

## Book Review

### Superb Biography of a Great Pioneer

A review of *Niko's Nature: A Life of Niko Tinbergen and his Science of Animal Behaviour* by Hans Kruuk. Oxford University Press, 2003. ISBN 0-19-851558-8 hbk.

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This is a profound biography of the eminent ethologist and Nobel Laureate Nikolaas Tinbergen (1907-1988). Tinbergen has been one of my scientific heroes for many years, with his brilliant focus on *the four whys*, his emphasis on the importance of observation and naturalistic studies, his all-time classic "The Study of Instinct", and his many inspiring field experiments, such as the egg shell removal in black-headed gulls (an antipredator tactic). For my own *opus magnum* about humans and evolution, I read everything I could dig up about Tinbergen and his life, to write an eight-page minibiography of him (Mysterud 2003).

Strangely, although several biographies have been written about Konrad Lorenz, who with Karl von Frisch was Tinbergen's co-sharer of the Nobel Prize for Medicine or Physiology in 1973, no biography of Tinbergen had been written before Kruuk's. Kruuk himself is a much respected scientist, who grew up in Holland, completed his PhD under Tinbergen at Oxford, and co-founded and co-directed the Serengeti Research Institute in East Africa. He has studied the behavior and ecology of many different mammals, birds, and fishes all over the world, including gulls, hyenas, badgers, and otters; his work on hyenas is particularly famous. Kruuk has written five previous books, over 120 scientific papers and is Honorary Professor of Zoology at the University of Aberdeen and formerly Senior Principal Scientific Officer, now Emeritus, at the Centre for Ecology and Hydrology in Banchory, Scotland. He is uniquely qualified for the task of writing such a biography, being himself a Dutchman who emigrated from Holland to Britain, who is as eager a naturalist as Tinbergen was and who knew him well after long cooperation and friendship. For the purpose of the biography, Kruuk's Dutch origin is important because he can appreciate some of the problems, perceptions, and emotions involved in emigrating to Britain, and view the Netherlands in a way that allows him to see some of the distinctive characteristics of its people. In addition, Kruuk could read Tinbergen's publications and correspondence in Dutch.

Kruuk has done extensive background work before writing this book,

interviewing Tinbergen's remaining family members (mainly his children), colleagues, former students etc., visiting most of the places of relevance (Tinbergen's home and university in Holland, the place he lived at for a year in Greenland, Tinbergen's houses in England, etc.). He has read all that Tinbergen wrote in Dutch, German, and English (16 books, and 336 scientific and popular articles), as well as his correspondence with people all over the world. This is an enormous task, but the effort has really borne fruit. *Niko's Nature* is an extremely well written and fascinating biography.

The book comprises ten chapters, tastefully illustrated with many of Tinbergen's own drawings and photographs. At the end it lists all of Tinbergen's publications. Kruuk describes Tinbergen's background in Holland – a naturalist's paradise at the time – and the beginnings of his investigations into the behavior of birds, fish, and insects. Tinbergen was a fanatic naturalist from his earliest years, and he was also an athlete (hockey player). He came from a highly motivated intellectual background. Tinbergen spent a year in Greenland, and was for two years a hostage during the German occupation of Holland in the Second World War. He moved to Oxford in 1949, two years after becoming a professor at the University of Leiden. Tinbergen spent the rest of his career in England. He published a lot, had widespread contact with international experts, travelled and lectured extensively, and supervised many PhD students who later figured among the most influential in animal and human behavior studies. Tinbergen was superb as a communicator, both in print and orally, and he was an excellent photographer and film maker in the area of animal behavior.

Although the Dutch research community was very disappointed at Tinbergen's move to Oxford, the English speaking community of behavior researchers benefited a lot from his continental background. Tinbergen himself is part of the reason for this. Here are Kruuk's comments regarding his emigration to Britain (pp. 160-1):

Niko arrived with some exceptional abilities and characteristics. Foremost, he was an original thinker with ideas, and with an ability to formulate new questions in new ways. Combined with this, he was an excellent naturalist who had studied or watched many different animals, not just birds or some other single group. He was good at experiments with animals. He was totally charming, as well as a brilliant communicator with well-organized thoughts and perfect photographs, a good linguist, and genial with an infectious enthusiasm; he had a bubbling sense of humour and great appeal to students. Especially, he had vision, and missionary zeal: he knew what he wanted with his science – maybe it was intuitive and not completely thought through, but it was vision, and people were fascinated.

Throughout the book Kruuk writes of the importance of Tinbergen's clear writing style and ease of communication. He has indeed followed Tinbergen's example in that respect. Seldom have I felt that the blurb on the cover of a book was more apt than on *Niko's Nature*: "Hans Kruuk has done the Maestro proud, as he is uniquely qualified to do. I started reading and couldn't stop." This is from Richard Dawkins, another of Tinbergen's eminent students.

It is a warm and charming presentation, with the necessary critical evaluation in the light of today's standards and research traditions that makes it trustworthy and stimulating. Although Kruuk is an admirer of Tinbergen and his work, he tries at the same time always to assess Tinbergen's contributions against general scientific standards. This is done in an exemplary way. Consider, for example, his presentation of the famous Tinbergen experiments with gull chicks pecking on the red spot on the parent's beak to get food (pp. 140-1):

What worries me about these experiments, is that all models were presented and moved by hand, by observers who had certain ideas about what sort of results to expect. Model movement was demonstrably important in releasing the chicks' pecking, and the study was therefore compromised by possible (though unintended) observer bias ('I am expecting you to peck at red, go on!'). It is a criticism that strikes at the heart of the simplicity of the experiments, of exactly that which gave Niko so many admirers. The principle of Niko's experiments was to make systematic, but relatively small changes in an animal's natural environment and then to watch its reaction. It was a far cry from the then standard methodology of controlling the environment as much as possible (in the lab) and then making changes. But one potential problem with Niko's approach was that the changes he made could not all be accounted for; for example, the observers' hand movements.

In the next paragraph, Kruuk then writes (p. 141):

Such criticisms may be real, but they should not detract from the unique value of the principle of these experiments. At the time theirs was a new, innovative approach to biology – they were like a puff of fresh air through the dusty atmosphere of laboratories and museums. Here was bird behaviour being analysed scientifically, in the birds' own habitat, and next to observations on their life in the wild.

An important part of Tinbergen's social environment were his siblings, wife and five children. Kruuk has some very good descriptions of Tinbergen and his siblings, particularly the contrast between Niko and his elder brother Jan (who received a Nobel Prize in economics in 1969 for his contribution to econometrics).

This is indeed written in the best tradition and spirit of Frank Sulloway and his birth order analyses (Sulloway 1996).

In-between the professional issues of Tinbergen's career, Kruuk pays due attention to the life of his wife Lies and their children. Lies was Niko's prime supporter during his adult life; she was the only one he could discuss everything with. In my view, regular reference to her in the biography has strengthened the presentation. One really feels one understands and knows both Niko and Lies after reading the book.

Several times during the reading, my eyes filled with tears. *Niko's Nature* is a moving biography, for example the description of Tinbergen and his family during the Second World War, with Niko in a German hostage camp, writing an introductory book about animal behavior and illustrated books to his children (then 3, 5, and 8 years old), and with his wife, trying to survive in a house in the countryside, outside their home in urban Leiden in Nazi occupied Holland. Kruuk has really managed to present an engaging story.

### **Audience**

Who should read *Niko's Nature*? This is more than a biography: it is a presentation and evaluation of the main lines of European ethology and behavior research in the 20<sup>th</sup> century up to the 1980s. For this reason the book should have a broad readership. All kinds of professional people who share an interest in animal and human behavior would benefit, because they are given – in addition to a fascinating story – a highly useful background to enable them to understand contemporary behavior studies and research traditions. It is indeed a must for all students of animal and human behavior.

Introductorily, I told you that Lorenz has gotten several biographies, and more will probably be written. Kruuk has written *the* biography of Tinbergen. In my view, no more such biographies will be needed. With *Niko's Nature*, Kruuk has given us an honest presentation and analysis of Tinbergen, his life and scientific legacy, and set the standard for how biographies of great scientists should be written.

### **References**

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- Sulloway, F. J. (1996). *Born to Rebel: Birth Order, Family Dynamics, and Creative Lives*. New York: Pantheon Books.