

Design Thinking

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Intro to Design Thinking – Part 02

Indian Institute of Technology, Madras

Case Study – Arcturus IV by John E. Arnold

Prof Bala: Okay. Hello and welcome back to our design thinking modules. Today, I am going to be telling you a bit about the history of design thinking. So, design thinking as we probably will see is dated way back, so, I did mention about the 60s, but probably the dates even that we will reserve that for later. But, for now, I will briefly touch up on a creative engineering, as it was called in the 50s, by a gentleman named John Arnold.

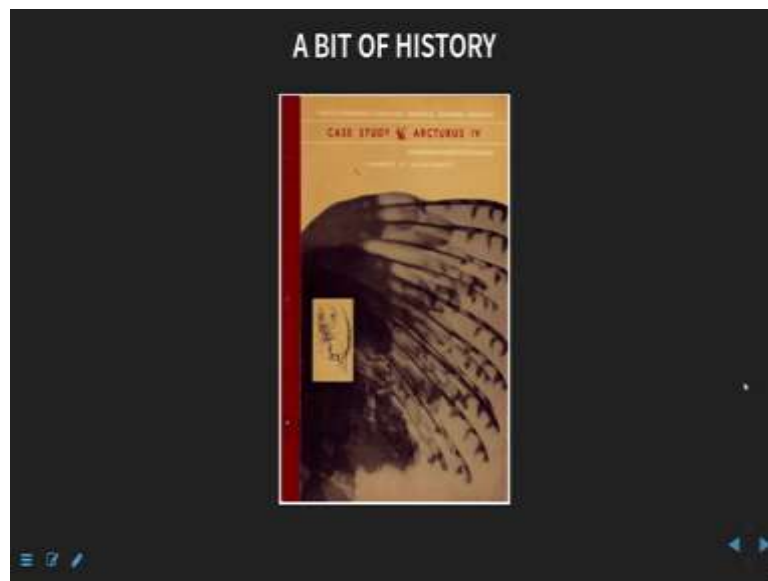
So, he was teaching at Massachusetts Institute of technology in the US. He was the professor and consultant to companies as well. So, he taught this course called creative engineering, where he introduced the whole idea of the fact that creativity could actually be a classroom session. It could be produced in inside a classroom. Inside are-created, the entire process could be done like that. So, prior to that probably people where under the impression that, it is for gifted individuals, it is for people who have fuzzy hair and probably in dark corners of a lab. Those were the kinds of creative. When you say creativity that is what you would associate it with.

John Arnold sort of side stepped and said hmm, that may not be the case. We can actually probably recreate the whole thing in a controlled environment, like a classroom. So, he had engineer's ways of teaching this and to him the favorite topic of his was science fiction. So, science fiction is a great topic to be introduced to students because it picks their curiosity and saying, 1000 years from today, what is going to happen. Nobody knows, but it is a great tool to get people imagine about all sorts of realities that could be possible.

So, he really used this unknown to his own advantage. If, you ask somebody to think about, you know somebody in, say, if I am in India and I say, do not think about other people as people other than, in India, but think about it from their perspective, from say people in Italy, For example, people find it a bit difficult, they assume things that are valid here are valid even in Italy and so, they may make some design mistakes, design thinking mistakes. So, his approach, John Professor Arnold's approach was to sort of take the students off this whole beaten path of

thinking only about themselves and their own context, but also thinking about somebody who are far connected.

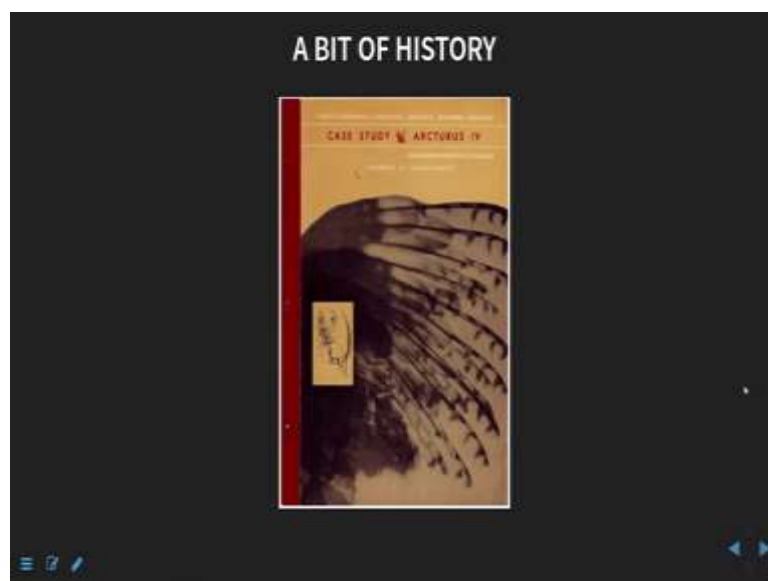
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So, he used what you will see is a very important case study, a very famous case study in that point of time called Arcturus IV. Now, to give you a brief history of this case study itself, is that, Arcturus is a star in a constellation called Bootes. I may get the pronunciation wrong, but it you can look it up. It is a constellation this particular star is 33 light years from Earth.

In light year is the distance light travels in a year. It travels very fast, so, within a year it travels really long and 33 years like that. So, if you were to send the signal today from Earth, it would be received 33 years later. So, that is it is that far from Earth.

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So, he asked the students to imagine a planet, fourth planet from the Sun, the Arcturus, not the sun, Arcturus. And he said, imagine, small civilisation over there and say 1000 years in the future Earth people they go there and start establishing a business out there. So, he called at the MIT or Massachusetts intergalactic travel company. So, MIT what he is called as fictional company in 1000 years in the future.

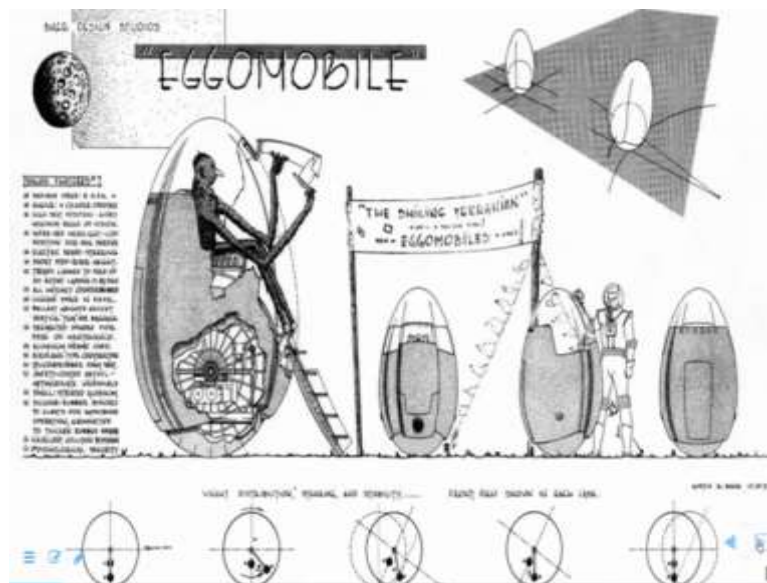
So, he said those aliens are very different from us, from us Earth people. So, they for example, he said, they have the aliens there have three fingers. So, they are not like us, with five fingers in each hand. So, each hand is three fingers. They have three eyes. So, one of them can actually see x-rays. So, the very different. There, the atmosphere that they have is not oxygen rich but methane rich. So, he called the aliens Methanians or Methanians.

So, they were very different from Earthlings, also, is their temperature, their average summer temperature was -50°C and their average winter temperature is -110°C . So, none of what is valid for Earth is actually valid for Arcturus, IV. Also, another thing to be noticed is that their gravity is 11 times more than that of Earth. So, if you were to jump, be able to jump, say 11 m here that person would be able to jump only 1 m there. So, that is kind of difference in gravity as well.

In terms of industrial evolution as well, they were probably lower in the ranking scale, so, Prof John Arnold remarks that consultants from here have gone to Arcturus IV and found figure out that there are probably few people owning what looks like a scooter to us. So, that is all is their developments scale. So, now what. Prof Arnold did during this case study or why are this case study is to make students think of not themselves and what is true for them, but in a completely different environment, in a completely different culture, in a completely different environment setup.

So this is what design thinking focuses on is to lift you off from where you are comfortable, where you are assumptions are valid to places where it is not valid to an age group, to a different culture, different environment setting, everything is different, so this is what Prof Arnold was hinting at for students to do that, and students took up this challenge, it is widely publicised as one of the most successfully, you know, carried out endeavour in terms of thinking exercises. Lots of companies bought this idea and actually brought Prof Arnold to their company and said, "hey can you do this for us as, well for our employees as well,?" so it was largely.

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Some of the successful designs that the students actually did was one of them. I am going to show you on the screen is called Eggomobile. So, this is a personal transportation for the Methanians. So, this is what one of the students designed. This is apparently a very popular when it was publicised in media and press as being a very out-of-the-box set, sort of thinking,. You can see the Methaniance sitting there in an egg like structure with their long arms, their physique is different. Everything that we assume of what humans and you can also see a human being for height comparison. So, this is what that the Terranians had designed. Terranians meaning people from Earth have designed for the Methanians.

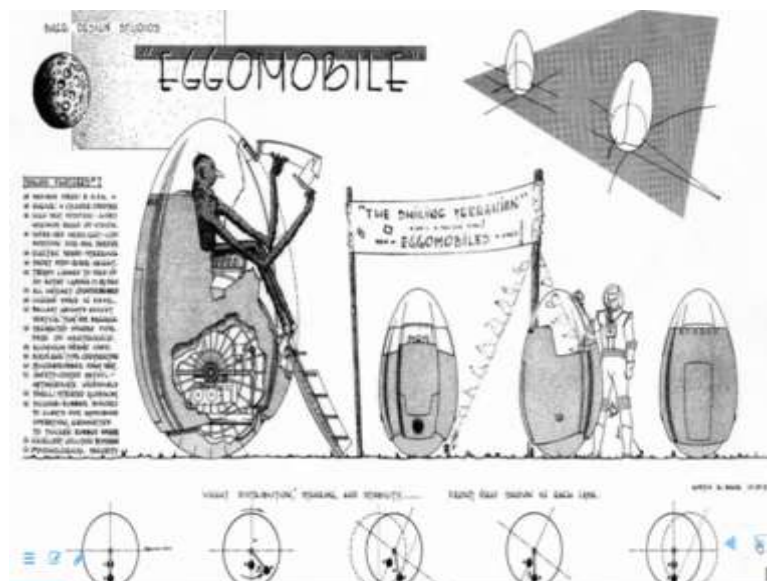
So, this sort of sparked a lot of creativity in the students and widely popular as you can imagine with the students. And Prof Arnold equally sporting, he went with the flow, are being 3 or 4 times the revised this and came up with the complete case study, is now available on archive dot org.

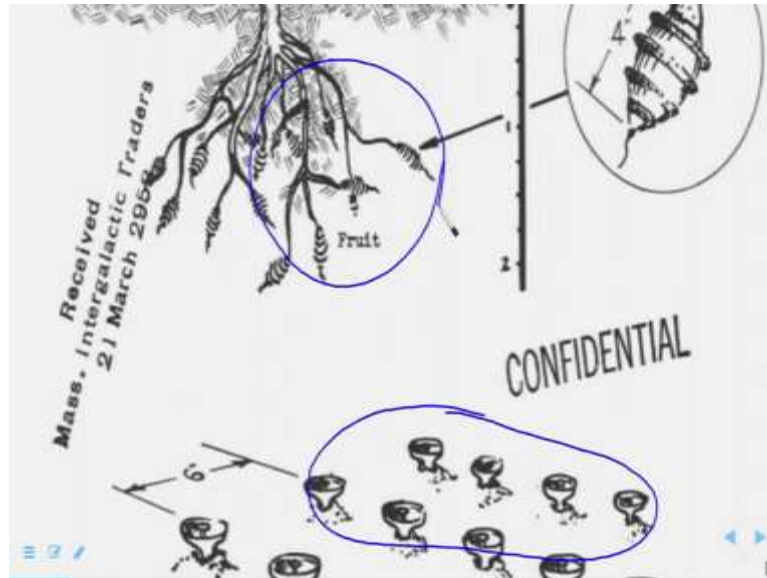
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I will drop a link in the list, reference list as well. Prof Arnold's son, I assume, John Arnold Jr., he is published it in archive dot org, so that it preserves this case study as one of the stellar design thinking exercises. That is still available and accessible to all of us.

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So, I thought that I will show that to you. One more was like. Prof Arnold has shown us that communication between Earth and Arcturus IV is on how fruit actually grows in Arcturus IV and how they are plant. So, you can see here is how plants grow or are planted in Methanians surface, their fruits grow underground and you can see all that here. how they look like. So, he went to great detail and detailing what their environment might look like, so, this is a kind of detail he wanted students also to do in a real life, and this is a great case study for them. Thank you.