

Dreams and Achievements

Theo Jansen's Beach Creatures

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[BART VAN DER STRAETEN]

They loom on the coastline: huge monsters resembling gigantic crabs or elephants. With their yellow bones these arthropods have a timeless, prehistoric-looking form. They move, driven by the wind, between seawater and loose sand. Sometimes they are solitary colossuses; sometimes there are whole herds of them together. They have no need of food; they derive their energy from the wind.

The likelihood of your coming across them next time you visit the beach is small, but if it is up to the artist Theo Jansen, sometime in the future our beaches will be populated by herds of 'beach creatures' living and propagating completely independently. This new species has sprung from his imagination. Since 1990 he has worked in his studio in Ypenburg, a district of The Hague, on new, increasingly intelligent generations. Every now and then a new specimen is tested or you can visit an exhibition of beach creatures as it travels the world. But the easiest way to see these intriguing creatures at work is to see them on the Internet. Both on the artist's website and on YouTube you can watch films of beach creatures in action. They are amazing. They are not only beautiful to see but they really look alive, though they are actually made of yellow PVC tubes. The technical genius of the artist is amazing too; the fact that he has the knowledge of mathematics and physics to produce such an effect on those who see these creatures and knows which materials to use.

Trial and error

Some of this is a result of Jansen's education. In the seventies he studied physics at the Technical University Delft. He very quickly abandoned his studies, however, to concentrate on his artistic activities. From the start he combined these activities with science. In 1986, for example, he developed a *Painting Machine*. A paint-spraying machine moves in horizontal lines from top to bottom in front of a canvas, measuring the amount of light with an electronic sensor. The darker the spot detected the more paint the machine sprays on the canvas. This enables the painting machine to make an almost photographic replica of the people and objects in the room. A few years previously he had constructed a flying object, which he sent into the sky above Delft, without notifying the inhabitants. Then he went to gauge the reactions. Some of these can be seen on the DVD



Theo Jansen. Works of Art. Flabbergasted inhabitants find the UFO "really scary". One woman is extremely shocked: 'I thought my days were over'. With visible enjoyment Jansen continues his questioning; he shows the front page of a local newspaper the following day: 'UFO spotted over Delft'.

Causing amazement and recreating nature: two elements that Jansen would continue to develop in the oeuvre he began in 1990. It started, writes Jansen in his monograph, *The Great Pretender*, with a book by the British biologist Richard Dawkins. Jansen remembered a passage from it about how stick insects have become what they are now through natural selection and evolution. He found a second germ of an idea for his new oeuvre in an old column he had written in *de Volkskrant* – Jansen was a columnist for the newspaper for a long time. In it he wrote about the rising sea level. It can be prevented if we manage to raise the height of the dunes: 'There really should be creatures that constantly loosen lots of sand and then throw it into the air so that it blows towards the dunes'. Together these germinal ideas would result in the beach creatures as we know them now and have done for more than twenty years. But the process started on a computer screen. *Artificial life* was in its heyday at the time; software that allowed a self-created world of virtual 'creatures' to evolve. Jansen designed little 'creatures' himself on his PC, in the form of lines which he subjected to evolution and selection. The next step consisted of virtual creatures with four legs on their bodies.

But the beach creatures only actually became real when Jansen translated his ideas into material form. He came across the appropriate material very quickly – cheap, readily available, yellow PVC electrical tubes that are resistant to wind and weather. Just as protein is the building block of every form of life on earth, so the PVC tube is the building block of his universe of beach creatures. By trial and error he searched for the strongest and most effective tube constructions. First

*The artist tries to move his 'creature' on the airfield Valkenburg.
© Loek van der Klis*



Animaris Rhinoceros
© Theo Jansen

he bound them together with tape, later with nylon cable ties, and later still he tried bending the tubes with hot air. That turned out to provide the best result. In fact Jansen has divided his beach creature era into different periods according to these construction techniques. Just as in geology we have the Palaeozoic and the Mesozoic eras, so the beach creatures lived successively in the Preglutton (the creatures on the computer), the Glutton (the period during which he used tape), the Chorda (nylon cable ties), the Calidum (hot air) and the Tepideem (tepid air, which reduces the risk of the tubes breaking). In this way the artist reinforces the idea that he has created a whole new world with the beach creatures, a world that evolves according to the scientific laws of the world we know. The creatures' names contribute to that idea too. Inspired by the Linnaean method of categorising and naming species, which still frames our biological knowledge of the world today, Jansen created a taxonomy of "Animaris" creatures, a species he baptised with a name formed by the contraction of "Animal" and "Mare" (sea). The very first actual beach creature, which was developed in the Glutton, was given the name "Animaris Vulgaris". It could not walk. The subsequent development of the legs was a very crucial step that helped the species to survive. Here, too, Jansen used computer models. Starting with a crankshaft with a diameter of 15 centimetres to drive the legs, the computer calculated the ideal measurements for the rods that formed the legs. This series of 12 'sacred numbers', as Jansen calls them, forms the 'DNA' of the beach creatures. This is passed on from one generation to another. In the meantime there are eight generations, including, after the Tepideem, the Lignatum (in which Jansen abandoned the electrical tube and started experimenting with wood and steel), the Vaporum (during which the creatures' movements generated compressed air, so that they could move forwards even when there was no wind) and the Cerebrum, the phase we have been in since 2006. In this present period Jansen has developed so-called 'nerve cells', constructions that allow the beach creatures to start thinking independently. In practice what it comes down to is that the artist invented a sort of step counter. As soon as a creature reaches the tideline a mechanism is activated that makes it turn around and go in the opposite direction till it reaches the loose sand on the other side, at which point it walks in the other

direction again. Thanks to this ingenious intervention the creatures 'remember' how far they can move forward. Their advanced form of intelligence prevents them getting stuck in loose sand or being carried away by the waves. For Jansen leaves no doubt about it: 'I'm not trying to make beautiful creatures. I'm working on survival - damned hard.'

Wriggling on their own square metre

In earlier generations some of the beach creatures developed other characteristics that were intended to increase their chances of survival. There is the *Animaris Sabulosa*, for example, a creature from the *Calidum*. Large parts of the body of the *Sabulosa* are stuck with tape. That is good for the sturdiness of the construction, but it also has a handy side effect. Grains of sand get stuck to the creature's 'skin', so that it takes on the colour of its environment and is therefore less visible to any natural enemies. A form of mimicry that occurs frequently in existing nature, too. The *Animaris Rigide Ancora* (*Tepideem*), on the other hand, had a sort of tail with an anchor on the end of it. The anchor ensured that the creature always stood with its propeller-side in the wind, so that it had a constant supply of energy. And the *Animaris Arena Malleus* (*Calidum*) had a trunk with a little hammer on the end that attempted to knock a peg into the sand, which meant the creature could prevent itself being blown away.

The 'Rhinocerae' are outsiders in the land of the beach creatures, too. Jansen designed them in the *Lignatum*. They are massive, robust creatures with a sort of cockpit so that they can transport someone. There are specimens in cardboard and in wood (pallets), but the most impressive rhinoceros is definitely the *Animaris Rhinoceros Transport*. This creature's skeleton consists of steel and the skin is made of polyester, which gives it a greyish, rhinoceros-like colour. The monster weighs a good 3.2 tons and is nearly 5 metres high. Nonetheless it can run with the wind. During a trial on an old airfield this rhinoceros creature ran so fast that its joints



Animaris Geneticus
© Guus Dubbelman





gave up. After repair, the Animaris Rhinoceros Transport was given a place in a pond in Amsterdam. Jansen dreams of taking the creature off its base once a year and letting it walk through the streets of this city on the Amstel. It would give his art a new, social dimension. But it hasn't happened yet.

Smaller in size than the Rhinocerae are the Vermiculi. Jansen developed these worm- and caterpillar-like creatures in the Vaporum, the period in which he experimented with stored air. The worms and caterpillars had a system of muscles – defined by Jansen as 'things that get longer or shorter on command' – that sent a surge through their bodies, a vigorous horizontal or vertical wriggling. Only they didn't manage to propel themselves forward, they remained on the spot in their peristalsis and were limited to rather charming wriggling on their own square metre.

Convinced deep down that he's a god

In 2011 Jansen tested the most recent offspring of the family of beach creatures on the beach south of The Hague. The Animaris Gubernare, the 'steerable beach creature', was the 38th manifestation of the species since its creation - and we do not know how many more manifestations there will be. Nor do we know whether the artist will achieve, before he dies, his dream of developing a beach creature family that lives completely autonomously, reproducing itself and able to survive quite independently of him on beaches all over the world. We do know that in the meantime his creatures have attracted attention from journalists, art lovers and aficionados worldwide. Major broadcasters from Japan, the US and South Africa have devoted reportages to Jansens' oeuvre. Top magazines like *Wire* have made space to present his creatures and comment on them. So though Jansens' creatures have not yet succeeded in propagating themselves, his ideas certainly have. But why? What is it about the beach creatures that appeals so much to us - and to the world?

First of all there is the form and appearance of the beach creatures. They are biomorphic, they move like 'real' animals move; we recognise their 'bones' in the yellow PVC tubes and we recognise wings, tails and skin. The fact that dead matter looks alive like that creates bewilderment and amazement.

Secondly there is the idea of imitating nature. More than once Jansen points in his book to his own role as that of the Creator of the universe. He is, to quote a well-known Dutch line, convinced deep down that he's a God, who is not content with his place in the present reality, but wants to create a physical – in all senses of the word - world himself. Ever since the myth of Icarus the idea of rivalling nature has appealed strongly to the human imagination. In ancient Greek times it led to hubris: the overconfident human burned



Animaris Ancora.
© Theo Jansen

his wings and hurtled into the sea destroyed. But in modern times mechanics and technology have increased confidence in human capacities exponentially. *Uomini Universali* such as Leonardo Da Vinci, who operated at the cutting edge between what were then the less strictly divided fields of art and science, developed all sorts of apparatus and instruments, the usefulness of which increased their beauty. The useful and the pleasurable combined. Jansen has positioned himself as an extension of this centuries-old tradition.

Thirdly, Jansens' beach creatures pick up on many current trends in science and deal with issues that define the social debate in the early twenty-first century. There is the question of the rising sea level, for example, which was at the origin of Jansens' beach creature production, linking his oeuvre to contemporary ecological issues. In addition, it refers to and makes use of concepts from mechanics and physics, as they have been developed since the Renaissance in Europe, but it couples these disciplines with more recent scientific trends such as Linnaeus' biological taxonomy, Charles Darwin's Theory of Evolution, Richard Dawkins' genetics and artificial life models from computer science. In this respect Theo Jansen's beach creature project synthesises a whole host of scientific knowledge from various disciplines.

Survival of the fittest

It does it with art disciplines too, which is the fourth reason why Jansens' oeuvre strikes a chord with us today. Jansens' special focus on the material is related to Arte Povera, his choice of the beach as the primary habitat for his beach creatures (and not a gallery or a museum) is reminiscent of land art, his focus on movement links him to the kinetic art of Tinguely and Calder. And what's more, his technical knowledge means that his oeuvre does not get stuck in the poetry of dreams, like that of the Belgian artist Panamarenko.⁽¹⁾ The latter is satisfied with machines that *could fly*, and as such are no more than expressions of Panamarenko's *will*. As an engineer Jansen, in contrast, looks further for means of survival. His beach creatures are attempts to formulate an answer to a *biological* question. Yet it could perhaps be interpreted as inconsequence in his oeuvre that he prefers to approach his work by trial and error rather than with study and planned experiments, possibly in cooperation with specialists in the matter. 'In my self-imposed isolation I lacked the knowledge. I wanted to invent it all again. That takes time. That isolation was not a conscious choice. I'm just not the sort of person who drops into the library before I start on a project. My tendency to do everything alone is probably due to laziness or shyness.' In that sense Jansen still shows himself to be a very romantic artist, who hopes, in self-imposed isolation, for (divine) Inspiration. And that is where a weak point in his oeuvre is exposed: that the categorisation of the beach creature family into periods, the whole DNA terminology, muscles and nerve cells are ultimately mainly a matter of metaphors, a linguistic game with science as its frame of reference, when it could just as well, if Jansen were less lazy or shy, use scientific methods. It does not make the beach creatures any less beautiful, but it does show that his oeuvre could be stronger if it were less naive and had a better theoretical underpinning.

In other areas Jansen shows himself to be considerably less naive. In 2006 the German car manufacturer BMW sent a new advertisement spot into the ether

worldwide.(2) But there is no sign of a car in the picture. For sixty seconds we are served up pictures of beach creatures, alternated with shots of Theo Jansen, 'kinetic sculptor', explaining what he does as an artist and engineer, and why. 'The walls between art and engineering exist only in our minds', he claims. 'And few have the imagination to see beyond them', adds BMW in bright white letters, followed by the slogan: 'BMW. Defining innovation.' This spot has undoubtedly increased Jansen's international recognition exponentially. But the way in which, without any hesitation, he allows his own message to be taken over by a commercial company, which can add extra lustre to his image, is witness either to infinite cynicism or an extremely opportunistic spirit of salesmanship which, in my opinion, seriously undermines the authenticity of his artistic project. Though Jansen has realised, perhaps, that the survival of the fittest has become the guiding principle even in artistic circles in these neo-capitalist times. And that his own survival as an artist is the best guarantee that there may yet be autonomous herds of strange yellow creatures living on our beaches one day. ■



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FURTHER READING

Theo Jansen, *The Great Pretender*, Uitgeverij 010, Rotterdam, 2007, 235 p.

NOTES

- (1) See Ilse Kuijken, 'A Naïve Engineer. Panamarenko's Art.', in: *The Low Countries*, nr. 2, 1994, pp. 181-185; Joost de Geest, "Panamarenko. 30 years of thinking about space", in: *The Low Countries*, nr. 1, 1993, pp. 307-309
- (2) You can find the BMW commercial on YouTube:
<http://www.youtube.com/watch?v=a7Ny5BYc-Fs>