

**WOLFGANG KÖHLER  
AND THE ANTHROPOID RESEARCH STATION  
ON TENERIFE ISLAND<sup>1</sup>**

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Most of the numerous tourists who year by year visit Puerto de la Cruz on the Spanish island Tenerife near the African north-west coast are unaware of the fact that nearby the Prussian Academy of Sciences already had an Anthropoid Research Station before World War I, when Puerto de la Cruz normally was named Puerto Orotava.

In this paper we would like to

- (1) describe briefly the foundation of the Station,
- (2) discuss circumstances which made Köhler the director of the Station,
- (3) give some background information on his ingenious experiments on the intelligence of apes, and
- (4) sketch briefly Köhler's life on the island during the war, and
- (5) report on some recently rediscovered accounts on experiments which Köhler never published.

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<sup>1</sup> An earlier version of this paper was presented (with illustrations) by H.E.L. at the Division 26 Program of the APA Convention 1988, in Atlanta, on August 14th. We gratefully acknowledge helpful comments of Mitchell Ash (Iowa) and Heliodoro Carpintero (Valencia). Christine Klein-Bräler (Duisburg) reviewed our manuscript as a native speaker.

(6) Finally we would like to provide some documents concerning the termination of the Research Station.

## 1. The foundation of the Research Station

The careful research of Mitchell Ash (1982) has provided a good basis for understanding the foundation of the Station. Additionally Marianne L. Teuber has recently (1987) presented a paper especially devoted to the foundation, primarily making use of the valuable documents of Eugen Teuber (1889-1958), who directed the Antropoid Research Station in 1913.

The idea of establishing the station was put forward in 1912 by Prof. Max Rothmann, a neurophysiologist from Berlin University<sup>1</sup>. Being interested in the central nervous system Rothmann realized that psychological studies of primates would be useful. Like others ( e.g. Sokolowsky, 1908, p. 76) Rothmann demanded studying the "precious animals" under favourable climate conditions comparable to their natural habitat. In spring 1912, Rothmann visited Tenerife and in July 1912 a male chimp from Nigeria was bought from a ship for the Station and in September 1912 seven further chimps arrived from Cameroon, then a German colony.

It was Eugen Teuber who built up and handled the research station in its first year "La Costa", a country estate, a so-called "Sitio", served for several years as the location where Eugen Teuber and Wolfgang Köhler studied the behavior of great apes.

Eugen Teuber had been educated at a French Huguenot school in Berlin; he spoke French and Spanish fluently. Teuber had studied Psychology under Wilhelm Wundt in Leipzig and since winter 1910 he was a student of philosophy at Berlin University. Probably on recommendations of Rothmann he became the first director of the Station. Teuber who had no experience in animal psychology did his task, establishing the station and doing first observations, very well, as Köhler and others stated later.

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<sup>1</sup> Max Rothmann was Privatdozent for neurophysiology at the university of Berlin, he also was professor at the School for Animal Medicine.

When Eugen and his wife, Rose Teuber, sailed to Tenerife in the last days of December, 1912, Puerto de la Cruz had only some three thousand inhabitants. The harbor was economically important, though, very small.

One of the most impressive buildings of the small town was the Grand Hotel Taoro. The first chimpanzee was provisionally housed here, later all chimps were moved to a cage near the Hotel Martianez and remained there until March 1913. Originally it was planned to erect the primate station close to Hotel Taoro, for which Erich Levy, an architect from Berlin had worked out a design (cf. Teuber, 1987). An emerging problem seemed to be disturbing contacts with hotel guests. Then Teuber found a much cheaper solution, which later turned out to be a disadvantage. The "Sitio" "La Costa" was in those days to be reached by half an hour walk southeast of Puerto, nowadays it is only some hundred meters depart of the expanding city. "La Costa" had a small mansion and parts of a banana plantation. It was rented for seven years. Rothmann and Teuber described the setting as follows:

"Here a small house and garden is located which is sufficient for the director of the station and his family. Immediately beside this a playground of nearly half an acre is covered with wire netting which is spread in all directions from a pole 5 meters (15 feet) high. So the animals have the feeling of complete freedom, still they can not escape. In the middle of the playground a gymnastic apparatus is installed; the tree and two banana plants there have immediately been devastated by the chimpanzees. At one side of the place which is situated in the middle of banana plantations an apehouse with four sleepingrooms side by side was erected, each room being sufficient for several animals." (Rothmann & Teuber, 1915, p.6).

Shortly afterwards a small laboratory was attached left to the primate house. It had facilities for photography, filming, and sound recording.

The founding of the research station, being the first of its kind, came primarily from a fund, called the Albert Samson-Stiftung. Samson, a retired Berlin Banker donated 1,000,000 Reichsmark to the Prussian Academy of Sciences to conduct

"the scientific research and study of the natural, biological foundations of morality, the individual as well as the social"<sup>1</sup>.

Two important members of the board (Kuratorium) of the foundation were the anatomist Wilhelm Waldeyer and the psychologist Carl Stumpf. No doubt, the founding of this first anthropoid research station was an important matter for the academy and the whole scientific world engaged in primate research. As Ash pointed out, the annual costs of the station were higher than those of Stumpf's psychological institute in Berlin.

## 2. Wolfgang Köhler's appointment as the Director

Stumpf is known as a psychologist who worked on sound perception; he should also be regarded as one of the fathers of Gestalt psychology (cf. Sprung & Sprung, 1985). Stumpf worked in many areas. His assistant Erich von Hornbostel (1877-1935) built up the "Staatliche Phonogramm-Archiv" (State Phonogram Archive)<sup>2</sup>. So Erich Teuber was asked to record folk melodies on the Canary Islands and elsewhere (Teuber, 1987, p.4). Stumpf's interest in animal psychology is less known, it is however well documented by the fact, that Stumpf together with circus director Paul Busch, the zoo director Ludwig Heck, biologist Oskar Heinroth, and other important figures, belonged to the active members of the research committee investigating the case of Clever Hans, the horse owned by Wilhelm von Osten.

Hans was a famous horse who was able to solve arithmetical problems, spell out words, and do many other things. Oskar Pfungst, another student of Stumpf, finally solved the puzzle of Clever Hans. His book, published 1907, translated 1911 into English and republished 1965 by Robert Rosenthal in America and 1977 by Helmut E. Lück in Germany, is an excellent example of early experimentation.

<sup>1</sup> Statutes of the foundation. AdW der DDR-Archiv. Sign. II-XIII Z-Bd. 1, Blatt 23-25.

<sup>2</sup> This archive was also financed by the Samson foundation. The collection was probably destroyed in World War II. The list of recordings, however, still exists in East Berlin, as Lothar Sprung informs us.

In fact Oskar Pfungst, who is described by Wolfgang Metzger (1970) as a rather "eccentric" colleague, was to become the director of the Primate Station. However, he hesitated too long, so Eugen Teuber and a year later Wolfgang Köhler received the offer. Köhler had no experience in animal experimentation, however. He did his PhD with Stumpf with an excellent experimental study on acoustic psychology. The judgement (Gutachten) of Stumpf leads to the assumption that Stumpf had a high opinion of this young student, who now was collaborating with Max Wertheimer and Kurt Koffka in Frankfurt on perceptual problems. This group later would be termed the Berlin School of Gestalt Psychology.

Wolfgang Köhler turned out to be a good negotiator. After correspondence with Teuber about the actual costs for living with his family he got a salary which was twice as high as that of Teuber and eight times<sup>1</sup> what he had earned at the Frankfurt University (see Ash, 1982). Additionally he had free lodging, he was allowed to publish the results under his own name but had to offer the manuscripts first to the academy for publication in their Abhandlungen. Köhler also received the promise that he could return to his Frankfurt position. This, no doubt, was much more than could be expected for a 26 year old Privatdozent.

End of December 1913 Köhler, his wife Thekla, and their two children, left for Teneriffa. Since the Teubers left mid January 1914 some experiments have been carried out by Teuber and Köhler in cooperation. This is clear from Köhler's diary, his book "The Mentality of Apes", as well as from experimental reports in the Teuber collection (Teuber 1987).

The contract included a handwritten paragraph which obliged Köhler to report regularly to the foundation. A considerable number of letters from Köhler and Waldeyer still exist in the East Berlin Archive of the Academy of Sciences. From this correspondence it is easy to realize that Waldeyer developed a strong personal interest in the intelligence studies after Köhler had reported in detail about his experiences and experiments. Köhler in turn reported correctly and frankly and

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<sup>1</sup> This figure given by Ash is probably not correct since the exact Frankfurt salary of Köhler is not given. The comparison was made between the Tenerife salary and the costs the Samson foundation paid to Frankfurt University.

apparently he pleased the members of the foundation board. Already in May 1914 Waldeyer offered a prolongation of Köhler's contract to secure continuity. He writes: "What you report on the intelligence studies has raised my greatest interest. At present your letters are circulating among the members of the committee. I would support you, if you plan to stay in your position until April 1915 or maybe even longer. A frequent change in the directorship of the Station seems undesirable."<sup>1</sup>

Köhler's official reports to the foundation can today be compared with his more informal letters he sent to his esteemed school teacher, Hans Geitel in Wolfenbüttel. This considerable number of letters, rediscovered by Siegfried Jaeger have been published in German (1988).

### 3. The intelligence studies

Köhler's experiments on the insightful behavior of chimpanzees are nowadays so well known that descriptions can be found even in primary school textbooks. It is interesting to ponder where Köhler got the idea for such original experiments with apes. This question is an interesting topic for the history of psychology because it is not discussed in Köhler's own publication. Köhler's publications give the impression that both the conception of the experiments into ape intelligence and all the individual investigations were primarily his own idea. But it seems rather improbable that Köhler, who was not a zoologist, should have developed all the methodology of the studies from beginning to the end.

Although Köhler was not an animal psychologist like Oskar Pfungst or David Katz, one should bear in mind that at the turn of the century investigations into the specific abilities of various animals were carried out in large numbers (see overview in Rosenthal, 1977). Köhler could have followed up these studies, and indeed he does mention (1917, 1973) three of them, though more or less *en passant* :

Thorndike (1911)

<sup>1</sup> AdW der DDR Archiv. Sign. II-XI-121, Bl. 139-140.

- Sokolowsky (1908), and
- Hobhouse (1901).

Within his PhD thesis Edward Lee Thorndike had studied the problem-solving behavior of cats and other animals. The animals had to free themselves from clumsy boxes like this one by pressing levers and pulling ropes etc..

Learning was described within the trial and error paradigm, which Köhler regarded as insufficient to understand animal capabilities. Contrary to this, Köhler stressed the factor of insight.

Sokolowsky, the second mentioned author, had observed primates in the Hagenbeck Zoo in Hamburg-Stellingen. Sokolowsky claimed that their behavior gave evidence for particular intelligence. Sokolowsky was severely criticized by some authors like Pfungst. But Teuber and Köhler had Sokolowsky's small book (1908) in Tenerife and Köhler was able to confirm some of Sokolowsky's experiments by replication.

The third mentioned author is Hobhouse, a British philosopher, who later became professor of sociology at the London School of Economics. Hobhouse was interested in the origins of human morality. He collected a huge amount of reports on animal intelligence and he performed a number of experiments with several animals. Köhler read the book of Hobhouse (1901) after having arrived on Tenerife and wrote to Waldeyer enthusiastically about it. The experiments of Hobhouse included the detour paradigm and the use of tools. Without doubt a great number of experiments carried out by Köhler were replications of Hobhouse's, among them the rope experiment performed by Sultan just shown on slide. Additionally the theoretical position of Hobhouse was much closer to Köhler than Thorndike, the central concept of Hobhouse being *perceptual learning*. Köhler's position was that not only the perception but also the behavior of the primates in certain situations formed a Gestalt. This extension of the Frankfurt Gestalt school was fostered by the animal experiments and it happened at the same time that Wertheimer in Frankfurt was coming to the same

result. It is most likely that Köhler and Wertheimer corresponded regularly. However, no letters from this time are known to us.

Most of Köhler's experiments with chimpanzees published in his most known book "The mentality of Apes" (1921) were carried out in the first half of 1914. So it is only in part correct when Boring wrote in reference to the intelligence studies that it was "much to the ultimate advantage of psychology" that Köhler became an internee on Tenerife island. Köhler tried to do as much as he could in the scheduled time of a year. He wrote (1973, p.102): "It was some time later that I realized that I had overworked the animals in the first few months...". The burden of work Köhler did, was enormous. Not only were the experiments carried out, resulting in seven further publications and some never published manuscripts, Köhler also produced films which he regarded as a means of evidence. Some of these very early films still exist. In a German TV broadcast commemorating Köhler's 100th birthday, technically improved versions of these films were used (Lück 1987 b).

The Köhlers also had to struggle with illnesses of the animals. A newly acquired chimpanzee named "Nueva" which had turned out to be brighter even than Sultan, died unexpectedly.

Köhler was disappointed, however he sent the corpse to Berlin for an autopsy. In October 1914, Köhler had to report the death of two other chimps, Koko and Konsul, to Waldeyer. Still, Köhler had enough self-reliance to urge Waldeyer not to nominate a physician as the next director of the Station: "Vulgar psychology, particularly that of psychiatrists..., is the least useful thing one can bring to this place as a starting point"<sup>1</sup>.

The enormous amount of work only could be accomplished with the assistance of a helper. His name was Manuel Gonzales y Garcia (1888-1976). In several letters Köhler described him as a very reliable person. It does not fit into this picture, however, that Manuel who ambiguously was nicknamed "el de los machangos" (he from the apes) decades later purported having conducted all experiments alone (Pelechano Barberá, 1980, p.

<sup>1</sup> AdW der DDR-Archiv. Sign. II-XI-121, Bl. 174.



109 footnote 1). This, however, contradicts the reports in Köhler's diary, where he carefully fixed observations not by himself and the participation of other persons in the experiments.

From the fact that the chimps had Spanish names we can assume that Manuel as well as the Köhlers talked Spanish to the animals. Especially visitors from the rural area were impressed by the animals, going upright like "christianos". In his book Köhler frequently mentions the reactions of visitors.

#### 4. Living as an internee

Tenerife, belonging to Spain, was not immediately involved in the first world war, since Spain remained neutral. However, Great Britain and France controlled the sea.

So Wolfgang Köhler wrote to Waldeyer on August 10th, 1914:

"In the case of war I am obliged to return to the Reich as a reserve soldier (Ersatzreservist). However, there was no opportunity to leave the island because the German steamers stay of course in the neutral harbour and neither Spanish nor Italian ships are willing to accept us for fear of British or French men-of-war. Therefore none of the 60 men obliged to report for military service (Kriegspflichtigen) has been able to leave, and since a clearance (Freiwerden) of the sea for the duration of the war can not be expected, I will have to stay here. If I can get away somehow, my wife will take over the business; supported by the helper, who still is reliable. She could do this without difficulties, until I return or somebody else has been sent by you."<sup>1</sup>

Köhler, like most people in Europe, probably assumed that the war would be over within a few weeks. However, Köhler had to stay on Tenerife as an internee until the end of the war, i.e.

<sup>1</sup> AdW der DDR-Archiv, Sign. II-XI-121, Bl. 167.

six years longer than intended. He was, however, able to move freely on the island and to continue his research.

## 5. Experimenting with orang-outangs

Köhler as well as Waldeyer spent considerable energy on enlarging the station. Somewhat embarrassed Köhler reported that no more playground could not be rented because the farmer objected in the hostile manner of the kind of a person who did not see the slightest sense in the studies.

Another matter of joint activities was the acquisition of other primates. From the very beginning the Primate Station was planned for several kinds of animals, and Köhler experimented with chickens, dogs, and several other animals. In the mid of 1915 a cage and place west of "La Costa" was prepared for the expected orang-outangs, but these animals were, however, difficult to get, especially in wartimes. Finally they arrived from a distant Dutch colony, i.e. South Sumatra, by support of the Dutch government.

No publication of Köhler mentions experiments with oranges or other primates, so it is probably surprising to read that Köhler experimented extensively with two oranges which arrived in Tenerife in 1916. Three different versions of a paper on the orang experiments by Köhler were found in the the Köhler archive in Philadelphia. The transcription and integration of the papers turned out to be rather difficult but rewarding. Köhler's report has been published just recently within the book mentioned (Jaeger, 1988).

Using his phenomenological approach Köhler describes the appearance and behavior of the two oranges, one of which died shortly after arrival. Köhler stresses the intelligence of Catalina, the surviving female animal. The use of tools to destroy a wall is described in detail. Among the experiments conducted with Catalina are the well known rope experiment, now using a wire, the stick experiment and others. The central concept Köhler uses for explanation is that of *determined abstraction* (determinierte Abstraktion). Man has the capability of *positive abstraction*; he can describe abstractly the properties of an

object while the animal can abstract only in respect to a given aim. Without going into the detail of Köhler's orang studies it can be said that Köhler had now connected his argumentation even more to Gestalt psychology than the chimpanzee studies.

## 6. Difficulties, rescue attempts, and the end

During the war the living conditions for Köhler and his family deteriorated. Anti-German attitudes could be felt. Rumors started that Köhler was a German spy, the playground being the airport for a German war Zeppelin (Letter to Geitel). The Köhlers were distrusted and suspected, even by the British consul who accused Köhler of having supplied German submarines with food.

Mail often did not arrive. Sometimes using the pseudonym "V. Coler" Wolfgang Köhler corresponded in English or Spanish with German friends and colleagues via Switzerland, Italy, and the Netherlands.

The Primate Station La Costa had to be given up because the ground was sold to the Yeoward Brothers Co., Liverpool. So the Station had to move. Köhler decided to move to "El Ciprés", not more than a mile to the south-south-east, i.e. towards the mountains.

Due to inflation the costs grew immensely. The foundation in Berlin encountered the greatest difficulties after the German Reichsmark had only one tenth of its pre-war value. Still, in mid-1919 Köhler had the chance to leave the island. His suggestion was that Wertheimer or eventually Koffka, Gelb, Katz, or Selz should become the new director, and the Committee agreed on Wertheimer for reasons of continuity in the theoretical basis. Then Köhler had some doubts about Wertheimer, because Köhler

"had come to the conclusion that I probably should not encourage Wertheimer. In their present grown-up, somewhat dangerous and more vicious state the animals here are rarely fully suitable research objects for him, a manager of very high personal qualities could really suffer under the tasks at

present, and a personality with greater toughness would be better in this place..."<sup>1</sup>

Other possible directors were discussed. The financial problems continued to grow and the termination or selling of the station had to be considered. In this situation Köhler decided to stay with his wife and his four children - two were born there - in Tenerife. Then Köhler strongly recommended cooperating with the Netherlands where Buitendijk and others were very interested in the primate research. Another reason for close contacts with the Netherlands probably was the fact that the Netherlands had provided the oranges, Spain was discarded as having no competent scientists in the field, the United States also were considered. (Several years earlier Yerkes had planned to spend his sabbatical year in La Costa. However World War I made this stay impossible).

At the end of May 1920 Köhler returned to Germany. Several attempts were made to rescue the Station. Finally the Primate Station was given up. The animals were sold to the Berlin Zoo where they also served as research objects for von Allesch, for Köhler himself, and others. A male chimpanzee was born - the first in a European zoo, and his upbringing could be described by Johannes von Allesch (1921), a chance Köhler had waited for in Tenerife island. When Eugen Teuber visited the chimpanzees in the Zoo - though seven years or more had passed since the Tenerife days - they welcomed him enthusiastically (Teuber, 1987, p.15).

Unfortunately the chimpanzees did not live for a long time in the Berlin Zoo. They died from an unidentified infection.

To finish we would like to give a short answer to the question of what is left of the Primate Station. We (S. J.) have followed Köhler's traces. El Ciprés, the second station, can still be found. Also La Costa, the Sitio of the first station, still exists. It is still owned by the Yeoward family which bought the land in 1918. The Spanish administrator of the farm still remembers Wolfgang Köhler. Like him, many people in Puerto who know the name Wolfgang Köhler consider Köhler worked as a spy. But

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<sup>1</sup> Letter to Waldeyer dated 2nd of August, 1919. (ASS 120), quoted from Jaeger(1988), footnote 83.

it was not the behavior of Köhler himself which promoted the the rumor but the fact that several years ago someone tried to prove that Köhler was a spy. So the rumor spread and lasted.

Some of the readers might know Thekla Köhler's drawing of the mansion house belonging to La Costa where the Teubers and Köhlers lived. This sketch has been included in the later editions of Köhler's German book on the "Mentality of Apes".

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