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Twelve ideas you should know about

# Karl von Frisch

*The mystery of the dance of the bees is known, today, thanks to the discipline of **Karl von Frisch**, Austrian Nobel Prize winner, who consolidated the ethology or the science of animal behavior with his experiments.*

- 1** | Karl was born in Vienna, Austria, in 1886, in the home of Anton Ritter von Frisch, famous surgeon and professor at the University of Munich, and his wife, Marie Née Exner.
- 2** | From a young age, von Frisch showed interest in the natural sciences and, in particular, in the behavior of invertebrate animals. He found pleasure in observing bees for a long time.
- 3** | His first studies were carried out at grammar school; later, and with the idea of following in his father's footsteps, he entered the School of Medicine at the University of Vienna. But, once he took the first exams, he switched to Philosophy.
- 4** | It did not take him long to enter the Zoology program at the University of Munich, where he distinguished himself by his nonconformity and by showing that many beliefs about how animals perceived the world were wrong.
- 5** | Many scientists said that some "lower" animals, such as fish or invertebrates, could not have complex senses. That is, they could not see or hear.



**In 1919 he began to observe insects. Bees were his object of study for 40 years and he showed that, if they are trained, they can differentiate various tastes and smells. He also proved that their sense of smell is similar to that of human beings, although their taste is different.**

- 6** | Karl proved that this was not the case. He experimented on a large catfish, named Xaverl, which he found in the institute's aquarium, and in no time, he trained it to come out of its hole in response to his hissing.
- 7** | He also began to observe bees and showed that they were able to distinguish colors using simple and elegant experiments. This was something that many of his teachers believed impossible.
- 8** | He also discovered that some bees would dance in a mysterious way in front of their companions loaded with pollen, upon returning to the hive, by making a series of semicircular turns that traced eights in the air.
- 9** | In 1910 he received his doctorate at the University of Vienna and became Richard Hertwig's assistant at the Zoological Institute of the University of Munich. In addition, he obtained the certificate for the teaching of zoology.
- 10** | In 1949, he used polarized light to show that bees take advantage of sunlight to find their way around, remembering the patterns of polarization. Without a doubt, his contributions to beekeeping, or the study of bees, were enormous.
- 11** | His book *Twelve Little Housemates* is a classic about the tiny animals we live with. It is an intelligent, funny text full of curiosities about the common fly, the flea, the louse and the moth, among others.
- 12** | He was awarded the Nobel Prize in Physiology or Medicine in 1973, which he shared with Konrad Lorenz and Nikolaas Tinbergen. He died in Munich on June 12, 1982.

These twelve ideas about the life of **Karl von Frisch** resulted from an exhaustive search in different sources of public domain. The text was prepared, revised and approved by the Editorial Committee of the Revista Ingenio.



Illustration: Andrea García Mesa

**He showed that, with their dance and the vibratory movement of their abdomen, known as 'wiggle', scout bees inform the rest of the hive the place of the food source, the direction and the distance.**