

**Talk given at the unveiling of the Blue Plaque on Niko Tinbergen's house. 88 Lonsdale Road Oxford on 8<sup>th</sup> June 2022**

Good afternoon, everyone. My name is Marian Stamp Dawkins and I was privileged to be one of Niko Tinbergen's graduate students. I would like to thank the Oxfordshire Blue Plaques Board for this wonderful way of paying tribute to him and to the major contributions he made to the study of animal behaviour.

Nikolaas Tinbergen – always known as Niko - was born in 1907 in The Hague and it was in exploring the Dutch countryside around his home that he first developed his interest in natural history, bird-watching, insect-watching and photography. He studied for his undergraduate and then graduate degrees at the University of Leiden and subsequently became a lecturer there.

During the 1930s and 1940s Niko collected around him an enthusiastic group of students and colleagues in Leiden and carried out pioneering studies on the behaviour of a wide variety of animals local to the Netherlands - in particular, sticklebacks, digger wasps, butterflies, thrushes and gulls. It was during this time that he started working with the Austrian ethologist Konrad Lorenz with whom he later shared the Nobel Prize. Together they developed the theoretical side of ethology (the study of animal behaviour) that complemented Niko's growing empirical and experimental work. Niko's academic career was interrupted by the second world War and particularly by the two years when he was interned in a hostage camp. After the war, he resumed his life in Leiden, where his work was attracting widespread attention.

Then, suddenly, in 1949, when he was in his forties, he upped sticks and moved with his entire family to Oxford. This is all the more remarkable because he moved from being a full professor with professor's salary in Leiden to a junior lecturer post with a much lower salary in Oxford. In his lovely biography of Niko<sup>1</sup>, Hans Kruuk speculates about what prompted this move. Niko certainly had a mission to bring the study of animal behaviour to the English-speaking world but he had received tempting offers from the United States and several other places. It appears that what tipped the balance in Oxford's favour was the enthusiasm of the then Linacre professor of Zoology, Sir Alistair Hardy, who was determined to bring Niko to Oxford. Sir Alastair and Niko together planned that Oxford would become the centre for the study of animal behaviour in Britain. Of course, there was already a long tradition of animal behaviour studies in this country – from Gilbert White to Julian Huxley - but there was as yet no scientific centre.

In Oxford, Niko started the Animal Behaviour Research Group and among the alumni were Aubrey Manning, Desmond Morris, Richard Dawkins and Iain Douglas-Hamilton. Behaviour studies were carried out in Wytham, on the Bass Rock, in the Serengeti National Park in Tanzania and particularly at Ravenglass – the sand-dune site on the north-west coast of Cumbria where Niko did much of his famous work on Black-headed gulls.

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<sup>1</sup> Hans Kruuk (2003) *Niko's Nature: A Life of Niko Tinbergen and his Science of Animal Behaviour*. Oxford University Press, Oxford.

Niko was a light-touch supervisor. He was always intensely interested in everything his students were doing and would give them his full attention when he was discussing their work, but he also encouraged us to do our own thing and develop our own ideas. The result was that a wide variety of different studies were carried out in his group – from brain stimulation to behaviour genetics to signalling and evolutionary studies. Niko's own work was being more and more recognized internationally, culminating in 1973 in the award of the Nobel Prize, jointly with his colleague and friend, Konrad Lorenz and someone that Niko admired very much for his work on bees - Karl von Frisch.

The awarding of the Nobel Prize could be said to be the time when the study of animal behaviour 'came of age'. Niko's great achievement was to have turned the study of animal behaviour from natural history into science and he did this by contributing to four main stages in the process of scientific discovery.

First, he stressed the importance of careful observations of animals in their natural environment, a process he called 'watching and wondering'. He had no time for people who studied white rats in the laboratory, which was one of the main ways of studying animal behaviour in those days. He believed you should get out there and spend time just watching and immersing yourself in what the animals were doing – how they interact with each other, how they respond to their offspring, how they deal with predators. Then, as you watch, questions will start to bubble up and you will start to wonder about the behaviour. How do the animals know what their predator looks like? Do they have to learn and so on.

But while watching and wondering was the first essential preliminary, idle speculation was not enough. Niko stressed the importance of the second phase, which is asking the right question. He insisted that you have to ask a precise question and then be very clear about what sort of evidence you would need to answer it. He made a major distinction between different kinds of questions. Questions about how behaviour developed over an animal's lifetime need quite different answers to questions about changes over evolutionary time, for example. Niko's paper on the four different kinds of question that can be asked about animal behaviour is still a foundation of animal behaviour studies today.<sup>2</sup>

One of the things I remember very vividly was going to the weekly seminars run by Niko, who was also known as the Maestro. The Maestro would conduct these seminars with great gentleness and politeness but with a kind of ruthless common sense so that none of us were ever allowed to get away with sloppy or illogical thinking. All of us who attended his seminars will remember the almost constant refrain: "Ja, ja but what question are you asking?" or "What exactly to do mean by...?"

Having asked a question and then formulated it in such a way that there is a testable hypothesis, the third stage of scientific discovery is to actually test that hypothesis experimentally in the field and it is here that Niko had such a big impact on making the study of behaviour into a proper science. He showed that it is possible to conduct experiments and test hypotheses out there in the field where the animals are actually living that are just as valid as any laboratory experiment. He showed how simple well-conducted

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<sup>2</sup> Tinbergen, N (1963) On aims and methods of ethology. *Zeitschrift für Tierpsychologie* 29: 410-433.

experiments could tell you what an animal's world was like. For example, by tying a bit of paper onto a piece of string and wiggling it in front of a male Grayling butterfly, he showed that the male would court it as if it were a real female. He thus instantly showed that the precise shape of the female was much less important to the male than movement. So by 'fooling' animals in this way with small manipulations of their environments, he could begin to see the world from the animal's point of view. The collection of his field experiments is appropriately called *The Animal in its World*<sup>3</sup> and it shows how Niko opened up the worlds of animals in a scientific way.

But getting results is not the end of the scientific process and for Niko the fourth stage of communicating the results was also hugely important. He believed that as the taxpayer had paid for his research, the taxpayer had a right to know about the results. His books such as *The Herring Gull's World*<sup>4</sup> and *Curious Naturalists*<sup>5</sup> are wonderful examples of how scientific research can be described in very accessible, readable ways. His lectures to us as undergraduates were inspirational. He always lectured in his field clothes – khaki shirt, khaki trousers and what we would now call trainers – certainly no tie or gown. He gave the impression that he could not wait to get back outside to study animals. I would leave his lectures fired up with enthusiasm and thinking that studying animal behaviour was just about the most exciting thing it was possible to do.

Niko was a brilliant photographer and then became a film-maker. We now take beautiful natural history films for granted but Niko was a pioneer of this and his film *Signals for Survival*, made with Hugh Falkus, won the Italia Prize for television documentaries.

Niko was a very modest man – excessively so because he never really believed that he deserved the honours that he received - but I think his legacy speaks for itself. So many areas of biology have built on what he started – animal behaviour, behavioural ecology, applied ethology, human sciences, conservation biology, evolutionary biology. These disciplines stand on the shoulders of giants and one of those giants was Niko Tinbergen.

This Blue Plaque is a fitting tribute to someone who was a life-long inspiration to those of us who knew him personally and who made such major contributions to the science of animal behaviour and to our understanding of the worlds of animals through their behaviour.

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<sup>3</sup> Tinbergen, N. (1972) *The Animal in its World. Field Studies*. George Allen and Unwin, London.

<sup>4</sup> Tinbergen, N. (1953) *The Herring Gull's World*. Collins, London

<sup>5</sup> Tinbergen, N. (1958) *Curious Naturalists*. Country Life, London