

Special Section

ArtScience: The Essential Connection

Guest Editor: Robert Root-Bernstein

The sixth installment of a Leonardo special project exploring the work and writings of artistic scientists who find their art avocation valuable; scientifically literate artists who draw problems, materials, techniques or processes from the sciences; or others interested in such interactions.

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NIKO TINBERGEN'S VISUAL ARTS

The Dutch biologist Niko Tinbergen (1907–1988) received the Nobel Prize in Physiology or Medicine in 1973 for his pioneering research in ethology, the study of animal behavior. Drawing, photography and filmmaking were integral parts of both his research and private lives, linked by his passion for observing the beauty of nature. In 1949, Tinbergen wrote, “The root of the spirit of biologists is their interest in all that lives, an intensive, honest and selfless interest that makes people observe for the sake of observation itself” [1].

Tinbergen's interest in drawing was acquired at school. In his drawings, he indulged his passion for nature, and especially for birds, as much as his art teachers would allow [2]. When not drawing wildlife, he often drew portraits of himself or his brother Luuk collecting samples from local streams, using a telescope to spot birds, or indulging in their favorite sports. By the time he was 17, Tinbergen was publishing self-illustrated articles in *Amoeba*, the journal of the Nederlandse Jeugdbond voor Natuurstudie, an amateur naturalist group for young people, and getting paid for his contributions to *Het Vaderland*, a popular broadsheet. Tinbergen used his earnings to buy his first camera, a 4×5-inch model that used glass plates he developed and printed himself [3].

Tinbergen considered his wildlife photography a non-lethal form of hunting, intended to capture the interactions of animals with each other and their environment rather than the animal itself [4]. Years later, he and his colleague E.A.R. Ennion would publish a collection of his photographs of animal tracks in a book appropriately called *Tracks* [5], which illustrated animal behaviors through the marks left in sand, mud, soil and snow. One reason Tinbergen was an effective visual communicator was that each photograph or drawing he made told a story [6]. When he acquired a Bell and Howell movie camera upon accepting a professorship at Oxford in 1949, his visual storytelling became even livelier,

and he became widely known for scientific and popular nature films that were shown on BBC TV [7]. His program “Signals for Survival,” accompanied by a book of the same title [8], won the Italia prize for television documentaries.

Although Tinbergen often sent family and friends cards made from his favorite

photographs, most of his artwork remained directly focused on his ethological studies, with one major exception. Interned in a concentration camp during World War II, he turned to drawing, taking portraiture lessons from Karel van Veen, a professional artist and fellow captive. Tinbergen also turned out a series

Fig. 1. Niko Tinbergen, manuscript frontispiece from *Klieuw*, india ink and poster paint, 21 × 16 cm, c. 1943. (© J. Tinbergen. Courtesy of the Tinbergen family archive.) The original sketch for the cover of *Klieuw*, a book written for his children while Tinbergen was in a concentration camp during World War II.



of illustrated stories that he sent to his family. Two of these were subsequently published as children's books, *Kleew* [9] (Fig. 1) (the story of a seagull family that has to put up with an inquisitive naturalist) and *The Tale of John Stickle* [10] (the adventures of a boy who learns about the life of a stickleback fish). These books introduced young readers simultaneously to the surprising nature of animal behavior and its innate beauty.

Perversely, some laymen accused Tinbergen of taking the beauty out of nature by analyzing it scientifically. Tinbergen was distressed by such criticisms:

We often felt that there is not less, and perhaps even more, beauty in the result of analysis than there is to be found in mere contemplation [of nature]. So long as one does not, during [scientific] analysis, lose sight of the animal as a whole, then beauty increases with awareness of detail. . . . I must stress that my aesthetic

sense has been receiving even more satisfaction since I studied the function and significance of this beauty [11].

Natural beauty was, for Tinbergen, an intellectual as well as sensual experience, causing him to write that, "I am a kind of hybrid person, neither artist nor scientist but a bit of both" [12].

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