

BEEKEEPING IN TURKEY: PAST TO PRESENT

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Abstract

Turkey is on the intersection of three continents and also located on two important trade routes of the past, namely the Spice and Silk Roads. Thus it played a very important role bridging Asia, Europe and Africa. Indeed Turkey was also the place where very important civilizations such as the Roman, Hittite, Byzantine, Ottoman and finally the modern Turkish Republic became established. Covering all of these civilizations beekeeping can be divided into three main periods, supported by archeological findings, the written laws of Ottomans and the present period of the new Republic.

Although the findings in archeology and in the Ottoman period are scarce, the present period has lots of information regarding beekeeping in Turkey.

Archeological evidence of the Hittite Period comes from excavations in two sites in Turkey. Comb, figures on the walls and the buzzing bees on the carpets are the signs of beekeeping in that area.

In the Ottoman period, although there is not much direct evidence of beekeeping, there are several laws attributable to beekeeping. All of these laws refer to managing taxation and the prevention of theft related to bees. The third, new period, is after the establishment of Turkish Republic. However, this latter section can be divided into two parts before the influence of Frederick Simon Bodenheimer and after. It was then that modernization took place and scientific beekeeping started, leading to Turkey becoming one of the main beekeeping countries in the Middle East and the business is still growing.

Introduction

The Republic of Turkey consists of two geographical parts divided by the Marmara Sea. The

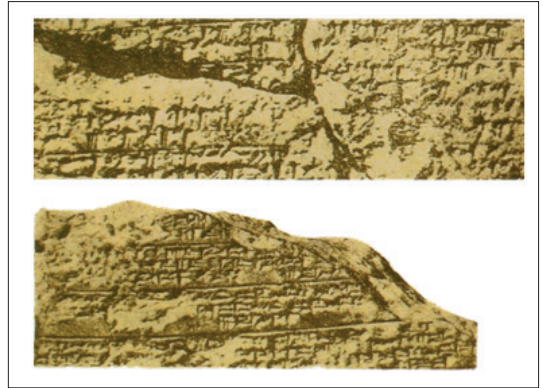


Fig. 1 Two tablets found in Boğazköy (Hattuşas) related to beekeeping laws (Sarıöz, 2006; Akkaya and Alkan, 2007).

main part, called Anatolian, is in Asia and the much smaller part is Thrace, the European part of Turkey. The whole country covers a total of approximately 800,000 km². In this vast geographical area different topographical and climatological features, shaped by evolution, make for a wide variety of flora and fauna. Over 10,000 plant species create huge biodiversity and this is well reflected honey bee biodiversity. A total of five honey bee subspecies and also many ecotypes are now found in this region suitable for modern beekeeping. Indeed, since the antiquity, beekeeping has been a major part of the agriculture of these areas. The history of beekeeping in Turkey is well documented in many books and articles (Crane, 1983; Crane and Graham, 1985; Kandemir 2003; Akkaya and Alkan, 2007).

Beekeeping before The Ottoman Empire

Ancient beekeeping in Turkey was reported by Crane and Graham (1985). Beekeeping history goes



Fig. 2 Buzzing bees motif on the rug (Çatalhöyük) (<http://marlamallett.com/ch.htm>).

back to the Hittite Kingdom before other civilizations like Roman and Byzantine. From archeological excavations many beekeeping remains such as hives, bees, comb and bees wax have been found in Central Anatolia, Bogazkoy (Corum) and Hattusa (BC 1300) along with some tablets having laws related to bees (Hoffner 1974, 1997). These laws (**Fig. 1**) are all related to honeybee theft and how to punish the thief. One punishment was to sting the thieves with honeybees.

Later, the theft punishment was changed and thieves got a fine for their actions. Akkaya and Alkan (2007) in their articles explained the writings on the tablets and translated the Hittites' laws into modern language. They also explain the details of Hittite beekeeping terminology (some words). From these terms and laws, we can understand how beekeeping was important 3000 to 4000 years ago.

In the other excavations from Çatalhöyük, between 1961 and 1965 by Mellaart, a much older civilization was unearthed dating back to BC 8000-7000. The first city was found which shows evidence of first domestication of many animals. Also honey and beeswax have been found (Flores, 2000). Mellaart (2005) explained the daily life in Çatalhöyük as it is pictured in paintings on the walls and motifs and in objects like buzzing bee figures on the rugs (**Fig. 2**). Some wall paintings seem to depict a bee life cycle (Mellaart, 1967).

Later beekeeping related remains (mostly depicting of bee figures on different objects such as coins and sculptures) came from the Hellenistic and Roman periods and were found in excavations in Ephesus and Torbalı (Meriç 2003) (**Fig. 3 & 4**, taken from Sariöz, 2006). Artemis (Goddess of the Hunt, Forests and Hills, the Moon and Archery) in Ephesus is called "queen bee" and during the peak years, the bee figure is minted on coins and also used on jewelry. Except for these remains, there is not much

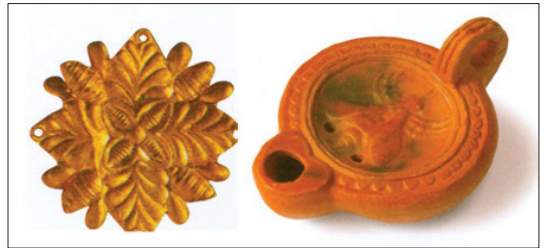


Fig. 3 Bee figures on the jewelry and candle found in Metropolis excavations in Ephesus (BC 3-2. century) (Sariöz, 2006) (Ephesus museum collection).



Fig. 4 Bee figures on coins found in Metropolis excavations in Ephesus (BC 3-2. century) (Sariöz, 2006) (Ephesus museum collection).

documentation about beekeeping during Hellenistic and Roman periods.

One other historical beekeeping information came from mad honey intoxication almost 2500 years ago. Xenophon stated in *The Anabasis* that during the year 401 B.C. soldiers came to Trabzon (a city on the coast of the Black Sea) and visited villages. There they all consumed honey from the hives and showed symptoms of intoxication due to "mad honey". Still "mad honey" intoxication incidences are seen in these areas. On the Black Sea coast there are



Fig. 5 *Rhododendron ponticum*, the source of mad honey on the coast of Black Sea.

a species of *Rhododendron* containing gyanotoxins which cause honey to be poisonous. The species with purple colours, *Rhododendron pontium* (**Fig. 5**) is still widely distributed in those areas and beekeepers pay attention to those nectars and harvest separately so that the honey can be used for medicinal purposes.

Beekeeping in the Ottoman Empire

Beekeeping was one of the irrevocable occupations during Ottoman Empire. Many Ottoman Sultans used honey as a sweetener and encouraged beekeeping. In Seljuk, even before the Ottomans, presenting honey syrup to the visitors was a tradition. During the period of Ottoman Sultan -Fatih Sultan Mehmet, more than 3 tons of honey was consumed in Topkapı Palace according to the records. In the Ottoman Empire period, beekeepers had to pay tax for their hives (Öşr-ü kovan meaning hive tax) and honey (Öşr-ü asel meaning honey tax). However, hives were divided into two according to strength. If the hive was good then the beekeeper should have to pay 2 otherwise 1 akçe (currency at that time). Due to these taxations very good beekeeping records were taken in Ottoman Empire. However, during the period of Magnificent Sultan Suleiman, the hive and honey taxations were lifted if they were for the beekeeper's own usage.

In the Ottoman period, until the end of 18th century, all sweets were made from grape molasses and honey. During this period the honey produced was stored and marketed in a place called "Balkapanı". Not only honey but also olive oil, hazelnuts, salt, cotton etc were sold in this place.

Beeswax was also used in Ottoman Empire for document seals and also candles as light sources. Modernization in beekeeping in Ottoman Empire was started far too late. At the end of the Ottoman period (the beginning of 1900's) beekeeping books



Fig. 6 First beekeeping leaflet published during Ottoman Empire Period (<http://aricilikmuzesi.blogspot.com.tr/>).

and leaflets were published (**Fig. 6 & 7**) and the first modern beekeeping book was translated but not published for a long time. This book would be the first book published on beekeeping during the first years of Turkish Republic.

Modernization Period

After the establishment of the Turkish Republic beekeeping stayed constant for some time. After 1923, changes began to be made within the agricultural infrastructure. Beekeeping was taught in schools as an applied profession but this did not continue long. The schools closed unexpectedly and primitive beekeeping continued until F. S. Bodenheimer's arrival before World War II. In those years the number of primitive hives (skep, cylindrical mud, trunk, clay, etc **Fig. 8**) were predominant (Crane, 1975; Crane, 1983) and the honey yield was very low compared to current beekeeping (around 5 kg perhive). This period is characterized by the transition from primitive beekeeping to modern beekeeping equipment and practices. The first detailed scientific apicultural study was completed by F. S. Bodenheimer between 1933 and 1937 (Bodenheimer, 1942). This survey was to get a picture of Turkish beekeeping in those years. He prepared a questionnaire and sent it to all cities at that time. The questionnaire obtained basic statistics on Turkish beekeeping - the number of



Fig. 7 One of the first Ottoman Practical and Theoretical Beekeeping Book, Millet Library / İstanbul (<http://aricilikmuzesi.blogspot.com.tr/>).

modern and primitive hives, honey yield, type of bees, etc. He published his results in a book called “Studies on the Honey Bee and Beekeeping in Turkey” in 1942 (**Fig. 9**). This book became one of the startup books in beekeeping research by Turkish scientists.

F. S. Bodenheimer was a visiting scientist in Ankara University, he was the curator of Agricultural Entomology and also he was the author of four books in Turkish. In 1940s, due to the limited number of teachers, village institute schools were started to educate the villagers and elected students were enrolled. They were educated in different subjects including beekeeping and expected to return to their villages to teach modern techniques to the other villagers. They were very successful in promoting beekeeping all over the country. The first Beekeeping Institute was established in 1949. Many beekeeping production stations were established to produce hives, queen bees and for the propagation of healthy colonies.

However, they existed for only a decade or so. In 1969, The Development Foundation (TKV) was established and after 10 years this foundation started an Integrated Beekeeping Project in 1978. TKV was established with a modern, fully equipped beekeeping centre, having queen rearing facilities, instrumental insemination lab, honey bee disease lab, pollination lab, beeswax foundation production unit, honey processing and packing unit, hive production and assembly unit. During this time, beekeeping developed remarkably. This foundation trained thousands of people and taught modern beekeeping practices. Soon the TKV became a national and international beekeeping training centre but after



Fig. 8 Different type of hive used in Turkey (On the top skep cylindrical mud hives, and on the bottom trunk and modern hives).

serving many years this foundation closed. During these years many journals were published and continue such as the Journal of Technical Beekeeping.

Besides all these developments in Turkish beekeeping, Anatolian bees became very popular especially after the visits of Brother Adam. After producing the hybrid “Buckfast Bee”. Br. Adam visited Turkey three times (1954, 1962 and 1972) (Adam, 1983) and witnessed Turkish beekeeping and the bees of the Anatolian Peninsula. In his book *In Search of the Best Strains of Bees*, he mentioned in detail the features of the central Anatolian honey bee as being hard workers and their resistance to harsh climatic conditions. Adam also reported the presence of several local honey bee populations in remote areas. The works by F. S. Bodenheimer and Brother Adam were the first attempts at scientific beekeeping studies in Turkey and were followed by many Turkish

1933-1939 yılleri zarfında
yapılan bal
Türkiyeden muhtelif memleketlere
numu ihracatı

Wet reports of Turkey to different countries
during the period of 1933 - 1939

TABLE IV

	1933		1934		1935		1936		1937		1938		1939	
	Kilo	litre	Kilo	litre	Kilo	litre	Kilo	litre	Kilo	litre	Kilo	litre	Kilo	litre
Almanya (Germany)	20,181	33,870	20,181	33,870	20,181	33,870	20,181	33,870	20,181	33,870	20,181	33,870	20,181	33,870
Avusturya (Austria)
Belçika (Belgium)
Bulgaristan (Bulgaria)
Çek (Czech)
Fransa (France)
İtalya (Italy)
Yunanistan (Greece)
Polonya (Poland)
Rumanya (Rumania)
Slovakya (Slovakia)
Türkiye (Turkey)
Yaklaşık (Total)

Fig. 9 "Studies on the Honey Bee and Beekeeping in Turkey" the book authored by F. S. Bodenheimer.



scientists after those preliminary studies.

In year 2003 another step was made and the Turkish Beekeeping Association was established and opened branches many cities (a total of 81). The main purpose was to make a bridge between beekeepers and the Government and to solve their problems. Currently, the total number of members has reached 60,000 and the total number of registered colonies to almost 6 million. Some of the city branches started to publish their own magazines. One of the biggest branches, namely Muğla, held one of the biggest congresses the "5th International Muğla Beekeeping and Pine Honey Congress" was held in November 2016.

Although Turkish Beekeeping has made incredible progresses, it still does not meet expectations in terms of honey production and the utilization of floral sources. Average honey production per hive is still way below that of many countries. Thus although Turkey is ranked 2nd for the total number of colonies, in terms of the honey production it is ranked 3rd or 4th depending on the production of that year. To overcome this problem several beekeeping research institutes were established by the Ministry of Food, Agriculture and Livestock. These institutes are working on all sorts of beekeeping problems (breeding, diseases, honey quality, etc).



Fig. 10 Ali Nihat Gökyiğit (ANG) Foundation conservation apiaries in Turkey (upper) *Apis mellifera anatoliaca*, Gündül-Ankara and (below) *Apis mellifera caucasica*, Posof-Ardahan.

One institute in north east of Turkey, Ardahan, aims to produce Caucasus honeybee breeding stocks and is working on their conservation. Another institute in Ordu (Ordu Arıcılık Enstitüsü) has a grant from the EU with their project namely “My Bee, My Honey and My Comb” to develop a better beekeeping model.

Besides these institutes, non-governmental organizations are also working on beekeeping. Especially ANG Foundation (Ali Nihat Gökyiğit Foundation) which has carried out a long lasting project since the late 1990s for the selection, breeding and conservation of Caucasus honeybees in two

regions (Macahel and Posof). After their success, the same NGO continued a similar project with a partial support from the ministry to conduct research on central Anatolian honeybees.

These two studies are good examples of honeybee conservation efforts in Turkey (**Fig. 10**).

In the last few years universities have been involved in such research and development projects related to bees and beekeeping. The number of projects granted by Ministry of Food, Agriculture and Livestock and also by Turkish Scientific and Research Council (TUBITAK) has increased remarkably. Besides

ministry institutes, universities and NGO's, private sector companies are involved in beekeeping research and development. Beekeeping related companies like Balpamak, Balarısı and Aksu Vital spend their budget for R & D projects on beekeeping so as to produce new products, or make improvements to existing ones, and get financial grants mainly from TUBITAK.

Indisputable developments in Turkish beekeeping have been achieved recently and the statistics are much better compared to current figures (FAO 2015). Almost one million primitive hives converted to seven million modern hives in 80 years. Similarly the honey production increased from around 5 kg to 16 kg/hive (Kandemir, 2003). Turkish beekeeping is still on the move and needs further improvement to be more competitive worldwide: with the cooperation of all the parties (Ministry, Universities, Institutes, NGO's and Private Sector) without losing its biodiversity. In all parts of Turkey there are developments in all aspects of beekeeping. But still some beekeepers keep to tradition and manage colonies in an old fashioned ways using primitive equipment. Thus by bridging the past to present Turkey promises to be one of the major beekeeping centres in the world - as it was in the past.

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