

How did Theo Jansen create "Strandbeests"?



It all started with the tubes.

Interviewer : What do you think of our miniature "beests"?

Theo : Very impressed. I like the idea of downsizing the gears.

Interviewer : It was difficult to think of the mechanism for the top of legs.

Theo : I can imagine. It took great effort for me to think of that, as well.

Interviewer : Why do you use these yellow tubes as your medium?

Theo : These tubes are very common in Holland and are easy to find almost anywhere. Children



↑ The left side is the top of the leg of "Strandbeest". The right side is a miniature "beest"s.



↑ many kinds of cutting tubes

→Yellow tubes are sold in shops in Holland.



↑ The garage is filled up with tubes .

Special Interview

THEO JANSEN

The World of Theo Jansen

"Strandbeests" by Theo Jansen are outstanding in the world of kinetic art because the shape and the motion are awesome.

*What is the goal of "genius" Jansen?
I visited to his laboratory in Delft in Holland.*

often play some games with tubes like these. One piece is 15 mm(approx. 0.6 inch) in diameter, 4 m(approx. 13 feet) in length and costs about 40 Euro cent(around 80 Japanese yen). However, in recent years, it has become a little more difficult to find the yellow ones so I started stockpiling them in my sea container. I currently have about 12,000 pieces are in there. That's enough to keep creating "beests" for the rest of my life.





↑ Many kinds of cells made of tubes.

Nerves and Frames. The Conditions of Living Things.

I used to make "beests" out of wood and metal 10 or so years ago. I was satisfied with the work in those days but something felt strange. And due to my love for the yellow tubes it was inevitable that I would turn to them. That's why I call that time "the affair time".

I use special, thin tubes made of P.V.C. as well because there are no standbys. I usually have to order them directly from the company or factory.



← "Animaris Rhinoceros Transport"

Interviewer : How many kinds of cells made of tubes are there?

Theo : There are over 15 kinds. But not all of them are being currently used. Some of them are not used at all anymore.

Interviewer : What do you think the nerve of "beests" is?

Theo : In real animals, nerve cells transmit messages through electrical signals. But I use compressed air for my "beests" instead of electric signals. There are senders and receivers in a real nervous system. I also invented a similar system. I'll explain how it works now.

One unit of a nerve system is composed of 2 piston tubes. One piston tube is composed of two pieces of tube and each having a valve inside. Each piston tube is connected to the others with polyurethane tubes.

I use "0" as the numerical condition of the valve being opened and "1" as being closed.

Once air goes in, the inside pressure raises and the first piston starts moving. As it moves, the valve opens and allows air into the second piston tube. The same

things happen to the second piston and third one and so on. As a result, a signal of "0" or "1" is transmitted to other units.

The point is that the separate condition of each valve is different. They are "1" "0" "1" or "0" "1" "0". If they are "0" "0" "0" or "1" "1" "1", the unit does not work. I call this outcome "a liar" because it lies and gives a false signal to



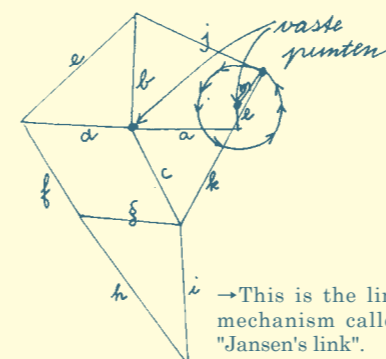
← This is the device named "a liar" by Jansen. (3 liars)

the next valve. But a lie to a lie means truth. It is my belief that a complex brain type structure is possible with this system and I intend to try and prove this in the future.

Interviewer : How about the frame? Where did "Holy numbers" come from?

("Holy numbers" refer to the proportion of the length of legs segment.)

Theo : Life should be able to move itself. When I started creating "beests", I found the top of legs should move the parallel with ground first and after a while, moved up a little like this (See the picture). I decided to trace this same movement with a link mechanism and simulated the movement on the screen of my ATARI computer. Finally, I came up with the 13 "Holy numbers" that expressed the proportion of the length of legs segment.



→ This is the link mechanism called "Jansen's link".

The Great Handmade Mechanical Tools that Create "Beests"

Interviewer : Why did you make mechanical tools yourself?

Theo : I like thinking. I came up with those tools through daily work.

I need to modify tubes with those tools to create "beests". It is very simple but monotonous work. But I enjoy such work because sometimes new ideas come to me while doing such work.

Interviewer : You use tubes and compressed air even when operating those mechanical tools. That's impressive, especially this tube cutting machine.

Theo : I have used this machine a long time and have had no trouble at all. Compressed air is a very effective energy source. I can change the speed of operation easily by adjusting the air.



↓ This is a machine to cut tubes. Jansen made it himself.



↑ This is a fossil of a "beest".

Controlling the Evolution of "Beests" Instead of God

Interviewer : Why did you use the idea of evolution in your work?

Theo : One of my inspiratiopns was a book called "The Selfish Gene" written by Richard Dawkins. I'd like my "beests" to evolve in the same manner that animals evolve from genes.

Interviewer : Have you referred to real evolution?

Theo : I have resisted using actual evolution as a template in my work. I have ideas of what I should do for "beests" living on the beach in order for them to adapt to their environment. For example, "Animaris Percipiere Rectus" hammers the pickets into the ground itself to avoid being blown off in a gale. After striking it in, it can sense the tide level and retreat if the water level gets dangerous. Coincidentally, the evolution of "beests" happened in the same way as it did in the natural world.

Interviewer : How will they evolve in the future?

Theo : My goal is to have as many "Strandbeests" as possible living on the beach. They will accomplish all the actions of natural life (eg. breeding, preying on each other...etc) without me. For that, I need to improve on the energy system so the "beests" can catch and accumulate air into plastic bottles and use it as they require. The "liars" should be improved on as the system of nerves evolves, as well.

Interviewer : Please tell me about the latest "beests" named "Siamisis".

Theo : This "beests" combines two "Umerus" that had existed previously. It weighs approximately 200kg and uses approx. 500 individual tubes. If all the tubes are joined end to end, the total length would be 2 km because the length of each piece is 4 m. It also has 80 plastic bottles to store air, 1,500 cells and 72 legs.

When the wind blows, it spreads the wings to catch and save air in bottles which serves as energy. It uses

this energy to move. It also has an antenna trailing on the sand to search water. As soon as it absorbs water, the valve closes and it moves away from the water. The wing is made of anti-U.V. sheets to guard against sunshine. This material is a little expensive, so I'm looking for other material now that is lighter, stronger and cheaper.

Interviewer : I think that breeding is essential for life. What do you think of that?

Theo : That's a very important point. I have always thought about how "beests" could breed on their own. This problem has plagued me for a long time. However, one day I found on the internet that a lot of similar work has been inspired by me and my "Holy numbers". So in a way, the "beests" have bred themselves through me. "Holy numbers" can be found quite easily on the web. This fact promotes the breeding of "beests". It is my hope that the number of people creating their "beests" will increase.

Interviewer : Do you think you are an artist or an engineer?

Theo : I don't think that art and engineering are different. When I answer such questions, I often think of Inuit. They invent useful tools to live. Their shapes are primitive but very beautiful. Beauty comes from function. From this point of view, I am an artist and an engineer, as well. It may be an improper term. I guess I'm closer to the artists' side because I'm very particular about one material, yellow tubes.



↓ Jansen checks the latest work "Siamisis" carefully immediately before carrying to Japan.

→ Theo shook hands with a reporter after the interview.