

**THE SOCIETY OF HONEY BEES: AN ETHNOLOGICAL ANALYSIS OF
SOCIAL COOPERATION AND COLLECTIVITY****Bazarbayev Sanjar Khamzayevich**

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Introduction

Beekeeping is one of the oldest economic activities in human history and has developed as a system with not only economic but also ecological, cultural, and ethnological significance. Activities related to bees have evolved in close connection with harmonious interaction with nature, rational use of biological resources, and the intergenerational transmission of traditional knowledge and experience across different societies. In this regard, beekeeping should be considered not merely as a branch of agriculture, but as a distinct ethno-economic and cultural practice.

In Central Asia, particularly in the regions of Uzbekistan, beekeeping has historically developed in accordance with nomadic and semi-nomadic lifestyles. This process is closely linked to natural-geographical conditions, vegetation cover, climatic characteristics, and the system of ecological knowledge formed by the local population. Through a deep understanding of bee behavior, their care, and working in balance with the natural environment, beekeepers have developed a unique professional and cultural experience.

The main objective of this article is to analyze the historical and ethnological features of beekeeping, particularly nomadic and semi-nomadic forms, and their interrelation with social, ecological, and cultural factors. In addition, the study examines the internal social structure of bee communities, their communication patterns, and mechanisms of cooperation in a comparative perspective with human society.

Methodology

This study was conducted based on a historical-ethnological approach, with priority given to qualitative research methods. Field research served as the primary source of data, allowing for an in-depth examination of beekeepers' activities within their natural environment. The daily labor processes, lifestyle, and interactions between beekeepers and bees were systematically analyzed.

Through the method of observation, the behavior of bees, their patterns of cooperation, and the practical activities of beekeepers were examined in a structured manner. Particular attention

was paid to the social behavior and communication mechanisms within bee communities, which were analyzed based on direct observations.

During the research process, field notes were consistently recorded, documenting observational data, interviews, and ethnographic materials. In addition, interviews conducted with experienced beekeepers provided valuable insights into their practical knowledge, skills, and perspectives. The applied methods enabled a comprehensive analysis of beekeeping as a historical, social, and cultural phenomenon.

Results

Beekeepers represent a social-professional group that has historically lived in harmony with the natural environment and played a significant role in maintaining biodiversity and ecosystem balance. Through a deep understanding of bee life processes, careful management of colonies, and rational use of natural resources, they have developed a distinctive ethno-economic activity. Beekeeping, therefore, has evolved not only as a source of economic livelihood but also as a practice closely intertwined with traditional culture, customs, folk medicine, and religious beliefs.

Field data indicate that beekeepers do not perceive themselves merely as agricultural workers. According to informants, this occupation also shapes an individual's inner discipline and ethical conduct. As one experienced beekeeper noted: "You cannot approach bees with anger or irritation. They sense your state. If your heart is disturbed, the bees will not accept you. A beekeeper is, прежде всего, a person who has mastered self-control." [8]. This perspective highlights the moral and psychological dimension of beekeeping as a profession grounded in patience, restraint, and emotional balance.

The study also revealed that beekeeping activities in the region have historically been organized in nomadic and semi-nomadic forms [1, pp. 12–15]. Migratory beekeeping refers to the regular relocation of apiaries to areas with changing nectar resources throughout the year. This system not only ensures higher honey productivity but also contributes to the health and sustainability of bee colonies [2, p. 180]. Beekeepers traditionally moved their hives across valleys, foothills, and mountainous regions in accordance with flowering cycles and climatic conditions.

Typically, migration begins in early spring in lowland areas where vegetation blooms earlier and continues toward mountainous regions during the summer, where cooler climates and diverse flora provide rich nectar sources. This seasonal mobility allows bees to access a wide variety of plants, resulting in the production of diverse honey types, including monofloral, polyfloral, and

medicinal varieties. Particularly, honey derived from medicinal plants such as mountain mint and other endemic species has been highly valued in traditional medicine [3, pp. 45–52].

Thus, migratory beekeeping is not solely an economic strategy but also an ecological and cultural practice that reflects a respectful and adaptive relationship between humans and nature.

Several key factors contributed to the formation of the nomadic lifestyle in beekeeping:

1. Natural-geographical factors
2. Productivity and quality factors
3. Semi-nomadic form
4. Social and organizational factors
5. Cultural and symbolic factors
6. Ecological sustainability factor

1. Natural-Geographical Factors

Bees collect nectar and pollen from flowering plants, the distribution and blooming periods of which vary across different regions and altitudes. For instance, spring begins earlier in lowland valleys, while in mountainous areas it arrives later. Consequently, beekeepers traditionally moved their colonies between valleys and mountainous regions over several months, following the sequence of flowering plants. This mobility allowed for the extension of the active nectar-collecting season to its maximum potential.

2. Productivity and Quality Factors

Migratory beekeeping enables bees to forage from a diverse range of plant species, resulting in the production of both polyfloral (mixed-source) and monofloral (single-source) honey. Particularly, honey derived from medicinal plants in mountainous areas has been highly valued for its superior quality and therapeutic properties. This aspect has elevated beekeeping beyond a purely agricultural activity, positioning it as an integral component of traditional medicine and health practices.

3. Semi-Nomadic Form

The lifestyle of beekeepers often reflects a semi-nomadic character. From early spring until late autumn, beekeepers frequently live away from their permanent residences, staying in mountainous or foothill areas in tents or specially adapted mobile dwellings [8]. While this lifestyle

distances them from urban environments, it fosters a strong sense of solidarity and mutual support among beekeepers [8].

They assist one another with essential needs such as water supply, food provision, and security (especially protection from wild animals or theft). Ethnographic observations reveal the existence of several unwritten yet strictly observed norms within beekeeping communities:

- **The “Fragrance” taboo:** Bees are sensitive to strong odors such as perfume, tobacco, alcohol, and even body odor. Therefore, a culture of cleanliness and naturalness is maintained among beekeepers [8].

- **“Bees are not sold, they are gifted”:** According to traditional beliefs, bee colonies are not “sold” in the literal sense, as this could lead to the loss of “blessing” (baraka). Instead, expressions such as “I entrusted them to you” or “I passed on your share of sustenance” are used [8].

- **Verbal interaction with bees:** Experienced beekeepers often speak softly or whisper while working with hives. This practice is believed to calm the bees and helps the beekeeper maintain focus and composure [8].

Interviews with informants indicate that one of the core ethical principles of beekeeping is **contentment with sustenance**. As one beekeeper explained: *“If you take all the honey collected by the bees, they will betray you. You must leave enough for them for the winter. This is a fair agreement with nature.”* [8]

In the semi-nomadic form, beekeepers do not move far from their permanent settlements but instead relocate their apiaries seasonally to nearby flowering areas. This model is particularly common in regions such as Tashkent, Jizzakh, Samarkand, and the Fergana Valley. In such contexts, bees forage in orchards, agricultural fields, alfalfa, and sunflower plantations, forming a system of mutual interaction integrated with local agricultural practices [5, pp. 110–117].

4. Social and Organizational Factors

Nomadic beekeeping has traditionally been organized as a family-based or collective activity. The relocation of bee colonies from one location to another was carried out using specialized carts, camels, or horses, and in later periods, motor vehicles and trucks began to be used. All members of the family participated in this process: men were primarily responsible for transportation and placement, women were engaged in honey harvesting and storage, while children performed auxiliary tasks. This structure reflects the distribution of gender roles and the organization of family labor, thereby reinforcing social cohesion around traditional occupations [6, pp. 22–30].

In this way, beekeeping activities contributed to the formation of a nomadic lifestyle adapted to the rhythms of local life.

5. Cultural and Symbolic Factors

The nomadic lifestyle in beekeeping is not limited to material considerations alone; it also embodies the aesthetic and spiritual relationship of people with nature. The process of relocating bee colonies is enriched with various rituals, prayers, and beliefs. For instance, in certain regions, recitation from the Qur'an or seeking blessings from elders is practiced before moving the bees to a new location [8]. Such practices imbue the activity of migration with ritualistic and religious significance.

6. Ecological Sustainability Factor

Nomadic beekeeping causes minimal harm to the ecosystem. It does not require intensive cultivation or the use of artificial fertilizers. Instead, beekeepers adjust their practices according to the condition of soil, climate, and vegetation. This approach can be regarded as a model of sustainable use of natural resources.

Beekeepers are often characterized as individuals possessing patience, calmness, precision, and a high degree of caution in their activities. These qualities are closely linked to long-standing beliefs that emphasize the sensitivity of bees to human behavior, including movements and sounds.

In some local belief systems, bees are perceived as “pure living beings,” and harming them or damaging their hives is considered unacceptable, potentially leading to misfortune. Such beliefs elevate beekeeping from a mere economic activity to a sacred practice [8].

Beekeeping also requires continuous observation and a deep understanding of bee behavior. For example, situations are sometimes observed where individual bees become trapped in honey or other sticky substances. In such cases, parts of the bee's body—such as wings, antennae, and legs—become immobilized, severely limiting its ability to fly or function normally. This condition poses a serious threat not only to the bee's mobility but also to its survival.

However, within bee society, such individuals are not left alone. Observations indicate that within a short time, other worker bees gather around the affected individual and begin coordinated actions. They examine the condition of the bee using their antennae and then proceed with cleaning activities. Some bees remove honey residues from the wings, others clean the abdomen or legs, while another group focuses on carefully cleaning the head and thorax areas [8].

From a human perspective, this may appear as a simple act of assistance. In reality, it represents a form of social cleansing. Scientists refer to this phenomenon as “**social carwash**” [7, p. 22].

In bee society, this behavior symbolizes mutual aid, solidarity, and social responsibility. The rescue of a single honey-covered individual becomes a collective achievement of the entire colony. Once restored, the bee returns to foraging and continues contributing to the hive. This seemingly simple act embodies a profound principle—it represents one of the highest forms of cooperation among living organisms.

Discussion

These phenomena demonstrate that principles of mutual assistance, solidarity, and social responsibility are highly developed within bee societies. Among living organisms, such a high level of coordinated and goal-oriented mutual support mechanisms is relatively rare. Therefore, the social cleaning behavior observed in bees is significant not only from a biological perspective but also as a complex model of social organization.

The observations presented above indicate that mechanisms of cooperation and mutual support in bee communities are highly advanced. The process by which worker bees collectively clean an individual trapped in sticky substances represents not merely a biological defense response, but also a form of social behavior that ensures the overall stability of the colony. Through this process, each bee is preserved as an essential labor unit within the colony, thereby maintaining the continuity of collective activity. Consequently, social cleaning behavior in bees can be regarded as a vivid example of a complex biological and social system based on collective cooperation, solidarity, and the prioritization of common interests.

In human societies, communication is primarily carried out through language; birds signal danger or territorial claims through vocalization, while dolphins utilize complex sound waves for interaction and information exchange. From this perspective, the question naturally arises: how do social insects, particularly bees, communicate? Scientific studies indicate that information exchange in bee societies is based on kinesthetic (movement-based) and chemical (pheromone-based) communication mechanisms [7, p. 22].

One of the most well-known and extensively studied forms of communication among bees is the **dance language**. Scientifically, this dance is not a metaphorical concept but a structured set of movements with precise biological and communicative functions. After discovering a source of nectar or pollen, a bee returns directly to the hive and performs specific movements in a designated

“dance floor,” typically located in a dark, vertical area within the hive. This environment facilitates effective information transmission, as bees are positioned close to one another [7, p. 23].

Bee dances can be classified into two main types. The first is the **round dance**, which occurs when the food source is located relatively close to the hive, within a radius of approximately 50–100 meters [7, p. 23]. During this dance, the bee moves in circular patterns, indicating proximity but not providing precise directional information. This form of communication encourages other bees to actively search the surrounding environment.

The second, more complex type is the **waggle dance** [7, p. 24], which is performed when the food source is located at a greater distance from the hive. In this dance, the bee moves in a straight line while vibrating its abdomen, then returns in a circular pattern. This behavior simultaneously conveys multiple types of information. The distance to the food source is indicated by the duration of the waggle phase, while the direction is encoded in the angle of the dance relative to the vertical surface. This orientation is aligned with the position of the sun, which bees calculate using their internal biological clock [7, p. 24].

Importantly, these communication forms are not merely innate reflexes but are shaped through individual experience. Each bee independently explores a food source and subsequently transmits this knowledge to the colony through dance. This indicates the presence of learning processes and mechanisms of social information transmission within bee societies.

Thus, the communication system of bees is multilayered and complex, playing a crucial role in organizing labor distribution, optimizing resource utilization, and maintaining social cohesion within the colony. This system allows bees to be understood not merely as biological organisms, but as highly organized social entities.

Furthermore, the sustainability and preservation of beekeeping within cultural memory are closely linked to family-based social structures and the division of labor within households. In Central Asia, particularly in Uzbekistan, this process represents a fundamental form of traditional labor culture, reflecting ecological awareness, harmony with nature, and an ethno-economic system developed over generations [2, p. 77].

Conclusion

The results of the study demonstrate that beekeeping has developed not merely as an economic activity throughout human history, but as a complex social, ecological, and cultural system. In particular, the nomadic and semi-nomadic forms of beekeeping in Central Asia represent a unique model of living in harmony with the natural environment. Through the practices of beekeepers, a traditional system of knowledge has emerged, aimed at maintaining the balance

between humans and nature, ensuring the rational use of resources, and supporting ecological sustainability. At the same time, the customs, beliefs, and ethical norms formed around beekeeping further reinforce its cultural and symbolic significance.

The mechanisms of mutual assistance, communication, and cooperation observed within bee societies indicate the existence of a highly organized social system. This allows bees to be understood not only as biological organisms, but also as complex social entities. In particular, the phenomenon of “social cleaning” behavior and the communication system based on dance illustrate a sophisticated model of collective cooperation and information exchange.

In general, beekeeping, from a historical and ethnological perspective, can be regarded as an important cultural phenomenon that reflects humanity’s experience of living in harmony with nature, the principles of social cooperation, and the development of ecological consciousness. The findings of this study highlight the necessity of approaching beekeeping not only as an economic activity but also as an ethnocultural system.

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