

Wild Things Are on the Beach

Theo Jansen wants to make “life” and he figures the best way to do it is to start from scratch.

A self-styled god, Jansen is evolving an entirely new line of animals: immense multi-legged walking critters designed to roam the Dutch coastline, feeding on gusts of wind. Over the years, successive generations of his creatures have evolved into increasingly complex animals that walk by flapping wings in response to the wind, discerning obstacles in their path through feelers and even hammering themselves into the sand on sensing an approaching storm.

A scientist-turned-artist, Jansen’s bizarre beach animals have their roots in a computer program that he designed 17 years ago in which virtual four-legged creatures raced against each other to identify survivors fit enough to reproduce. Determined to translate the evolutionary process off-screen, Jansen went to a local shop and found his own alternative to the biological cell—the humble plastic tube.

“Animals are machines as well,” said Jansen. “I was making animals with just the tubes because they were cheap, but later on they turned out to be very helpful in making artificial life because they are very flexible and multifunctional as well. I see it now as a sort of protein—in nature, almost everything is made of protein and you have various uses for it; you can make nails, hair, skin and bones. There’s a lot of variety in what you can do with just one material and this is what I try to do as well.”

With plastic tubes costing about 10 cents a meter and with cable ties, nylon strings and adhesive tape doing the rest, these lightweight, insect-like beasts are pretty inexpensive to create. Designed to live on the beach and race on wet sand, their evolution hasn’t been easy. While Jansen initially used a computer program to figure out the most effective design to get the feet walking, all of his subsequent creations have been entirely free-form, constructed solely through trial and error.

“I’ve seen a lot of mechanical sculpture, and Jansen’s *animari* are the finest I’ve seen by far in the ‘low-tech clockwork’ mechanism category,” said Carl Pisaturo, a robotic designer. “By clockwork, I mean mechanisms that have intrinsic, not universally controllable actions, and by low-tech I mean parts more ‘crafted’ than machined, and the lack of electronic or electrical systems. These are amazing creations and the simplicity of the technology and the fact that they are wind-powered only makes their poetic motions more impressive.”

Each animal is made up of 375 replaceable tubes whose respective lengths represent the beast’s very own unique “genetic code,” influencing its quality and its walking pattern. Many of the initial species failed to stand or died out over time, and later models tackled different problems. The *Animaris Arena* rolled out a trunk that had a hammer that drove a pin into the ground to prevent itself from being blown away in a storm, and the *Animaris Sabulosa* tried to push down its nose in the same situation.

Currently, Jansen is working on giving the seventh generation of these creatures, comprising a herd of seven animals, the ability to move even in the absence of wind. His latest creations contain lemonade bottles in their body structure into which the wind is slowly pumped, enabling the creature to walk for a couple of minutes afterward. Eventually, he plans to increase the efficiency so that they can go on for days or even years.

“They have a food source in the wind so they can store energy and use it later on,” said Jansen. “The downside is that they might have to wait for days for the wind hopper to move on and on, and then be able to move for maybe five minutes. They are just like snakes. Snakes also

lie in the sun for days digesting their food. On the beach the animals have to catch the wind and wait for a long time before they have enough wind in their stomachs to go for a walk." A couple of years ago, Jansen created the *Animaris Rhinoceros Transport*, a two-ton walking monster also powered by wind energy, which could be set in motion by just one person dragging it along. Having a cockpit and enough room for several people to sit inside comfortably, the rhinoceros represented Jansen's effort to create a machine version of the beach animal used solely for transport akin to the way cars stand for mechanical versions of horses. He says a future version—a 12-ton behemoth big enough to have several rooms inside—could be called the *Animaris Mammoth*.

"I think they are absolutely beautiful," said Bruce Shapiro, robotic artist. "He has figured out a way to use inexpensive materials to construct wind-powered walking machines. What makes them so compelling is the wave of actuators, like the motion of a centipede's legs. I suspect that, as humans, we recognize this action as specific to living things, hence our fascination with Jansen's 'organisms.'"

By using the pneumatic system as a foundation, Jansen hopes eventually to provide his beasts with nerves, muscles, advanced sensing capabilities and even rudimentary decision makers that mimic the function of the brain, before permanently releasing herds of them out onto the beach. Right now, he allows the animals to race each other and manually replaces the genetic code (tube lengths) of the losers by that of the winner. Ultimately, he envisions his animals possessing "life" in a sense, evolving on their own without his intervention.

"I imagine that two animals will meet each other and compare their qualities in some way; have a demonstration somewhere on how they run and how fast they can run and also do some quality comparison on how they survive the winds. And the one with the better quality will kill the other one and give the other its own genetic code. There could be 30 animals on the beach, running around all the time, copying genetic codes. And then it would go on without me."

"I try to remake nature with the idea that while doing this you will uncover the secrets of life and will have the same problems as the real creator," he added.

However, creating autonomous, roaming herds won't be that easy.

"Making the next jump toward 'living thing' involves turning, avoiding obstacles, power and computation issues, as well as the need for durability—a black hole of technical work," said Pisaturo. "But insofar as art being about truth, such difficulties as, say, a tipped-over, short-circuited machine half-buried in beach sand, would speak eloquently of how hard it is to be god."

First published on *Wired Online*

http://www.wired.com/news/culture/o,1284,66356,00.html?tw=wn_tophead_2, January 24, 2005



Theo Jansen at Ars Electronica 2005

During Ars Electronica Festival 2005, Linz's Main Square and the O.K Center for Contemporary Art are the temporary habitat of "beach beasts" created by Theo Jansen. Während des Festivals werden der Linzer Hauptplatz und das O.K Centrum für Gegenwartskunst zum Lebensraum von Theo Jansens „Strandtieren“.

Sabulosa – Vulgaris – Small model of Rhinoceros – Animaris Currens Vulgaris – Animaris Geneticus – Animaris Rugosis Peristhalthis – Animaris Currens Vaporis – Animaris Percipiere Graciles

Collaborators: Loek van der Klis, Sander Hofstee

Supported by Projectbureau Ypenburg, Fonds voor Beeldende Kunst, Vormgeving en Bouwkunst, Amsterdams Fonds voor Beeldende Kunst



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Theo Jansen—Artist Lecture

Theo Jansen will use models and films as visual aids to describe the construction mechanisms, functional modes and propulsion systems of his “beach beasts.” This speech offers a unique opportunity to gain insights into a body of work that is technical and artistic in equal measure and into the origins of these fascinating “creatures.”

Theo Jansen beschreibt anhand von Modellen und Filmen die Konstruktionsmechanismen, Funktionsweisen und Antriebe seiner „Strandbeesten“. Der Vortrag bietet einen einmaligen Einblick in sein zugleich technisches und künstlerisches Arbeiten und die Entstehung der faszinierenden „Lebewesen“.



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