

*Original paper*

## Medieval beekeepers: style, clothing, implements (mid-11th–mid-15th century)

## Srědnjevěčni pčelari: stilj, oblěčenje, pribory (pol. 11 - pol. 15 stolěťja)

Sophia GERMANIDOU

Archaeologist, Greek Ministry of Culture, GREECE  
Email: sophiagermanidou@yahoo.gr

### ABSTRACT

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During the medieval period beekeeping practices, clothing and implements were depicted in many manuscript illuminations, constituting a body of information which, however, has not yet been fully appreciated. Many observations can be drawn on the beekeepers' figures, within a broad chronological (11th to mid-14th century), geographical (Constantinople, South Italy, present-day England, France, the Netherlands, Germany, Italy) and cultural framework (Byzantium, the West).

### ABSTRAKCIJNY

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V době srědnjevěčja pčelarske praktiky, oblěčenje i pribory byli pokazyvani na mnogyh ilustracijah rukopisov, itak tvorili grupu informacij ktore, jednakože, ne byli pòlno cěnjene. Iz figur pčelarev mogut byti izvedene mnoge nove observacije v širokyh sektorah: hronologičnom (od 11-ogo do poloviny 14-ogo stolěťja), geografičnom (Konstantinopolj, Južna Italija, tutdena Anglija, Francija, Niderlandy, Němcija, Italija) i kulturalnom (Bizancium, Zapad).

**Keywords:** medieval beekeepers, manuscript illuminations, Byzantium–South Italy–West (central Europe), protection, clothing, implements

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## Introduction

The relationship between humans and bees is as old as our natural need to consume sweet food. This is evident from the prehistoric depictions of apiculture, where the focus of interest lies in the ways in which people approached the bee nest. This process developed, slowly and gradually, into the means and methods of honey production and collection, and it was always dependent on the most important factor – the beekeeper.<sup>1-4</sup>

In this paper, a primary corpus of 25 medieval illustrations of beekeepers active at harvest is presented in a catalogue form. Each image is accompanied by the manuscript title, page number (not recorded for the Exultet parchment rolls), date, production area, style, and collection in which it is held or exhibited at present-day. All of them have three elements common in their iconographical synthesis: people, bees and the hive. The earliest illumination is a single Byzantine example dated to the middle or second half of the 11th century. Five miniatures belong to the Exultet rolls, produced in monasteries of South Italy from the early 11th to the early 12th century. They include a hymn, a part of which praises bees in terms of theological symbolism. Beekeeping illuminations in Latin (western) manuscripts are numerous; this is due to several reasons, particularly the explosion in the number of Bestiaries from the mid-12th century onwards. Ten of them, among the most notable ones of the Second and the Third Family, include a beekeeping scene. Other manuscripts are Psalters, the Hours, agricultural or medicine treatises. The mid-15th century is set as the conventional terminus of the study as henceforth, apiculture was undertaken on a more advanced “industry” scale, diverging essentially from the beekeeping practices of the previous medieval depictions.

## Catalogue of Illuminations

1. *Cynegetics of Pseudo-Oppian*, cod. Marc. Gr. 479, f. 62r, mid/second half of 11th century, Constantinople/Byzantine, Biblioteca Nazionale Marciana–Venice<sup>5</sup>

This is the earliest depiction of a beekeeper, situated in a Byzantine manuscript copied from a Roman-era archetype. It shows Aristeos, the inventor of beekeeping according to the Greek mythology, capturing a swarm and transferring it to a horizontal hive, probably of clay. He is wearing a tunic and his legs may be clad in hose.

The originality of the scene lies in the purpose-made net veil used as a mask protecting Aristeos’ face. This is an innovation attested here for the first time, at a particularly early date. This

important detail demonstrates that Byzantine apiculture was quite developed, at least as regards the beekeeper’s equipment and above all, his protection.

2. Exultet Bari 1, 1025-1034, South Italy/Byzantine, Archivio del Capitolo Metropolitano–Bari<sup>6</sup>

This is the earliest Exultet roll, famous and luxurious of its kind, with a strong Byzantine influence. The miniature is the first known depiction of a group of beekeepers, differentiated as to age, clothing and activity; the beekeeping duties seem to be clearly defined among them. The first figure on the right appears to be capturing a swarm, while the middle-aged bald man in the centre may be carrying the tools or collecting the honeycombs. The figure on the left is lively depicted in tense and motion, an impression heightened by his raised leg. He is whittling pieces off a wooden object with a knife: he may be carving a tree-trunk to make a hive. None of the men is protected by a face-mask, but their legs are covered by hose, monochrome for the two on either side and with a cross-hatched motif on the one in the middle. They are all wearing knee-length tunics, like Aristeos above in n. 1. The beekeepers’ equipment is completed by a large knife with a wide blade and a triangular point, ideal for harvesting honey, and large baskets for carrying combs or swarms.

3. Exultet Brit. Add. 30337 (Montecassino 1), 1080, South Italy, British Library–London<sup>6</sup>

An aged figure cuts combs from an open hive, probably made of wooden boards, and places them in an open vessel with a triangular shape. The resemblance between this vessel and those depicted in similar scenes from Pharaonic Egypt is striking –same goes for the pose of the man himself (see the vessels in the tomb 100 of Rekhmire at West Bank, Luxor, circa 1450 BCE, and same place and date, the vessels and the pose of figure at tomb 73)<sup>7</sup>. The facial features of the beekeeper, especially his white beard, scanty white hair and baldness, stress his advanced age combined with the lack of protective gear, may allude to his experience. His clothing is intriguingly colourful; blue tunic, red hose and faintly visible white footwear.



Fig. 1



Fig. 2



Fig. 3



Fig. 4

4. Exultet Mirabella 1, 11th century, South Italy, Biblioteca Nazionale–Naples<sup>6</sup>

The two beekeepers share common features with those of the previous manuscripts, in the task they are carrying out (removal of combs/harvesting), the tool they are holding (a short-bladed knife) and the clothes they are wearing (knee-length tunic and hose). They are also wearing an original tight headband covering their head and ears. Its effective protection is stressed in the image, as bees are shown flying round the figures' heads without causing them anxiety. As such an important detail of the beekeeper's attire is late to appear in medieval iconography, we believe that what is depicted here is indeed an innovation.

5. Exultet Vat. Lat. Barberini 592, 1070-1100, South Italy, Biblioteca Apostolica Vaticana–Vatican<sup>6</sup>

The miniature is considered to be a dynamic and at the same time realistic depiction of beekeeping, with a group of people involved, range of ages, division of tasks and variety of implements.

The image is divided in two pairs of laborers; on the left, an elder beekeeper as the most experienced one removes combs from the hive. He uses a knife with a short handle, a curved blade with a triangular point, holding the comb-collecting vessel in his other hand. A younger boylike figure is helping him, holding likewise a vessel with a handle, perhaps identified as the smoker. The middle-aged beekeeper on the right is cutting a branch on which a swarm has settled with a tool resembling a pruning knife, while the younger man leaves a wooden hive open for the swarm to fall in.

It is striking that the two figures on the right are barelegged and barefoot, unlike those on the left who are wearing black shoes and hose. The three younger men are wearing long, ankle-length tunics with long sleeves. The elder man on the left is reminiscent of the old beekeeper in no. 3; this may not be entirely due to the close dating or the common pictorial models. Many illustrations depict middle-aged beekeepers, differentiated from their younger helpers by their facial features or their outfit, indicating presumably to the viewers that harvesting honey was primarily a job for the elders, more experienced apiarists.

6. Exultet Pisa 2, 1000-1100, South Italy, Capitolo del Duomo–Pisa<sup>6</sup>

A beekeeper kneels to remove honeycombs from hives. He is holding a lit torch and placing the harvested combs in a vessel with a triangular base. He is wearing the typical knee-length, long-sleeved tunic, a tight black headband, and appears to be barefoot.

7. Bestiary, Brit. Add. 11283, f. 23v, circa 1170-1180, England/Romanesque, British Library–London<sup>8-11</sup>

This is the earliest Bestiary known to depict a human figure rather than just bees and hives. A young man is shown wearing a long tunic with a V-shaped neck, belted at the waist, being barefoot. He is represented defenceless and unprotected before the swarm flying at him aggressively. The fact that his young age is stressed may carry the message to the viewer that beekeeping was not an activity for the inexperienced ones: indeed, the bees seem to be punishing him by stinging his uncovered head and legs. However, the image may also be identified as a scene of a potential honey-thief, a common threat to beekeepers through the ages, even to the present day. The particular theme met repeated reproductions in medieval illuminations, as it must have served as a warning to rash intruders.

8. a, b. Bestiary, M 81, f. 58r, shortly before 1185, England (Lincoln or York)/Romanesque, Pierpont Morgan Library–New York<sup>12</sup>

The beekeeper in the miniatures is depicted middle-aged, protected with a broad-brimmed "plaited" hat, long-sleeved tunic and hose but he remains barefoot. He is unfolding a plain white drapery or probably a sack, from which he releases bees, one depicted entering the hive. This is probably representing a method of capturing a swarm and transferring it to the hive, often depicted in Western illustrations, evidently reflecting actual practices. On the other hand, such a method of introducing a swarm to a hive is unattested in Byzantium.

9. Bestiary, Fitzwilliam Mus. 254, f. 42v, 1220-1230, London region?/early Gothic, Fitzwilliam Museum–Cambridge<sup>13</sup>

In this miniature as well as the following one, the white drapery seems to be part of the beekeeper's clothing rather than a separate piece of equipment to guide the swarm into the hive. The leading beekeeper, apart from his long ankle-length tunic, black hose and low boots, is also wearing a peculiar black, conical, helmet-like hat, with an inner lining covering the ears and tied under the chin. Behind him, an assistant is



Fig. 5



Fig. 6



Fig. 7



Fig. 8a



Fig. 8b



Fig. 9



Fig. 10

clumsily trying to drive away the bees, which are advancing on him rather threateningly. He is holding a sickle, as attested in other miniatures of that period, for no apparent reason, as this implement was not used in beekeeping; perhaps it was used for cutting the surrounding vegetation. He is clad in differently to the foreground figure and on a smaller scale, stressing his role as a secondary figure.

10. Bestiary, Cambridge Kk 4. 25, f. 99, circa 1230, England/early Gothic, Cambridge University Library–Cambridge<sup>9,14</sup>

The illustration is almost contemporary with the above no. 9. Both of them belong to the Third Family of Bestiaries, a feature that may explain their close similarity.

11. Bestiary, Douai ms. 711, fol. 37r, circa 1270-75, France (Cambrai)/early Gothic, Bibliothèque municipale–Douai<sup>15</sup>

The miniature resembles the earliest Western one no. 7; both of them belong to the Second Family of Bestiaries. A young figure with evidently youthful characteristics such as the red cheeks and the slim build, is trying, uncovered and unprotected, to escape the bees after attempting to approach a hive. He may be also identified as a potential honey-thief.

12. Bestiary Fr. 1444, f. 260, circa 1285, northern France/Gothic, Bibliothèque Nationale–Paris<sup>16</sup>

The miniature diverges from the previous iconographical models. The beekeeper attempts to trap a swarm in a hive that resembles a skep held upside-down. He wears a long-sleeved, knee-length tunic and black hose. He is depicted moving with ease and confidence, without any protective gear.

13. Bestiary, Westminster 22, f. 30/36, 1275-1290, England/Gothic, Westminster Abbey Library–Westminster<sup>17</sup>

In this two-figure image the central one in the foreground may be female. If indeed so, she is, together with the female figure in no. 15, a major innovation in the history of medieval beekeeping illustrations. Following ancient, multicultural traditions and folk customs, women had been forbidden to take part in honey harvest. At the end of the 13th century, however, circumstances seem to have changed significantly, as women could now participate, even undertake the

leading role in apicultural practices. It has been argued that such a reversal took place not only in beekeeping but also in Western society as a whole, under the strong influence of pioneering theological catechisms and progressive social ideas which also affected the artistic field. The male figure in the background is holding a sickle, as in nos. 9 and 10, a group of illustrations that are all included in the Third Family of Bestiaries.

14. Bestiary, Gonville and Caius 384/604, f. 186v, 1275-1300, England/Gothic, Gonville and Caius College Library–(University of) Cambridge<sup>13,18</sup>

This is another illustration diverging from traditional models of medieval beekeeping iconography. A male figure is depicted probably feeding the bees syrup (?), an activity attested in no other miniature. His attitude and lack of protection indicate a characteristic familiarity with bees. He is dressed in the usual garb of long tunic with V-shaped neck and long sleeves.

15. Bestiary, Douce 88, f. 111v, late 13th or 14th century, England/Gothic, Bodleian Library–Oxford<sup>19</sup>

This is another two-figure scene with a central figure probably identified as a female (note the distinctive shoes) leading the unfolding of the drapery -which also covers her head- so as to free the swarm. A male figure in the background is holding a sickle, as in nos. 9, 10 and 13.

16. Isabella Psalter, gall. 16, f. 57r, 1308, England or France/ Gothic, Bayerische Staatsbibliothek–Munich<sup>20</sup>

The practice of capturing a swarm in a drapery or, more probably, into a sack and transferring it from a full hive to an empty one is depicted in this miniature. The beekeeper is protected by a wide hood and wears a long tunic. The footwear looks like the typical clogs, used primarily for protection of laborers in agricultural tasks.

17. Book of Hours (“The Maastricht Hours”), Stowe MS 17, f.148r,1310-1320, Netherlands (Liège)/Gothic, British Library–London<sup>21</sup>

A man is probably catching a free swarm in a white sack before placing it in a hive. The depiction of the beekeeper follows the typical iconographic patterns; long blue robe and black hose without any protective means.



Fig. 11



Fig. 12



Fig. 13

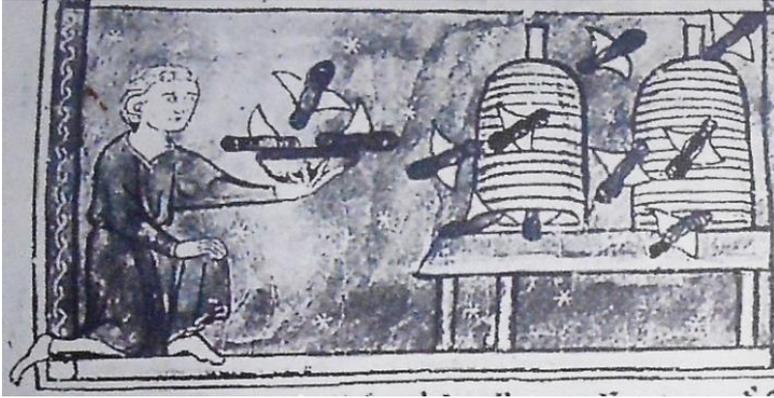


Fig. 14



Fig. 15



Fig. 16



Fig. 17



Fig. 18

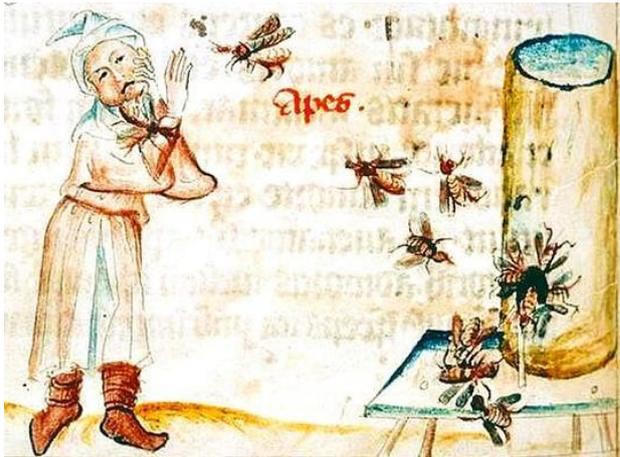


Fig. 19

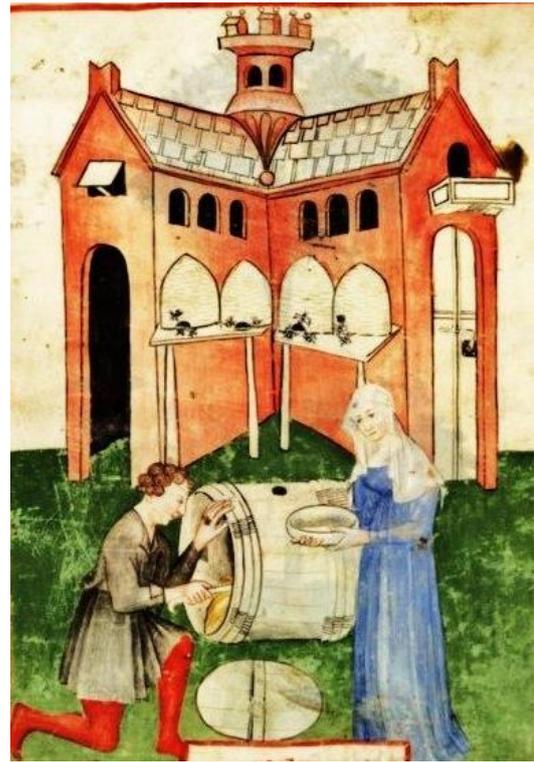


Fig. 20



Fig. 21



Fig. 23



Fig. 22



Fig. 24

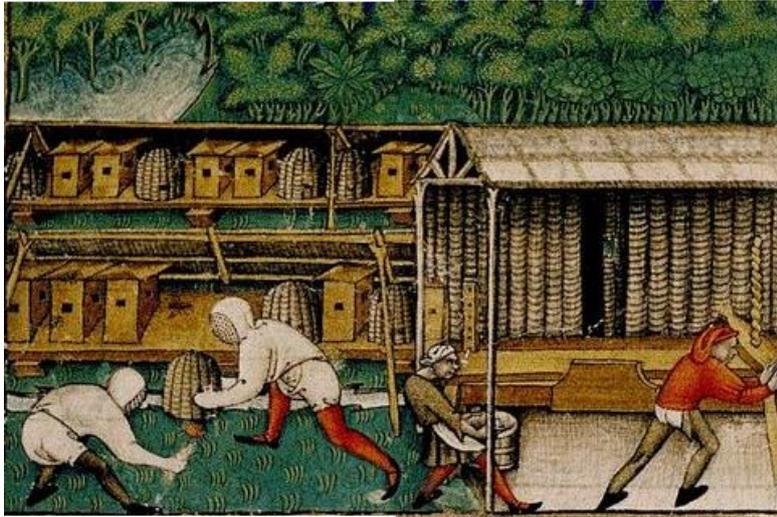


Fig. 25

18. Psalter, Douce MS 6, f. 136v, circa 1320-1330, Flanders (Ghent)/Gothic, Bodleian Library-Oxford

An ancient tactic is introduced in this miniature for the first time in medieval beekeeping iconography; the beekeeper is striking a flat drum, a practice known as tanging, in order to gather or settle the swarm into the hive<sup>22</sup>. The beekeeper is wearing a veil as face protection and a long garment that fully covers his body.

19. Concordantiae caritatis, Lilienfeld cod. 151, f. 81v, 1349-1351, Austria/Gothic, Stiftsbibliothek Lilienfeld-Lilienfeld<sup>22</sup>

The beekeeper's figure is completely different in features, garments and accessories comparing to the previous depictions. His only protection is a triangular hood wrapped around the neck like a cape. His brown boots are also unique in style. He is attributed agitated and somewhat vulnerable to the threatening bees.

20. Tacuinum Sanitatis 1673, f. 82, 1390-1400, Italian (Pavia or Milan)/early Renaissance, Bibliothèque Nationale-Paris<sup>23</sup>

The manuscript is an illustrated treatise that provides advice on health and well-being. The beekeeping miniature diverges from the usual medieval patterns; a man removes the honeycombs from a large barrel-hive while a woman holds a wide open dish to collect them in. New stylistic elements are introduced leading to a differentiated aesthetic; the calmness in movement and the composed attitude of the figures that are no longer depicted as peasants but rather as professionals, their refined clothing -particularly of the woman and the elaborate hairstyle of the man, the apiary in the background.

21. Dioscorides (Tractatus de Herbis), 1400, French/ early Renaissance, Biblioteca Estense Universitaria-Modena<sup>24</sup>

A woman beekeeper is depicted trying to protect herself from bees while handling hives. She is wearing a white headband, which is not protecting her from the bee stings. The figure appears to be young of age, reminiscent of the standard examples of young, inexperienced people being attacked by bees.

According to another interpretation, if the animal under the beehives is a bear, this may depict the young beekeeper's despair at finding her harvest destroyed and the consequent irritability and aggressiveness of the bees. Bears,

as widely known, were a serious threat to hives, causing great destruction to the stored honey.

22. Georgics and Eclogues of Virgil, Holkham Hall 307, 1400, French-Flemish/early Renaissance, Holkham Hall/Earls of Leicester Library-Norfolk<sup>1</sup>

The tanging practice first depicted in manuscript no. 18 in the early 14<sup>th</sup> century is also described in this illustrated Virgil's treatise. Although there are only two examples so far, it will eventually become common in later depictions. The protective hood of the beekeeper, attached to a cape he is wearing, is peculiar as it covers the whole head, perhaps with the part over his face remaining translucent. This is the first time that such a hood is attested in a beekeeping context.

23. The Pontifical of Saint Mary, Ms. 400, folio 14v, 1438-1460, northern Netherlands/early Renaissance, Utrecht University Library-Utrecht<sup>25</sup>

This miniature is quite exceptional because the beekeeping practice is used to express theological concepts; the beehives and the bees probably serve as a symbol of the Immaculate Conception. A woman is beating a drum, as the tanging practice depicted in nos 18 and 22. Although the face of the young woman is bare, her head and arms are covered by a hood and long sleeves. It should be noted that this is the first miniature to depict coiled straw skeps instead of the earlier, more common and widespread woven wicker ones, and indeed of particular construction - perhaps two-storey?

24. Bestiary, MMW 10 B 25, folio 37r, France/early Renaissance, circa 1450 Museum Meermanno, Hague-Netherlands<sup>27</sup>

As in nos. 6, 11 and 19 the miniature depicts either an inexperienced beekeeper or a potential honey-thief. The rendering of the figure is completely different, in a new artistic/ aesthetic style: his outfit -clothes and boots- is elegant and facial features are finer. As in other similar miniatures, the figure is wearing no protective gear other than a hat and boots, which, however, are not of beekeeper's attire but simply part of his costume.

25. Virgil's Georgics, Rawl. G. 98, Italian (Milan)/early Renaissance, mid-15<sup>th</sup> century, Bodleian Library-Oxford<sup>28</sup>

This last miniature is considered to be the conventional temporal and artistic terminus for the subject under examination: beekeeping is

now depicted on an industrial basis, taking place in a roofed workshop, with many beehives of two types and presses. Four people are actually working, with evidently well-defined duties (honeycomb removal/ harvesting, transporting in a basket and extraction of honey by pressing). The man on the left is even holding a lit rag, smoking or perhaps burning sulphur to kill the swarms, a widespread harvesting technique in the West. The men who actually harvest wear an outfit completely adjusted to beekeeping operational requirements: the tunic is transformed into a hooded breech “uniform”, with long sleeves covering the arms and hands like gloves. The face-mask is now shaped in the final form, the typical of beekeeping; with rigid wire oval frame probably crosshatched. Although it seems to be an easy-to-think solution, it came as the result of many centuries of experimentations (see no. 1).

From the mid-15th century onwards, apiculture as an iconographic theme will be diffused, inspiring not only manuscripts’ illuminations but also woodcarving, engraving, minor arts. Its peak may be represented by the famous Flemish painting of Pieter Brueghel the Elder “The Beekeepers and the Birdnester” (1568)<sup>27</sup>, in which realism and symbolism of the beekeeping activity are treated in a masterly way. Parallel to the new artistic models, that may have affected them, was the emergence of the Zeidler (Beekeepers’)<sup>1</sup> class in the West that evolved into a guild with established rights and a written charter around the middle of 14th century (rights of the Zeidler of Nuremberg Reichswald).

## Statistics & Closing Remarks

Through this brief overview of medieval beekeeping iconography various information can be classified, providing interesting key-points.

Table 1 shows that, in the 25 manuscripts examined, the majority of them are dated to the 13th and 14th centuries, and are therefore the product of Gothic art and aesthetics. Of the five Exultet rolls that form a single, independent category, one is of Byzantine influence. Regarding the crucial subject matter of the patterns, the models transfer and the scriptoria production, research is still in its preliminary stages. However, statistically it appears that northern England and France were the earliest and at the same time the prolific centres, before the Renaissance and the peak of Flemish art.

Table 2 lists the gender division and the encroachment of women in apiculture, a work sector previously considered prohibited. It is striking that it is only after the end of the 13th century women are depicted actively participating in the honey harvest. The artist’s decision to portray them would not evidently contradict social mores, overturning centuries-old traditions. Although the relevant scenes are limited, they are significant not only in the beekeeping context but also in the medieval western social standards.

Tables 3 and 4 depict the evolution of the beekeeper’s work outfit, protective measures and implements used. The face-mask was the earliest and most important innovation, represented in the unique Byzantine miniature no. 1, and resulted in the more advanced type of last no. 25. Nonetheless, based on the available illustrations

Tab. 1

| Manuscript style | Number | Date                                 | Area of origin  |
|------------------|--------|--------------------------------------|---|
| Byzantine        | 1      | Mid/ second half 11th c.<br>(no. 1)  | Constantinople  |
| Exultet          | 5      | 1025/34-1100<br>(nos 2-6)            | South Italy   |
| Romanesque       | 2      | 1170-1185<br>(nos 7,8)               | Northern England  |
| Gothic           | 11     | 1220/30–mid 14th c.<br>(nos 9-19)    | Northern England<br>France<br>Northern Italy<br>The Netherlands |
| Renaissance      | 6      | 1390/1400–mid 15th c.<br>(nos 20-25) | Northern Italy<br>Northern Holland<br>France<br>Flanders        |
| Total            | 25     |                                      |   |

very few people used it, since, as is in fact the case, an experienced beekeeper's familiarity with his swarm allowed him to work without a mask. This

baskets for transporting them. The inexplicable inclusion of a sickle would have been connected to some other agricultural task, probably

| <b>Tab. 2:</b>      | <b>Women<br/>(with male<br/>partners)</b> | <b>Women<br/>(single)</b> |       |
|---------------------|---|---------------------------|-------|
| Manuscript, numbers | 13,15,20                                  | 21, 23                    |       |
| Total               | 3   | 2                         | =5/25 |

| <b>Tab. 3 &amp; 4:</b>           |                               |                        |                               |
|----------------------------------|-------------------------------|------------------------|-------------------------------|
| <b>Head/face<br/>protection</b>  | <b>Manuscript<br/>numbers</b> | <b>Equipment/tools</b> | <b>Manuscript<br/>numbers</b> |
| 1. Veil                          | 1                             | 1. Knife               | 2,3,4,5                       |
| 2. Headband                      | 4,6                           | 2. Basket              | 2,12                          |
| 3. Hat and headband              | 9,10                          | 3. Smoker              | 5, 6(only smoke)              |
| 4. Hat                           | 8a,b                          | 4. Vessel (dish?)      | 3,5,6                         |
| 5. Cloth                         | 15                            | 5. Cloth               | 8a,b, 9,10,15,16,17           |
| 6. Hood                          | 16                            | 6. Sickle              | 9,10,13,15                    |
| 7. Translucent hood<br>with cape | 18,22                         |                        |                               |
| 8. Oval wire mask                | 25                            |                        |                               |
| Total                            | 11/25                         |                        | 13/25                         |

is highlighted by the clumsy way in which young, inexperienced beekeepers are portrayed approaching the hives and the risk they run. The hood mask covering the beekeeper's entire face in nos. 18 and 22 may not have proven functional and presumably reflects contemporary experimentation. Interestingly enough, it was associated with the practice of tanging.

Western illuminations also depict other means of protection such as broad-brimmed hats, although not as effective as the mask. The working outfit does not remain stable in either garments or colours; long tunics with long sleeves and hose are common. At the earliest miniatures, beekeepers are depicted barefoot but gradually they are portrayed even with fancy boots.

The few implements used remain exactly the same: short knives (except for the long pruning knife in no. 2) for removing the honeycombs and

weeding. The late depiction of tanging drums is linked to the revival of an ancient practice which may have been updated in the 15th century and used as an alternative to smoking, a primeval, widespread method impressively absent in medieval western apiculture (according to the relevant early medieval iconography).

The above remarks are representative of only a sample of interesting conclusions to be drawn from the study of medieval beekeeping iconography. A more detailed and complete corpus combined with a more in-depth and better-documented context will certainly reveal much more about apicultural laborers and the society in which they lived and worked.

### Acknowledgments

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## Notes & References

- <sup>1</sup> CRANE, E. The world history of beekeeping and honey hunting. London: Duckworth, 1999, 681 pp.
- <sup>2</sup> GERMANIDOU, S. Byzantine honey culture. Athens: NHRF, 2016, pp. 234 pp.
- <sup>3</sup> KRITSKY, G. Beekeeping from Antiquity through the Middle Ages. *Annual Review of Entomology*, 62(1), pp. 249–264, 2017.
- <sup>4</sup> HADJINA, F. MAVROFRIDIS, G. JONES, R. (eds). Beekeeping in the Mediterranean from Antiquity to the Present. *Proceedings. Syros*, 9-11, October 2014. Athens: Hellenic Apicultural Organization “Demeter” – Chamber of Cyclades – Eva Crane Trust, 157 pp.
- <sup>5</sup> SPATHARAKIS, I. The illustrations of the *Cynegetica* in Venice, cod. Marc. Gr. Z139. Leiden: Alexandros Press, 2004, pp. 181–182, fig. 128.
- <sup>6</sup> AVERY, M. The Exultet rolls of South Italy, II. Princeton: Princeton University Press, 1936, 206 pp.
- <sup>7</sup> Examples gathered in KRITSKY, G. The tears of Re: Beekeeping in Ancient Egypt. New York: Oxford University Press, 2015, 160 pp. Also CRANE, E. The World History of Beekeeping and Honey Hunting. London: Duckworth & Co, 1999, 690 pp.
- <sup>8</sup> For each miniature an extensive bibliography is provided by the library it now belongs. In this case:  
<http://bestiary.ca/manuscripts/manu980.htm>. The bibliography on Bestiaries is extremely extensive. Sample literature on: MCCULLOCH, F. *Mediaeval Latin and French Bestiaries*. Chapel Hill: University of North Carolina, 1960, pp. 1-204.
- <sup>9</sup> HASSIG, D. (ed). *The Mark of the Beast: The Medieval Bestiary in Art, Life, and Literature*. New York – London: Taylor & Francis, 1999, pp. 1-219.
- <sup>10</sup> CLARK, W. B. *A Medieval Book of Beasts: The Second-Family Bestiary*. Woodbridge: Boydell, 2006, pp. 1-344.
- <sup>11</sup> STEWART, P. *The Medieval Bestiary and its Textual Tradition*. Saint Andrews: University of Saint Andrews, 2012, pp. 1-337.
- <sup>12</sup> <http://corsair.themorgan.org/cgi-bin/Pwebrec.cgi?BBID=770> KAUFMANN, C.M. *Romanesque Manuscripts, 1066-1190*. London: H. Miller, 1975, pp. 1-235, no. 106.
- <sup>13</sup> <http://bestiary.ca/manuscripts/manubiblio938.htm>. MORGAN, N. *Early Gothic manuscripts (I): 1190-1250*. London: Oxford University Press, 1982, pp. 1-276, figs 184, 185.
- <sup>14</sup> <http://bestiary.ca/manuscripts/manubiblio946.htm>.
- <sup>15</sup> <http://bestiary.ca/manuscripts/manubiblio1541.htm>
- <sup>16</sup> <http://bestiary.ca/manuscripts/manubiblio1508.htm>
- <sup>17</sup> <http://bestiary.ca/manuscripts/manubiblio1023.htm>. ©Dean and Chapter of Westminster with personal thanks to Christine Reynolds. GEORGE, W. - YAPP, B. *The Naming of the Beasts. Natural History in the Medieval Bestiary*. London: Duckworth, 1991, pp. 1-231, figs. 158, 159.
- <sup>18</sup> <http://bestiary.ca/institutes/institutebiblio1327.htm>.
- <sup>19</sup> <http://bestiary.ca/manuscripts/manubiblio1192.htm>. ©Bodleian Library
- <sup>20</sup> STATON, A. R. The Psalter of Isabelle, Queen of England 1308-1330: Isabelle as the audience. *Word & Image. A Journal of Verbal/Visual Enquiry* 18(4), pp. 1-27. 2002.
- <sup>21</sup> [http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Stowe\\_MS\\_17](http://www.bl.uk/manuscripts/FullDisplay.aspx?ref=Stowe_MS_17)
- <sup>22</sup> MORGAN GRASSELLI, M. Taming the Bees: A Curious Apiarian Practice in a Drawing by Claude Simpol. *Master Drawings, Master Drawings Association* 47(4), pp. 443-446, 2009.
- <sup>23</sup> <http://www.symbolforschung.ch/Lilienfeld%20Concordantiae.html>
- <sup>24</sup> PARIS, H., DAUNAY, M.C., JANICK, J. The Cucurbitaceae and Solanaceae illustrated in medieval manuscripts known as the *Tacuinum Sanitatis*. *Annals of Botany* 103, pp. 1187 – 1205, 2009.
- <sup>25</sup> [https://manus.iccu.sbn.it//opac\\_SchedaScheda.php?ID=216637](https://manus.iccu.sbn.it//opac_SchedaScheda.php?ID=216637)
- <sup>26</sup> <http://bc.library.uu.nl/controversial-pontifical.html>
- <sup>27</sup> <http://manuscripts.kb.nl/search/literature/10+B+25>
- <sup>28</sup> The literature on this famous yet still enigmatic painting is extended. For the the beekeeping context and in short, the symbolic message it echoes see CANILLAS, F. Pieter Bruegel the Elder. *The Beekeepers and the Birdnester* c.1568. *Occupational Medicine* 67(5), pp. 334–335, 2017.