by over ten thousand clergy from different Christian denominations across America. In , he wrote: Such a model makes little if any positive impact on the community of scientists and other scholars. Introducing a biblically based, scientifically verifiable creation model represents such a leap. It has often been tried in the past and has failed, and it will fail today. National Academy of Sciences has stated that "creationism, intelligent design, and other claims of supernatural intervention in the origin of life or of species are not science because they are not testable by the methods of science. We are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life. Careful examination of the evidence for Darwinian theory should be encouraged. Polls[edit] Several surveys were conducted prior to the December decision in *Kitzmiller v. Dover School District*, which sought to determine the level of support for intelligent design among certain groups. The polls also noted answers to a series of more detailed questions. No Intelligence Allowed There have been allegations that ID proponents have met discrimination, such as being refused tenure or being harshly criticized on the Internet. In the documentary film *Expelled: No Intelligence Allowed* , released in , host Ben Stein presents five such cases. Other than briefly addressing

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

issues of irreducible complexity, *Expelled* examines it as a political issue. Skeptic Michael Shermer describes his experience of being repeatedly asked the same question without context as "surreal".

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 6 : 13 Smartest Female Characters from Movies, TV, and Books | Common Sense Media

Studies show that many girls' interest in science falls off during the preteen years. In an effort to keep girls tuned in to science, this book demonstrates that science is fun -- and that it is for girls.

Theme This is the term, in both sf and popular culture, used to indicate sentient extraterrestrial beings “ creatures from other worlds endowed with reason, consciousness, thought, Intelligence the terms for and conceptions of this vital but slippery quality vary. Aliens may have minds somewhat less capable than ours, of comparable capacity, of greater even vastly greater power, or minds so different that comparison becomes impossible. They may appear as invaders see Invasion or teachers, as allies or enemies, as victims of human exploitation or judges of human civilization, as Secret Masters guiding human history see Uplift , or as utterly indifferent forces paying no attention to humanity at all. Aliens may look like us, resemble more or less any number of Earthly species, or take on shapes we have never seen or imagined, forms so strange we sometimes fail to recognize them and they us as fellow beings at all. While the overwhelming majority of aliens hail from outer space, aliens may occasionally emerge from little-explored zones on our own planet, from Under the Sea or the rarefied layers of the upper atmosphere. They may be found Underground or in the hollow interior of our planet see Hollow Earth. Some aliens come from other Dimensions , while others have their origins in Parallel Worlds or Alternate Histories. In most though not all cases, non-extraterrestrial aliens function in sf texts in much the same way that extraterrestrials do, and their nearer origins make little difference. Approaches to the subject in sf fall into two broad though often overlapping categories. On one hand, writers have long exploited the rich literary opportunities offered by the figure of the alien, whether or not the aliens they imagine differ radically from human beings or other Earthly models. Occasionally they have striven to convey the sense of an alien mind which thinks in ways unlike those of human beings. This has frequently been acknowledged as one of the most difficult challenges an sf writer can face. The very possibility of an alien intelligence is an existential provocation, the stuff of identity crisis, and writers of fiction have been exploring the implications of alien beings since their existence began to be seriously considered in the Proto SF of the early seventeenth century. Over that time “ and particularly since the turn of the twentieth century “ writers have expanded and complicated our conception of alien biologies and societies, deployed aliens in critiques of the chauvinistic and parochial assumptions embedded in human culture, and carried on a complex intertextual meditation on the likely effects of an encounter with alien beings on human consciousness and civilization. The idea of Life on Other Worlds dates back to antiquity. Epicurus BCE taught that there were an infinity of other life-supporting worlds; the poet Lucretius circa circa 50 BCE reiterated the notion in his De rerum natura; and the Pythagoreans c. Plutarch circa CE also speculated about the inhabitants of the moon, and Lucian imagined a journey there in his True History second century CE , a Parody of the Fantastic Voyage ; but Plato BCE and Aristotle BCE both opposed the notion that other worlds as such existed at all, and their influence predominated throughout the medieval period. The heliocentric cosmological model proposed by Copernicus and the telescopic observations of the Moon by Galileo brought the question back into Western thought, and a lively debate grew up almost immediately. The philosophers and theologians of the seventeenth and eighteenth centuries quickly recognized the challenge aliens posed to a range of precious received notions. Responses, then and since, varied dramatically. Some such as Cyrano de Bergerac , Robert Wittie [? Swedenborg , for instance, dedicated a chapter of his De Telluribus [] to explaining that Christ appeared on Earth alone because it was only here, out of all the countless worlds populated with human beings, that humanity developed the art of writing, and so was able to preserve the story of the Incarnation for future generations. Efforts at denial did little to stem the tide of public and scientific opinion, and the likelihood of extraterrestrial counterparts to humanity who might even be superior to us in some or many ways became undeniable to most thinkers of the eighteenth and early nineteenth centuries. The persistence of theological and philosophical assumptions, and the lack of a robust notion of adaptive development, meant that visitors to

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

other worlds in the literature of ancient and early modern times met no genuine alien beings; instead they found men and animals, sometimes wearing strange forms but always filling readily recognizable roles. In his *Somnium*, Johannes Kepler imagines his moon-dwellers traveling by boat, planning towns and fortifications, and devising various means of coping with the less congenial lunar climate. The pattern of life on Earth was reproduced with minor amendments: Utopian improvement or satirical exaggeration. A rare few writers of the period ventured beyond the strictly anthropomorphic in imagining Extraterrestrials: But the concept of a differently determined pattern of life, and thus of a lifeform quite alien to Earthly biology and habits of thought, did not fully emerge until the late nineteenth century, as a natural consequence of the concepts of Evolution and of the process of adaptation to available environments promulgated by Jean-Baptiste Lamarck and later by Charles Darwin. The idea of genuinely alien lifeforms "being shaped by adaptation to extraterrestrial environments" was first popularized by Camille Flammarion in his nonfictional *Les mondes imaginaires et les mondes réels*; trans as *Real and Imaginary Worlds* and in his short philosophical novel *Lumen*; trans anon [for further publication details see Flammarion]. The idea that divinely created souls could experience serial Reincarnation in an infinite variety of extraterrestrial physical forms "a notion that attained surprising popularity in the later eighteenth and nineteenth centuries" is featured in his *Uranie*; trans as *Urania*; among the alien beings encountered here are the dragonfly-like inhabitants of a planet orbiting the multiple star system of Gamma Andromedae and the winged, six-limbed folk of Mars, and yet a great many are plainly humanoid, with minor variant features such as ears with a closable covering like eyelids or the bioluminescent display of emotions. This was, nevertheless, far more authentic alienness than most nineteenth-century tales of other worlds had to offer. The inhabitants of Mars, for example, are literally human in Mr. In the tradition of the French evolutionary philosophers Lamarck and Henri Bergson, Flammarion and Rosny fitted both humans and aliens into a great evolutionary scheme, and Rosny displayed a remarkable sympathy for alien beings, even when they were engaged in a fatal struggle with humanity. Likewise, the ferromagnetics are not presented as simple Monsters but as creatures better adapted to the conditions of the future Earth, and their replacement of humanity evokes neither the glee of the satirist nor the horror of the anthropocentrist, only a note of fatalistic sorrow. Wells thus deploys the cold logic of Darwinism for and against humanity. A superior alien competitor may well threaten the survival of the species and in particular its place at the top of the planetary heap, but the ruthless process which has culled the weak over many generations has given humans a powerful advantage over any such challenger. He employs his aliens as agents of social criticism, explicitly inverting the colonialism upon which British society rested and challenging the comforting illusions of imperial destiny cherished by his countrymen see *Imperialism*. In the tradition of Cyrano de Bergerac and Voltaire, Wells focuses sharply on the existential threat posed by his alien beings, the radical demotion of humanity in the scheme of creation, as Earthlings are forced to assume the role of hunted animals. Wells took a less xenophobic tack in his elaborate description of an alien society in *The First Men in the Moon*. He based it on the model of the ant-nest, with its array of diverse physical types adapted for specific functions, and thus inaugurated another frequently revisited motif, though his Selenites have individual names and personalities and a complex technological civilization their vast physiognomic and functional diversity is more a product of conscious engineering than genetic determination. The civilization of the Selenites was the most fully developed alien society of its time, though the satiric impulse still guided the conception of many elements. Early US Pulp-magazine sf in the vein of Edgar Rice Burroughs usually populated other worlds with quasihuman inhabitants "almost invariably including beautiful women for the heroes to fall in love with" and frequently, for melodramatic purposes, placed such races under threat from predatory monsters. Edmond Hamilton was a prolific author of stories in this vein: In the early Space Operas of E E "Doc" Smith and others, alien physical forms might break down along broad-stroke moral lines in an echo of the historical conflation of aliens with angelic or demonic forces: In extreme cases, alien allies and enemies became straightforwardly symbolic of Good and Evil: At least one writer has noted that the Arisian-Eddorian conflict bears more than a passing resemblance to the struggle

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

between Ahura Mazda and Angra Mainyu in Zoroastrian Mythology. Early Pulp -sf writers occasionally inverted the Wellsian Invasion formula and cast humans in the role of alien conquistadors. A few seized the opportunity to decry the imperialist spirit of the age: Throughout these early years – indeed, well into the s – aliens predominantly originated on the other planets of our own solar system, as well as under the surface see *Underground or Under the Sea*, and they were still quite often human or humanoid. The parameters which had governed the centuries-long debate over Life on Other Worlds continued to shape the imagination space of sf, though the rationales for such limitations had largely vanished from the scientific discourse. A significant advance in the representation of aliens was achieved by Stanley G Weinbaum, whose "A Martian Odyssey" July Wonder Stories made a deep impression on readers with its array of strange lifeforms, especially the ostrich-like Tweel, who proves not only more clever than the human protagonist, but also unfailingly loyal. Though Weinbaum described only a handful of creatures, his Martian ecosystem was something the Pulp had never seen before, chiefly because it stood on its own, apparently imagined as an exercise in itself, free for the most part of the satirical, melodramatic, or formulaic drives which typically shaped the depictions of aliens. Weinbaum followed this up with other accounts of relatively complex alien biospheres see *Ecology*, including most notably "The Lotus Eaters" April Astounding, which features among other lifeforms a hyperintelligent vegetable doomed to extinction by its inability to defend itself against ravaging, less intelligent vermin. This spirit was echoed in "Liquid Life" October Thrilling Wonder by Ralph Milne Farley, which proposed that a man was bound to keep his word of honour, even to a filterable virus. Some of the more interesting and adventurous alien stories written in the s ran afoul of editorial Taboos: The influence of these taboos in limiting the potential the alien being offered writers of this period, and thereby in stunting the evolution of alien roles within sf, should not be overlooked. Despite the Wellsian precedents, aliens were much less widely featured in the UK Scientific Romances. Eden Phillpotts used aliens as "objective observers" to examine and criticize the human world in *Saurus* and *Address Unknown*, but the latter novel explicitly challenges the validity of any such criticism. Stapledon also employed the alien as a standard of comparison in one of his most bitter attacks on contemporary humanity, in *The Flames*, which imagines an ancient race of solar beings entrapped in rock by the formation of the planets, only returned to activity when humans heat stone to high temperatures. The popularity of the alien-menace story did not begin to wane until shortly before the outbreak of World War Two, and has never been in danger of dying out. The rank xenophobia displayed by many early examples of this story type eventually became unfashionable in the more reputable magazines, but monstrous aliens maintained their popularity in less sophisticated outlets, and found fresh life in film and television. The Cinema lagged behind written sf in this respect, as it often has, producing a host of cheap Monster Movies during the s and s such as *Night of the Blood Beast*, *The Eye Creatures*; vt *Attack of the Eye Creatures*, and the infamously inept *Robot Monster*. Alien Monsters did not disappear from the flagship magazines, but became more sophisticated in their nature and in the potency of the fears they played on. Neither the large cat-like Coeurl of "Black Destroyer" nor the four-armed, four-legged Ixtl of "Discord in Scarlet" become precisely sympathetic, but their encounters with humans are more two-sided than in most earlier tales, and the outcomes as in "Who Goes There? The emphasis shifted during the World War Two years toward the problems of establishing fruitful Communication with alien races. In "First Contact" May Astounding by Murray Leinster, two spaceships meet in the void see *First Contact*, and each crew instinctively adopts a Paranoid position, determined to yield no information and make no move which could possibly give the other a political or military advantage, though they ultimately overcome the stalemate rather ingeniously. By contrast, "Arena" June Astounding by Fredric Brown bleakly assumes that the meeting of human and alien might still be a test of their ability to destroy one another. Significantly, a adaptation of "Arena" for the television series *Star Trek* changed the ending of the story to bring it into line with later attitudes. A few writers in the s began to consider that the Communication problem might actually be insoluble, that alien minds and motives might be too strange for human beings to understand and for any meaningful contact to occur. They fear that aliens might be too profoundly different, that there may be no

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

mutual wellspring of experience from which to begin, and they speculate that their captor may have caught them purely by accident and might not have any interest in them at all. Similarly pessimistic meditations would become commonplace in subsequent decades. Aliens from beyond the solar system began to appear as often as the homegrown sort during the s. Asimov , in *The End of Eternity* , could refer casually to "the dead worlds of a solar system in which only Earth was livable" with confidence that this had become the dominant view among serious writers. Other star systems have been the source of the overwhelming majority of alien beings in sf ever since, though the solar planets continue to house the occasional alien being down to the present day. Attempts to present more credibly nonhuman aliens – peculiar beings adapted to extraordinary environments – became gradually more sophisticated in the post-World War II period as well, particularly in the work of Hal Clement , whose *Mission of Gravity* April-July *Astounding* ; cut describes the intelligent centipede-like inhabitants of the fast-spinning disc-shaped planet Mesklin, on which the force of gravity varies from three times Earth normal at the equator to nearly times Earth normal at the poles. In contrast, *Cycle of Fire* takes place on a world with a Great Year of two seasons lasting 40 terrestrial years each, which has forced drastic adaptations on the natives. Clement crafts these alien worlds with an attention to scientific detail unmatched by any of his predecessors, and he shares a good deal of that background with his reader along the way, but his imagination often falters when it comes to embedding his speculations in engaging stories a problem that would often face future writers working in the same tradition. And for all the interesting physical alienness of his creations, his Mesklinites and other aliens still think very much like humans. Robert Sheckley cooks up something similar in "Specialist" May *Galaxy* , in which interstellar Ships are composed of independently intelligent beings dedicated to various functions an Engine, Walls, a Thinker, an Eye, etc who cooperate voluntarily and almost instinctively; they are incredulous when they encounter the reflexive individualism of humans. Poul Anderson and Gordon R Dickson – who would become stalwarts of sober-minded sf – kicked off their popular series of lighthearted Hoka stories with "The Sheriff of Canyon Gulch" May *Other Worlds* , a tale in which the teddy-bear-like alien Hokas use their inborn linguistic abilities and talent for mimicry to create their own version of a Wild West town, based entirely on a few films and magazine stories, calling each other "Tex" and their reptilian enemies "Injuns". This was a particularly radical position to espouse; the British mathematician and codebreaking war hero Alan Turing had been tried and convicted on homosexuality charges in the UK just the year before. The politics of human Imperialism and colonialism see *Colonization of Other Worlds* receive a stinging critique in "The Helping Hand" May *Astounding* by Poul Anderson , which depicts the corrosive effects on native society and culture of the Marshall Plan-style aid provided by the interstellar human Commonwealth. The horrors of the Second World War, and in particular the appalling specter of the atomic bomb, introduced grave doubts into sf about the character of the human species and its fitness for planetary – let alone galactic – dominance. The late s and s saw a sharp turn toward representations of aliens superior to humans not only in technology but in wisdom and morality. Once again, humans are exceptional, but in a decidedly undesirable way. Aspects of the emerging Cold War mentality revealed themselves in the rise of the "paranoid" invasion plot see *Paranoia* , in which alien invaders assume the appearance of humans or take control of human minds rather than relying on overt military attack. Heinlein made the Cold War resonances of his scenario explicit, openly comparing the alien mind-control to the effects of Communist indoctrination. Oliver describes an interstellar human effort to speed the technological development of compatible alien worlds see *Uplift* in order to build an alliance against an attack by a hostile alien empire – a none-too-subtle recasting of Cold War bloc formation. The s also saw the coalescence of a popular mythology surrounding UFOs which indelibly influenced images of and ideas about aliens in the public imagination. A spate of reported sightings by airplane pilots and others in the late s popularized the notion that extraterrestrials were actively visiting and studying Earth in their "flying saucers" and spawned an enthusiastic subculture that developed a suggestive fabric of legend and its own theories about alien physiognomy, capabilities, and intentions. Though often confused in the popular imagination, sf adopted a dismissive, skeptical and even hostile stance toward UFO culture early on, which it has maintained with few

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

exceptions to the present. One of the most remarkable redeployments of alien beings in the sf of the s and s was an upwelling of pseudo-theological themes see Religion. Ideas about the inhabitants of other worlds had been governed by theological notions from the seventeenth through the nineteenth centuries â€” interplanetary romances of the nineteenth century often featured spirits or angels â€” and the traditional linkage had been revived outside the sf magazines by C S Lewis in his Christian allegories *Out of the Silent Planet* and *Perelandra* ; vt *Voyage to Venus* In sf of the s, though, aliens began to appear in metaphorically and even literally transcendental roles. Still, the aliens of Russell, Clarke, and Pangborn remain closer to angels than to gods, superior to humans in wisdom and ability but not in essence. Of course, aliens continued to appear and evolve in less pointed contexts during the s as well, as the problems of First Contact and Communication receded in favour of stories presenting human-alien interactions as commonplace and even unremarkable. James White kicked off his long-running Sector General series with "Sector General" November *New Worlds* and "Tableau" May *New Worlds* , featuring a colourful array of credibly-developed nonhuman aliens as doctors and patients on a hospital space station. By the end of the decade, the uses of and approaches to aliens had achieved a range and diversity which prefigured many of the branchings and divergences that sf would undergo in the s.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 7 : Inferior: How Science Got Women Wrong by Angela Saini – review | Books | The Guardian

Get this from a library! The science book for girls and other intelligent beings. [Valerie Wyatt; Pat Cupples] -- Presents a collection of science experiments based on everyday life, designed especially for girls ages eight to twelve, and features profiles of a variety of science careers.

You may not reproduce, edit, translate, distribute, publish or host this document in any way with out the permission of Professor Hawking. This is to allow correct pronunciation and timing by a speech synthesiser. In this talk, I would like to speculate a little, on the development of life in the universe, and in particular, the development of intelligent life. I shall take this to include the human race, even though much of its behaviour through out history, has been pretty stupid, and not calculated to aid the survival of the species. This observation can be elevated to the status of a law, the so-called Second Law of Thermodynamics. This says that the total amount of disorder, or entropy, in the universe, always increases with time. However, the Law refers only to the total amount of disorder. The order in one body can increase, provided that the amount of disorder in its surroundings increases by a greater amount. This is what happens in a living being. One can define Life to be an ordered system that can sustain itself against the tendency to disorder, and can reproduce itself. That is, it can make similar, but independent, ordered systems. To do these things, the system must convert energy in some ordered form, like food, sunlight, or electric power, into disordered energy, in the form of heat. In this way, the system can satisfy the requirement that the total amount of disorder increases, while, at the same time, increasing the order in itself and its offspring. A living being usually has two elements: In biology, these two parts are called genes and metabolism. But it is worth emphasising that there need be nothing biological about them. For example, a computer virus is a program that will make copies of itself in the memory of a computer, and will transfer itself to other computers. Thus it fits the definition of a living system, that I have given. Instead, it reprograms the metabolism of the host computer, or cell. Some people have questioned whether viruses should count as life, because they are parasites, and can not exist independently of their hosts. But then most forms of life, ourselves included, are parasites, in that they feed off and depend for their survival on other forms of life. I think computer viruses should count as life. Maybe it says something about human nature, that the only form of life we have created so far is purely destructive. Talk about creating life in our own image. I shall return to electronic forms of life later on. One can speculate that one might have life with some other chemical basis, such as silicon, but carbon seems the most favourable case, because it has the richest chemistry. That carbon atoms should exist at all, with the properties that they have, requires a fine adjustment of physical constants, such as the QCD scale, the electric charge, and even the dimension of space-time. If these constants had significantly different values, either the nucleus of the carbon atom would not be stable, or the electrons would collapse in on the nucleus. At first sight, it seems remarkable that the universe is so finely tuned. Maybe this is evidence, that the universe was specially designed to produce the human race. However, one has to be careful about such arguments, because of what is known as the Anthropic Principle. One can apply the Anthropic Principle, in either its Strong, or Weak, versions. For the Strong Anthropic Principle, one supposes that there are many different universes, each with different values of the physical constants. In a small number, the values will allow the existence of objects like carbon atoms, which can act as the building blocks of living systems. Since we must live in one of these universes, we should not be surprised that the physical constants are finely tuned. The strong form of the Anthropic Principle is not very satisfactory. What operational meaning can one give to the existence of all those other universes? And if they are separate from our own universe, how can what happens in them, affect our universe. Instead, I shall adopt what is known as the Weak Anthropic Principle. That is, I shall take the values of the physical constants, as given. But I shall see what conclusions can be drawn, from the fact that life exists on this planet, at this stage in the history of the universe. There was no carbon, when the universe began in the Big Bang, about 15 billion years ago. It was so hot, that all the matter would have been in the form of particles, called protons and

neutrons. There would initially have been equal numbers of protons and neutrons. However, as the universe expanded, it would have cooled. About a minute after the Big Bang, the temperature would have fallen to about a billion degrees, about a hundred times the temperature in the Sun. At this temperature, the neutrons will start to decay into more protons. If this had been all that happened, all the matter in the universe would have ended up as the simplest element, hydrogen, whose nucleus consists of a single proton. However, some of the neutrons collided with protons, and stuck together to form the next simplest element, helium, whose nucleus consists of two protons and two neutrons. But no heavier elements, like carbon or oxygen, would have been formed in the early universe. It is difficult to imagine that one could build a living system, out of just hydrogen and helium, and anyway the early universe was still far too hot for atoms to combine into molecules. The universe would have continued to expand, and cool. But some regions would have had slightly higher densities than others. The gravitational attraction of the extra matter in those regions, would slow down their expansion, and eventually stop it. Instead, they would collapse to form galaxies and stars, starting from about two billion years after the Big Bang. Some of the early stars would have been more massive than our Sun. They would have been hotter than the Sun, and would have burnt the original hydrogen and helium, into heavier elements, such as carbon, oxygen, and iron. This could have taken only a few hundred million years. After that, some of the stars would have exploded as supernovas, and scattered the heavy elements back into space, to form the raw material for later generations of stars. Other stars are too far away, for us to be able to see directly, if they have planets going round them. But certain stars, called pulsars, give off regular pulses of radio waves. We observe a slight variation in the rate of some pulsars, and this is interpreted as indicating that they are being disturbed, by having Earth sized planets going round them. Planets going round pulsars are unlikely to have life, because any living beings would have been killed, in the supernova explosion that led to the star becoming a pulsar. But, the fact that several pulsars are observed to have planets suggests that a reasonable fraction of the hundred billion stars in our galaxy may also have planets. The necessary planetary conditions for our form of life may therefore have existed from about four billion years after the Big Bang. Our solar system was formed about four and a half billion years ago, or about ten billion years after the Big Bang, from gas contaminated with the remains of earlier stars. The Earth was formed largely out of the heavier elements, including carbon and oxygen. Somehow, some of these atoms came to be arranged in the form of molecules of DNA. This has the famous double helix form, discovered by Crick and Watson, in a hut on the New Museum site in Cambridge. Linking the two chains in the helix, are pairs of nucleic acids. There are four types of nucleic acid, adenine, cytosine, guanine, and thiamine. Obviously, it was not designed for molecular biologists. An adenine on one chain is always matched with a thiamine on the other chain, and a guanine with a cytosine. Thus the sequence of nucleic acids on one chain defines a unique, complementary sequence, on the other chain. The two chains can then separate and each act as templates to build further chains. Thus DNA molecules can reproduce the genetic information, coded in their sequences of nucleic acids. Sections of the sequence can also be used to make proteins and other chemicals, which can carry out the instructions, coded in the sequence, and assemble the raw material for DNA to reproduce itself. We do not know how DNA molecules first appeared. The chances against a DNA molecule arising by random fluctuations are very small. Some people have therefore suggested that life came to Earth from elsewhere, and that there are seeds of life floating round in the galaxy. However, it seems unlikely that DNA could survive for long in the radiation in space. And even if it could, it would not really help explain the origin of life, because the time available since the formation of carbon is only just over double the age of the Earth. One possibility is that the formation of something like DNA, which could reproduce itself, is extremely unlikely. However, in a universe with a very large, or infinite, number of stars, one would expect it to occur in a few stellar systems, but they would be very widely separated. The fact that life happened to occur on Earth, is not however surprising or unlikely. It is just an application of the Weak Anthropic Principle: If the appearance of life on a given planet was very unlikely, one might have expected it to take a long time. More precisely, one might have expected life to appear just in time for the subsequent evolution to intelligent beings, like us, to have occurred before the cut off, provided by

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

the life time of the Sun. This is about ten billion years, after which the Sun will swell up and engulf the Earth. An intelligent form of life, might have mastered space travel, and be able to escape to another star. But otherwise, life on Earth would be doomed. There is fossil evidence, that there was some form of life on Earth, about three and a half billion years ago. This may have been only million years after the Earth became stable and cool enough, for life to develop. But life could have taken 7 billion years to develop, and still have left time to evolve to beings like us, who could ask about the origin of life. If the probability of life developing on a given planet, is very small, why did it happen on Earth, in about one 14th of the time available. Maybe there was some simpler form of organisation, which built up DNA. Once DNA appeared, it would have been so successful, that it might have completely replaced the earlier forms. One possibility is RNA. This is like DNA, but rather simpler, and without the double helix structure.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 8 : Life in the Universe - Stephen Hawking

The Science Book for Girls: And Other Intelligent Beings Average rating: 0 out of 5 stars, based on 0 reviews Write a review This button opens a dialog that displays additional images for this product with the option to zoom in or out.

An insight into the human condition. LeGuin Not only does the book imagine an alien race, but an alien race without genders. However, this never stops the novel from reaching the high levels of characterization and prose that we expect not only from LeGuin, but from the very best of fiction. By the time the reader leaves the world of Winter, their world will never be the same again. But it is one of those science fiction novels which can change the way you look at the world. And there are remarkably few of them. The story is rich and satisfying in every detail, the characters are unforgettable, and the language is so good that you want to read every sentence twice. Set the blueprint for cyberpunk and given all the fuss it kicked up over Arts Council funding, now seems oddly relevant all over again. Vast breadth and depth. Hopefully someone else can do more justice to it in their recommendation, but all I can say is you come away from it with a different perspective on the universe. Sure, it deals with complex mathematical concepts, the far-future evolution of humanity It also covers philosophy, religion Each chapter seemed to me a novella in its scope and depth when I read it. This is an epic quest of a book. Relatively soft but with hard elements. It gives a glimpse into one of our many possible futures and problems we may face in the future. Deranged paranoia, mind-bending ideas and lots of humour. This last point is crucial as all the Hollywood adaptations of Dick have lack his wit and irony. I could throw adjectives at this book for the rest of my life and make every one of them stick. Schismatrix not only helped birth what we now think of as the "New Space Opera" e. Iain M Banks, Alastair Reynolds , but was arguably the first novel to imagine a plausible posthuman solar system, riven by ideologies and wild economics, teeming with conflict and graft, and packed with moments of pure sensawunda. Best of all, apart from the handful of short stories set in the same fictional universe, Sterling never felt the need to cash in on the critical success of Schismatrix with sequels; the end result is a novel that still reads as fresh and powerful to this day, more than a quarter of a century after its initial publication. Some may call it a *reductio ad absurdum* but ultimately it highlights the dangers of the worship of technology, the establishment of systems and rules and progress - while it is full of allusions to the early Soviet state, it has a universal message which is certainly interesting - furthermore, its relatively inconclusive ending evades traditional dystopian SF tropes of the revolution or regime change *per se*. On a purely superficial level, the detail with which Banks describes the society depicted, and the impossibly complex alien games which form the core of the plot, ignite the imagination in a way only the best SF does. Well the answer is yes sometimes and particularly in this book albeit some unknown space drug. Put very simply he recognises that when something or anything is looked at more closely reality and consciousness will change ultimately meaning that both are unstable. In Dicks books this manifests itself firstly in paranoia and then to transcendence. With Dick the journey to transcendence or new forms of understanding can be a very stressful one for his protagonists. It plays on fears of juvenile delinquency and student violence, which is a common theme across popular culture youth gangs and violent schools feature prominently, another example being the recent film *Confessions* and then mixes it with ideas of how willing anyone is to kill for self defence or self-promotion. A challenging and interesting book best read with some understanding of the culture within which it was written although the film adaptation is also of high quality. A classic and the reason that Azimov deserves his moniker of the father of Science Fiction. So much of science fiction focuses on heavy subject matter without a drip of humor. Adams wants us to laugh at it all, the pretentiousness and the craziness and never forget our towel. Multi-platform emotional relationships and an unknown foe. I was 14 when I first read *Neuromancer*, one of the first generation to grow up hooked in to the computer-generated realities that Gibson so presciently explores. Good cyberpunk vibe to it and some literary pretensions , going with a wellpaced, nicely written, occasionally twisted little book. Sturgeon, a great short-story writer, uses the genre to explore what it is to be human, and how we can strive to be more. It is a

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

novel of discovery, but also a novel of compassion and hope.

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

Chapter 9 : The Science Book for Girls: and Other Intelligent Beings by Valerie Wyatt

In an effort to keep girls tuned in to science, this book demonstrates that science is fun - and that it is for girls. In this title in the Books for Girls series, lively text and illustrations help kids investigate what makes their toast turn brown in the morning and why their stomachs rumble.

This hypothesis relies on the vast size and consistent physical laws of the observable universe. According to this argument, made by scientists such as Carl Sagan and Stephen Hawking , [6] as well as well-regarded thinkers such as Winston Churchill , [7] [8] it would be improbable for life not to exist somewhere other than Earth. Alternatively, life may have formed less frequently, then spreadâ€”by meteoroids , for exampleâ€”between habitable planets in a process called panspermia. Numerous discoveries in such zones since have generated numerical estimates of Earth-like planets â€”in terms of compositionâ€”of many billions. One of the study authors, Sam Levin, notes "Like humans, we predict that they are made-up of a hierarchy of entities, which all cooperate to produce an alien. At each level of the organism there will be mechanisms in place to eliminate conflict, maintain cooperation, and keep the organism functioning. We can even offer some examples of what these mechanisms will be. It has been suggested that this capacity arises with the number of potential niches a planet contains, and that the complexity of life itself is reflected in the information density of planetary environments, which in turn can be computed from its niches. Sufficient quantities of carbon and other elements, along with water, might enable the formation of living organisms on terrestrial planets with a chemical make-up and temperature range similar to that of Earth. It is also conceivable that there are forms of life whose solvent is a liquid hydrocarbon , such as methane , ethane or propane. These six elements form the basic building blocks of virtually all life on Earth, whereas most of the remaining elements are found only in trace amounts. The carbon atom has the unique ability to make four strong chemical bonds with other atoms, including other carbon atoms. These covalent bonds have a direction in space, so that carbon atoms can form the skeletons of complex 3-dimensional structures with definite architectures such as nucleic acids and proteins. Carbon forms more compounds than all other elements combined. The great versatility of the carbon atom makes it the element most likely to provide the basesâ€”even exotic onesâ€”for the chemical composition of life on other planets. Planetary habitability , Habitability of natural satellites , and Exobiology Some bodies in the Solar System have the potential for an environment in which extraterrestrial life can exist, particularly those with possible subsurface oceans. Important insights on the limits of microbial life can be gleaned from studies of microbes on modern Earth, as well as their ubiquity and ancestral characteristics. If extraterrestrial life was found on another body in the Solar System , it could have originated from Earth just as life on Earth could have been seeded from elsewhere exogenesis. The Nobel prize winner Francis Crick , along with Leslie Orgel proposed that seeds of life may have been purposely spread by an advanced extraterrestrial civilization, [46] but considering an early " RNA world " Crick noted later that life may have originated on Earth. However, between an altitude of 50 and 65 kilometers, the pressure and temperature are Earth-like, and it has been speculated that thermoacidophilic extremophile microorganisms might exist in the acidic upper layers of the Venusian atmosphere. Life on Mars Life on Mars has been long speculated. Liquid water is widely thought to have existed on Mars in the past, and now can occasionally be found as low-volume liquid brines in shallow Martian soil. Scientists have indications that heated subsurface oceans of liquid water may exist deep under the crusts of the three outer Galilean moons â€”Europa, [37] [38] [75] Ganymede , [76] [77] [78] [79] [80] and Callisto. Life on Europa Internal structure of Europa. The blue is a subsurface ocean. Such subsurface oceans could possibly harbor life. Enceladus Enceladus , a moon of Saturn, has some of the conditions for life, including geothermal activity and water vapor, as well as possible under-ice oceans heated by tidal effects. The temperature and density of the plumes indicate a warmer, watery source beneath the surface. Life on Titan Titan , the largest moon of Saturn , is the only known moon in the Solar System with a significant atmosphere. Data from the Cassiniâ€”Huygens mission refuted the hypothesis of a global

DOWNLOAD PDF THE SCIENCE BOOK FOR GIRLS AND OTHER INTELLIGENT BEINGS

hydrocarbon ocean, but later demonstrated the existence of liquid hydrocarbon lakes in the polar regions—the first stable bodies of surface liquid discovered outside Earth. Fred Hoyle and Chandra Wickramasinghe have proposed that microbial life might exist on comets and asteroids. This is in contrast with the oceans that may be inside larger icy satellites like Ganymede, Callisto, or Titan, where layers of high-pressure phases of ice are thought to underlie the liquid water layer. Direct search Lifeforms produce a variety of biosignatures that may be detectable by telescopes. It is designed to assess the past and present habitability on Mars using a variety of scientific instruments. The rover landed on Mars at Gale Crater in August. However, significant advances in the ability to find and resolve light from smaller rocky worlds near their star are necessary before such spectroscopic methods can be used to analyze extrasolar planets. To that effect, the Carl Sagan Institute was founded in and is dedicated to the atmospheric characterization of exoplanets in circumstellar habitable zones. The molecule was found around the protostellar binary IRAS , which is located light years from Earth. This finding suggests that complex organic molecules may form in stellar systems prior to the formation of planets, eventually arriving on young planets early in their formation. The length of time required for a signal to travel across the vastness of space means that any signal detected would come from the distant past.