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A Deposit of Floral and Vegetative Bouquets at Dra Abu el-Naga (TT 11)

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A Deposit of Floral and Vegetative Bouquets at Dra Abu el-Naga (TT 11)

AHMED FAHMY, JOSÉ M. GALÁN, RIM HAMDY

Archaeological Context

A Spanish-Egyptian mission has been working since January 2002 at the rock-cut tomb-chapel of Djehuty (TT 11), Overseer of the Treasury and Overseer of Works under Hatshepsut-Thutmosis III (*c.* 1480 a. C.).[1] The funerary monument is located in the central area of Dra Abu el-Naga, at the northern end of the Theban necropolis. Due to its foothill location, the courtyard lay under more than five meters of rubble. Scattered randomly and mixed up within this rubble were a large number of objects, including the remains of funerary equipment from various periods coming from burials in the vicinity.[2] It took five seasons of fieldwork to bring to light the entire floor of the courtyard.

The open courtyard measures 34m in length and is 7.60m wide. It is to the present day, the longest of its type preserved from the time of Hatshepsut-Thutmosis III.[3] The courtyard floor

1 For a summary of the recent history of the tomb, see J.M. Galán, "The Tombs of Djehuty and Hery (TT 11-12) at Dra Abu el-Naga", in J.-Cl. Goyon, Chr. Cardin (eds.), *Proceedings of the Ninth International Congress of Egyptologists*, *OLA* 150, 2007, p. 777-787; J.M. Galán, "Early Investigations in the Tomb-Chapel of Djehuty (TT 11)", in D. Magee, J. Bourriau, St. Quirke (eds.), *Sitting beside Lepsius: Studies in Honour of Jaromir Malek at the Griffith Institute*, *OLA* 185, 2009, p. 155-181.

2 For some of the objects found during the excavation of the debris at the entrance of TT 11-12, see J.M. Galán, Fr. L. Borrego, "Funerary Cones from Dra Abu el-Naga (TT 11-12)", *Memnonia* 17, 2006, p. 195-208, pl. 33-39; J.M. Galán, "An Apprentice's Board from Dra Abu el-Naga", *JEA* 93, 2007, p. 95-116, pl. 2-3; M.-J. López, E. de Gregorio, "Two Funerary Pottery Deposits at Dra Abu el-Naga", *Memnonia* 18, 2007, p. 145-156, pl. 31-35; G. Menéndez, "Figured Ostraca from Dra Abu el-Naga (TT 11-12)", *SAK* 37, 2008, p. 259-275; J.M. Galán, "Seal Impressions from the area of TT 11-12 in Dra Abu el-Naga", *Memnonia* 19, 2008, p. 163-178, pl. 25-31.

3 J.M. Galán, "Tomb-Chapels of the early XVIIIth Dynasty at Thebes", in J. Mynarova, O. Pavel (eds.), *Thebes. City of Gods and Pharaohs/Theby. Mesto bohu a faraonu*, Prague, 2007, p. 88-101.

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next to the façade was carefully cut into the bedrock. However, as the hill slope maintains its degree of inclination, the rock sinks below the floor's level at a distance of 12m away from the façade. Thus, in order to reach the court's entrance, the remaining area was filled and levelled with limestone chips and rubble; it was completely covered with sand and pressed hard to make an artificial floor ("*dakka*"). The area was then coated with the same carbonated mud mortar that was used for the inner face of the court's mud-brick sidewalls and small entrance-pylon.

The courtyard was later extensively re-used, particularly in the 20th-21st Dynasties (*c.* 1000 BC). An untouched wooden coffin was found 9m away from the façade, close to the north/east sidewall of the court. It was left undecorated, coated with a layer of whitewash, and only the eyes and eyebrows were painted in black. The style of the wood carving can be dated to this period. Inside, a woman in her late twenties was resting on her back, bandaged and covered with a linen shroud.[4] The coffin was carefully placed on the ground, only 30cm above the court's floor level; it was then covered with a heap of rubble forming a rough *tumulus*.

A group of four individuals were found buried next to each other under a second *tumulus*, built with stones, relief fragments, mud-bricks, planks of coffins, etc., 24m from the façade, close to the south/west sidewall of the court. Two of them, males aged in their mid-twenties and late thirties, had painted anthropomorphic coffins of late 21st Dynasty style. The technique of mummification however, seems to point to a slightly later date, although definitively within the Third Intermediate Period. A third male in his forties, was wrapped in a shroud and left on the ground without a coffin. The fourth individual was an infant, about five years old, who was placed inside a modest, rectangular wooden box. The group were located on the ground, again approximately 30cm above the court's floor level.[5]

During the sixth archaeological season, conducted in January-February 2007, a small pit was found in the middle of the court, at a distance of 22m from the façade. Its mouth opened practically at the floor level, measuring 1.10 × 1.30m, the pit's depth being 0.70m (fig. 1). It primarily contained pottery vases and flower bouquets. All vessels apart from one were broken into pieces. Some were dumped in already broken, while others seem to have been smashed against some mid-sized stones that had been previously thrown inside. Everything seems to indicate that, in one way or another, the vessels were intentionally broken. We were able to put together seven tall containers, and thirty-three medium size closed-form jars of one and a half litre capacity. Most of them are Nile silt daily use ware, dating to the 20th-21st Dynasty.[6] Mixed with the fragmented pottery were at least fifty flower bouquets, which constitute the main focus of the present article and will be discussed in detail below.

4 The mummified remains and bones have been studied by Salima Ikram and Roxie Walker.

5 J.M. Galán, "Excavations at the Courtyard of the Tomb of Djehuty (TT 11)", in P. Kousoulis (ed.), *Tenth International Congress of Egyptologists*, *OLA*, in press.

6 Three tall containers are made of Marl D clay. The bases of twenty-four more jars were also recovered, together with fragments of three bowls and more than twelve plates. A study of the pottery can be found in M.-J. López, E. de Gregorio, "Pottery vases from a deposit with flower bouquets found at Dra Abu el-Naga", in P. Kousoulis (ed.), *Tenth International Congress of Egyptologists*, *OLA*, in press.

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Aside from pots and bouquets, part of the lower half of a sandstone seated-statue painted in white was found at the top of the pit. On the preserved side of the chair, a young woman is depicted holding a lotus flower. The style of her painted facial traits dates the statue to the mid 18th Dynasty. Part of a thick rope and small pieces of linen were also unearthed. Fragments of two types of wooden coffins were thrown inside: one used yellow as back-ground colour with bands and signs painted in light blue; while the second type, of a lesser quality wood, was painted in black with yellow figures and text. A small number of bones belonging to two different human beings were also found: the right hip bone of a male adolescent, and a broken mandible, a broken right scapula, left and right hip bones, right tibia and right fibula of a male individual between 25 and 35 years of age. At the very bottom of the pit, fragments of worn papyrus were recovered, but no clear writing traces could be seen.

This deposit is certainly not a 'foundation deposit', despite the fact that bundles of persea and sycamore branches were part of one of the five foundation deposits at the entrance of Senenmut's lower tomb (TT 353).[7] There are several possible explanations for the ensemble, which may actually be just pictorial variants of the same idea and funerary custom. It could be the consequence of removing and hiding away what the relatives and friends would have carried with them during the funerary procession and placed near the burial ground. An illustration of this custom may be found, for instance, in the tomb of Ramose (TT 55), where a group of men are depicted carrying flowers in baskets and vases hanging in a rope-net while approaching the tomb at the funerary precession.[8] Indeed, flower-stands were set up at the entrance of the tomb at the time of the funeral, as depicted in tomb scenes of the 18th Dynasty and in funerary papyri.[9] The deposit might also be related to a ritual described in the tomb of the general Horemheb at Saqqara and other contemporary monuments, where mourners are shown breaking vases next to flower stands.[10] When cleaning out the area after the ceremony other small random objects regarded as rubbish could have been swept into the pit.

Through the date of the pottery, it is clear that the deposit should not be associated with Djehuty's funeral or a later commemorative celebration or ritual on his behalf. It seems reasonable to relate it to a re-use of the courtyard with funerary purposes about five hundred years later, at the end of the Ramesside Period or early Third Intermediate Period. It could have

7 P.F. Dorman, *The Tombs of Senenmut: The Architecture and Decoration of Tombs 71 and 353*, *MMAEE* 24, 1991, p. 152 n. 441, pl. 88b-c, 90b-c, 93h. See also J.M. Weinstein, *Foundation Deposits in Ancient Egypt*, University of Pennsylvania Ph.D. dissertation, 1973.

8 N. de G. Davies, *The Tomb of the Vizier Ramose*, London, 1941, p. 25, pl. 25; C. Wilkinson, M. Hill, *Egyptian Wall Paintings. The Metropolitan Museum of Art's Collection of Facsimilies*, New York, 1983, p. 33.

9 See, for instance, the vignette in the Book of the Dead papyrus of Nebqed, now kept at the Louvre Museum (AE/N 3068): É. Naville, *Das aegyptische Totenbuch der XVIII. bis XX. Dynastie*, Berlin, 1886, I, pl. 4.

10 G.T. Martin, *The Memphite tomb of Horemheb commander-in-chief of Tutankhamun, I: The reliefs, inscriptions, and commentary*, *MEES* 55, 1989, p. 100-102, pl. 118-24. See also the relief from the tomb of Ptahemhat in Saqqara, and now in Berlin Museum, no. 12411: K.-H. Priese (ed.), *Ägyptisches Museum und Papyrussammlung*, Mainz am Rhein, 1991, p. 136-138 (no. 82). See recently on the topic V. Müller, "Bestand und Deutung der Opferdepots bei Tempeln, in Wohnhausbereichen und Gräbern der Zweiten Zwischenzeit in Tell el-Dabʿa", in H. Willems (ed.), *Social Aspects of Funerary Culture in the Egyptian Old and Middle Kingdoms*: *Proceedings of the international symposium held at Leiden University 6-7 June, 1996*, *OLA* 103, 2001, p. 175-204. M. Raven showed similar scenes and archaeological material related to this ritual in his communication at the Tenth International Congress of Egyptologists, entitled "The tomb of Akhenaten's royal butler Ptahemwia at Saqqara".

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been somehow connected to the nearby and contemporary burial of four individuals covered by a rough *tumulus*. It is, however, difficult to point out with certainty one particular event and/or one burial and the material culture associated with it.

While garlands are commonly found on coffins, statues and in deposits of various sorts,[11] bouquets are more rarely found. It will suffice to point out here a couple of examples: sycamore and persea branches were found at the tomb of Kha,[12] and Amun priests of the 21st Dynasty placed a persea bouquet on the coffin of Queen Merytamun when they entered her tomb to restore the damage done by robbers.[13] The deposit studied in the present article is probably the largest group of vegetative bouquets ever found, and it may constitute the archaeological evidence of a practice well documented in iconography. Its significance increases by the presence of olive branches among the plants used to form the bouquets.[14] What follows next is a study of the floral bouquets and some archaeobotanical considerations on the deposit.

Previous Studies on Floral Bouquets

Ancient Egyptians valued flowering plants for their beauty as well as for sacred and symbolic qualities; bouquets, garlands and collars of fresh flowers were made for use on religious and festive occasions.[15] Their approach to constructing bouquets and garlands developed through different stages with the passing of time[16]. In the Predynastic Period they were primitive in structure, containing flowering branches of one plant species. Recent archaeobotanical studies from the Predynastic site of Hierakonpolis[17] show examples of the use of garlands at the non-elite cemetery HK43, where long floral branches of *Ceruana pratensis* Forssk were found *in situ* around the neck of an intact body dated to Naqada II (*c.* 3800-3650 BC). During the Old and Middle Kingdoms formal bouquets of arranged and mounted flowers tied together existed in a rudimentary form, as simple bunches of *Nymphaea* and *Papyrus* offered to the tomb owners.[18] The great development of floral wares in ancient Egypt was led by the upper classes at the beginning of the New Kingdom, when simple floral offerings were largely superseded by much more elaborate, artificial and formal bouquets.[19] *Papyrus Harris* specifies, among the list of dues to be paid to the god Amun and other gods, a large number of different types of

11 The number is large, but see for instance, E. SCHIAPARELLI, *Relazione sui lavori della missione archeologica italiana in Egitto (anni 1903-1920), II: La tomba intatta dell'architetto Cha nella necropoli di Tebe*, Turin, 1927, p. 20, 64, fig. 15, 21, 22, 25, 32-36, 38; A. and A. BRACK, *Das Grab des Tjanuni. Theben Nr. 74*, *AV* 19, 1977, p. 67, pl. 48d; H.E. WINLOCK, *Materials used at the Embalming of King Tut-ankh-Amun*, *MMA Papers* 10, 1941, p. 17-18, pl. 6; H.E. WINLOCK, *The Tomb of Queen Meryet-Amun at Thebes*, *MMAEE* 6, 1932, p. 51-52, pl. 43-46.

12 SCHIAPARELLI, *La tomba intatta dell'architetto Cha*, p. 11, 166, fig. 10, 12, 15, 152.

13 WINLOCK, *Tomb of Queen Meryet-Amun*, p. 52, pl. 12(A), 46.

14 M. SERPICO, R. WHITE, "Oil, fat and wax", in P.T. Nicholson, I. Shaw (eds.), *Ancient Egyptian Materials and Technology*, Cambridge, 2000, p. 398-401.

15 L. MANNICHE, *An Ancient Egyptian Herbal*, London, 1989, p. 22.

16 The development of bouquets through time deserves a thorough study, which exceeds the scope of the present report. See, L. KEIMER, "Egyptian formal bouquets (Bouquets montés)", *AJSL* 41, 1925, p. 145-161.

17 A. FAHMY, R. FRIEDMANN, M. FADL, "Archaeobotanical studies at Hierakonpolis Locality HK6: the pre and early dynastic elite cemetery", *Archeo-Nil* 18, 2008, p. 169-183.

18 H.J. KANTOR, *Plant Ornament in the Ancient Near East*, Chicago, 1999, p. 203-204.

19 H.J. KANTOR, *loc. cit.*

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floral bouquets, the main ones being the "tall bouquets" and the "flowers for the hand". In figurative representations from temples and tombs, the large staff bouquets, often as tall as their human bearers, are sharply distinguished from the smaller, formal bunches of flowers, frequently shown held in the hand. It is indeed, tempting to identify these two categories as illustrations of the terms used in the *Papyrus Harris*. Anyhow, the very multiplicity of types cited in the papyrus is proof that the florist's trade was highly developed at this time.[20]

Floral bouquets retrieved from archaeological sites in Egypt have attracted botanists to study what components of botanical material, structure as well as wrapping technique might have been used. Schweinfurth studied the bouquets collected by Maspero from Gebelein and by Schiaparelli from Dra Abu el-Naga, dating to the Graeco-Roman Period.[21] These bouquets were formed from leafy branches of *Olea europaea* L. and *Mimusops laurifolia* (Forssk.) Friis tied with strips of *Phoenix dactylifera* L. and *Hyphaene thebaica* (L.) Mart. From Dra Abu el-Naga he reported bouquets formed from five heads of *Sphaeranthus suaveolens* (Forssk.) DC. He also studied floral bouquets dating to the early 18th Dynasty from Ineni's tomb. Bonnet studied floral bouquets from Sheikh ʿIbada, dating to the 2nd and 3rd centuries AD, which were formed from flowering branches of *Sesbania sesban* (L.) Merr., leafy branches of *Vitis vinifera* L., *Citrus medica* and leaflets of *Phoenix dactylifera* L.[22] A number of floral bouquets were discovered at the archaeological site of Hawara, also dating to the 2nd and 3rd centuries AD. Both Keimer and years later Germer investigated this botanical material and noted that they were formed from *Scirpus* or *Cyperus* culms, petals of *Punica granatum* L. and *Rosa sancta*.[23]

Barakat and Baum described thirty-five bouquets from Douch from the 1st century AD and classified them into seven types based on plant constituents and the method used in wrapping them.[24] They included leafy branches of *Olea europaea* L., *Vitis vinifera* L., *Malus sylvestris* (L.) Mill, *Cordia myxa* L. and *Punica granatum* L., as well as four plants belonging to the family Lamiaceae (*Thymus bovei Benth., Rosmarinus officinalis* L., *Origanum majorana* L. and *Stachys aegyptiaca* Pers.). Leaflet strips of *Phoenix dactylifera* L. were used for wrapping these bouquets.

Hamdy classified forty-six floral bouquets kept in Egyptian museums into thirteen large and thirty-three small bouquets.[25] The large floral bouquets are 1 m in length with a support constructed from culms of *Cyperus papyrus* L., *Phragmites australis* (Cav.) Trin. ex Steud. and solid axes of *Phoenix dactylifera* L. The leafy branches include *Mimusops laurifolia* in twelve bouquets, associated with *Vitis vinifera* in nine of them, bound with leafy strips of *Hyphaene thebaica* and recovered from the archaeological site of Deir el-Medina (19th-20th Dynasties). In the case of those from the tomb of Tutankhamun (18th Dynasty), three similar bouquets were found; however, they were arranged with *Olea europaea* L., and leafy branches and leaflet strips of *Phoenix dactylifera* L.

20 P. Grandet, *Le Papyrus Harris I (BM 9999)*, *BdE* 109, 1994, I, p. 197, 251; II, p. 98-100, n. 398-410; Kantor, *op. cit.*, p. 206-207.

21 G. Schweinfurth, "Les dernières découvertes botaniques dans les anciens tombeaux de l'Égypte", *BIE* 6, 1885, p. 256-283.

22 Ed. Bonnet, "Plantes Antiques des Nécropoles d'Antinoë", *Annales du Musée Guimet* 30, 1902, p. 153-159.

23 Keimer, *AJSL* 41, p. 156-157; R. Germer, *Katalog der altägyptischen Pflanzenreste der Berliner Museen, ÄA* 47, 1988.

24 H.N. Barakat, N. Baum, *La végétation antique de Douch (Oasis de Kharga): une approche macrobotanique*, *DFIFAO* 27, 1992, p. 1-99.

25 R. Hamdy, *Documentary and ethnobotanical studies of floral bouquets and garlands in Egypt since the 18th Dynasty (1400 BC)*, Cairo University Ph.D. dissertation, 2003, p. 227.

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The small bouquets are 50cm in length without a support, consisting of leafy and flowering branches in one of the examples, with more species bound by culms or leaflet strips. Leafy twigs of *Mimusops laurifolia* (Forssk.) Friis were the main constituent in fifteen bouquets, while leafy branches of *Vitis vinifera* were present in seven, *Olea europaea* L. in three, and *Laurus nobilis* L. and *Mimusops* sp. in two. Meanwhile, leafy branches of *Salvadora persica* L., *Ceruana pratensis* L., *Sphaeranthus suaveolens* (Forssk.) DC., *Cordia myxa* L. and *Lawsonia inermis* L. were used in only one of the bouquets. *Mimusops laurifolia* (Forssk.) Friis and *Vitis vinifera* L. were recovered essentially from archaeological contexts dated to the New Kingdom, while *Olea europaea* L. from contexts dated to the Roman Period.

Bouquets from the Courtyard of TT 11

The botanical material from the courtyard of TT 11 at Dra Abu el-Naga was desiccated and well preserved inside a dump pit. Fifty floral bouquets were carefully retrieved and individually wrapped gently in acid free paper, then placed upon harder paper for support. Each bouquet was investigated using a 10x hand lens. Identification was conducted using the floras of Egypt, Yemen, and Palestine.[26] Digital images of macro remains of every plant were taken in order to check and confirm the identification using the reference collection at the Botany Department of the University of Helwan and the Cairo University Herbarium.

The size of the bouquets ranges between 20 and 60cm in length. Therefore, they have been attributed to the small size category suggested by Hamdy. Vegetative and floral branches of five species were used in arranging the floral bouquets; namely, *Cordia myxa* L., *Mimusops laurifolia* (Forssk.) Friis, *Olea europaea* L., Rosaceae and *Vitis vinifera* L., while leaflet strips of *Phoenix dactylifera* L. and culms of cereals were used in wrapping the bouquets. The majority of the bouquets (98%) are simple in structure, including one species and wrapped with leaflet strips of date palm. Few of them (2%) included two plant species wrapped with date palm leaflets. Morphological investigation of this botanical material resulted in recognizing five types of bouquets.

- Type I Persea, *Mimusops laurifolia* (Forssk.) Friis [FIG. 2-3]

Type I includes thirty-four bouquets of leafy or flowering branches of persea [*Mimusops laurifolia* (Forssk.) Friis]. The branches were tied together using leaflet strips of date palm (*Phoenix dactylifera* L.): one bouquet was found wrapped at one end, nine at the middle, three were wrapped all over, while nineteen were wrapped between one end and the middle section. Additionally, persea leafy branches were tied together using a cereal culm in two of the bouquets: one wrapped at one end and the other at the middle (see fig. 2, Type I. 4-5).

26 L. BOULOS, *Flora of Egypt*, I, Cairo, 1999, p. 419; II, Cairo, 2000, p. 352; J.R. WOOD, *A Handbook of the Yemen Flora*, Kew, 1997, p. 434; M. ZOHARY, *Flora Palaestina*, Jerusalem, 1966, 1972.

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- Type II Assyrian plum, *Cordia myxa* L. [FIG. 4]

Eleven bouquets comprise of leafy and flowering branches of Assyrian plum (*Cordia myxa* L.). They were tied together using date palm leaflet strips (*Phoenix dactylifera* L.). The Assyrian plum leafy branches were found detached in four bouquets, three were wrapped at one end, three at the middle and another was wrapped all over.

- Type III Olive, *Olea europaea* L. & Rosaceae [FIG. 5]

Olive (*Olea europaea* L.) and Rosaceae leafy branches tied together using date palm (*Phoenix dactylifera* L.) with leaflet strips were recorded in three bouquets. One bouquet was wrapped at one end, one at the middle, while the third was found unwrapped.

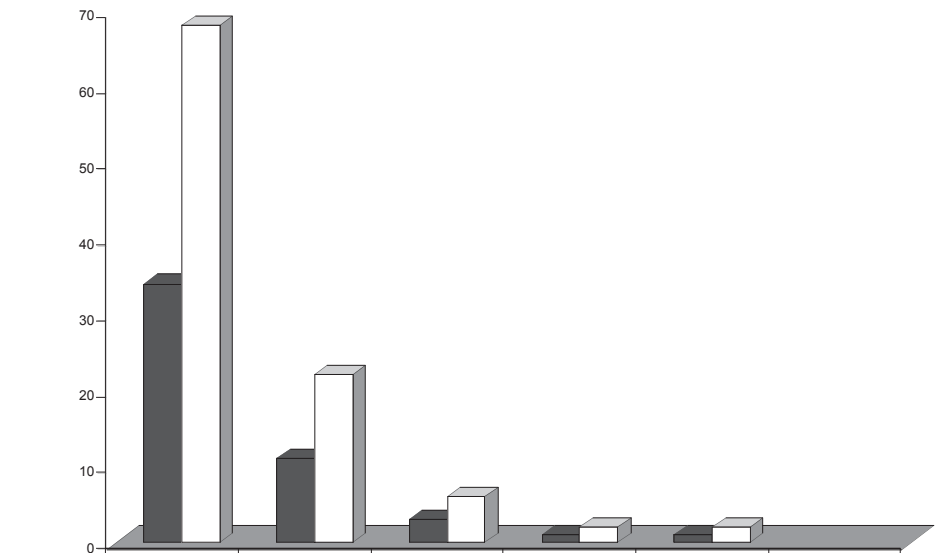
- Type IV Rosaceae [FIG. 6]

A bouquet formed of leafy branches of a Rosaceae plant tied together at the middle using date palm (*Phoenix dactylifera* L.) with leaflet strips. The material is yet to be attributed to the species level.

- Type V: Grape vine, *Vitis vinifera* L. [FIG. 6]

A bouquet formed of leafy branches of vine (*Vitis vinifera* L.) was recorded.

The following chart shows that the types of the floral bouquets under study are dominated by Type I [Persea, *Mimusops laurifolia* (Forssk.) Friis], making up 68% of the sample. Type II (Assyrian plum, *Cordia myxa* L.) and Type III (Olive, *Olea europaea* L. & Rosaceae) are represented by 22% and 6% respectively, while Type IV (Rosaceae) and Type V (Vine, *Vitis vinifera* L.) only occurred in 2% of the sample.



	Type I	Type II	Type III	Type IV	Type V	
■ Numbers	34	11	3	1	1	
□ Percentages	68	22	6	2	2	

Histogram of numbers and percentages of bouquet types discovered at Dra Abu el-Naga, TT 11.

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Leaf strips of date palm were used to wrap forty-seven floral bouquets, i.e. 95% of the total number. This implies that date palm trees grew locally in this area during the 20th-21st Dynasties. The identification criteria of these leaflet strips were based on anatomical features examined at a surface view of the epidermis. The leaflet was striped in parallel bands of different width. In the broad bands the stomata was regularly arranged in parallel rows. The narrow bands or veins alternating with the broad ones were devoid of stomata. These anatomical features differentiate leaflets of date palm (*Phoenix dactylifera* L.) from other palm leaflets like doum palm (*Hyphaene thebaica* L. Mart.) and argun palm (*Medemia argun* Wurtt. Ex H.A. Wendl.).

Three persea bouquets were wrapped with culms of cereals. During this period, emmer wheat (*Triticum dicoccum* Schrank) and barley (*Hordeum vulgare* L.) were cultivated intensively. The cereal culm material could have originated from one of these important cereal crops.

Most bouquets found at the courtyard of TT 11 carry leaves at both sides of the knot. It can thus be deduced that they were not meant to be displayed in vases with water. They might have been carried in the hand or in baskets and placed on the ground or on a stand during a funerary ceremony.

Archaeobotanical Records

This section presents previous archaeobotanical accounts of the plants that have been used in making the floral bouquets found inside the pit at the courtyard of TT 11.

1. Sapotaceae. Persea: *Mimusops laurifolia* (Forssk.) Friis;[27]
   Binectaria laurifolia Forssk.;[28] *Mimusops schimperi* Hochst.[29]

The persea tree was introduced and henceforth cultivated in Egypt from the heights of Ethiopia and Yemen.[30] The earliest record of persea comes from a 3rd Dynasty context in Saqqara, the tomb of Djoser, where the fruits were deposited as offerings.[31] Available evidence suggests that from the 12th Dynasty onwards leaves and twigs of persea were used in making funerary garlands and floral bouquets, including those of Tutankhamun.[32] All leaves used in making such garlands were fresh, as the leaves were folded and sewn into these garlands, furthermore

27 I. Friis, "The taxonomy and distribution of *Mimusops laurifolia* (Sapotaceae)", *Kew Bulletin* 35, 1981, p. 787.

28 P. Forsskal, *Flora Aegyptiaco-Arabica*, Uppsala, 1775, cx. no. 252.

29 A. Rich, *Tentamen Flora Abyssinica*, 1850, II, p. 22.

30 R. Germer, *Flora des pharaonischen Ägypten*, *SDAIK* 14, 1985, p. 148; F.N. Hepper, *Pharaoh's Flowers. The Botanical Treasures of Tutankhamun*, London, 1990, p. 15; M.A. Murray, "Fruits, vegetables, pulses and condiments", in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*, p. 609-655. For the identification of the persea tree with an Egyptian term see N. Baum, *Arbres et arbustes de l'Égypte ancienne. La liste de la tombe thébaine d'Ineni (n° 81)*, *OLA* 31, 1988, p. 87-90.

31 J.-Ph. Lauer, V.L. Tackholm, E. Aberg, "Les plantes découvertes dans les souterrains de l'enceinte du roi Zoser à Saqqarah (III^{e} dynastie)", *BIE* 32, 1950, p. 121-157; Germer, *Flora des pharaonischen Ägypten*; Murray, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*.

32 V.L. Täckholm, "Botanical identification of the plants found at the Monastery of Phoebammon", in C. Bachatly (ed.), *Le Monastère de Phoebammon dans la Thébaïde*, *PSAC* Cairo, 1961, III, p. 3-36; A. Lucas, *Ancient Egyptian Materials and Industries* (4th ed. rev. J.R. Harris), London, 1962; R. Germer, *Die Pflanzenmaterialen aus den Grab des Tutanchamun, HÄB* 28, 1989; Hepper, *Pharaoh's Flowers*; Murray, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*; Chr. de Vartavan, V. Asensi-Amorós, *Codex of Ancient Egyptian Plant Remains: Triade Exploration*, London, 1997.

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providing clear evidence that trees were grown locally.[33] Persea trees became endangered in Egypt during the Graeco-Roman Period[34] and were extinct by the 18th century AD.[35]

2. Boraginaceae. Assyrian plum: *Cordia myxa* L.[36]

This Assyrian plum tree originated in the Indian sub-Himalaya.[37] Barakat and Baum reported that trees of *Cordia myxa L.* still grow in the oasis and at Gebel Elba.[38] Boulos, however, has confirmed that wild trees of *Cordia sinensis* Lam. are growing in these regions and not *Cordia myxa* L.[39]

There is no accurate date as to when this tree was cultivated in Egypt. The fruits were known from the 3rd Dynasty onwards, based on a record from the step pyramid of Djoser at Saqqara.[40] Leafy branches with fruits attached have been recorded since the Middle Kingdom until the Islamic Period.[41] Germer has assumed that Assyrian plum was cultivated in Egypt sometime during the 18th Dynasty.[42]

3. Rosaceae

The archaeobotanical record of the family Rosaceae in ancient Egypt includes nine taxa.[43] Twigs of *Rosa richardii* Rehd. and *Malus* sp. were used in making garlands and bouquets during the Graeco-Roman Period.

4. Oleaceae. Olive: *Olea europaea* L.[44]

Olive seems to have been cultivated in Egypt during the New Kingdom.[45] Germer believes that it had been introduced from Palestine into Egypt before the 18th Dynasty.[46] Floral bouquets of this plant were found in the tomb of Tutankhamun, which seems to be an indication that it was cultivated locally.[47]

5. Vitaceae. Grape vine: *Vitis vinifera* L.[48]

The grape vine could have originated in the Syria-Palestine region.[49] It seems most likely that the domesticated grape was introduced into Egypt from the Levant at least as early as

33 Murray, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*, p. 609-655.
34 Germer, *Flora des pharaonischen Ägypten*, p. 149.
35 Murray, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*, p. 609-655.
36 C. Linnaeus, *Species Plantarum*, Stockholm, 1753, I, p. 190.
37 Germer, *Flora des pharaonischen Ägypten*, p. 159.
38 Barakat, Baum, *La végétation antique de Douch*, p. 1-99.
39 L. Boulos, *Flora of Egypt*, Cairo, 2000, II, p. 352.
40 Täckholm, in Bachatly (ed.), *Le Monastère de Phoebammon dans la Thébaïde*, p. 3-36; Murray, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*.
41 Murray, in Nicholson and Shaw (eds.), *Ancient Egyptian Materials*, p. 609-655.
42 Germer, *Flora des pharaonischen Ägypten*, p. 159.
43 Germer, *Flora des pharaonischen Ägypten*, p. 59-64.
44 Linnaeus, *Species Plantarum*, I, p. 8.
45 L. Keimer, *Die Gartenpflanzen im Alten Ägypten*, Hildesheim, 1924, I, p. 29-30.
46 Germer, *Flora des pharaonischen Ägypten*, p. 150. Olive stones had been found in Middle Kingdom Memphis, and recently olive wood has been identified by Rainer Gerisch at the 4th Dynasty settlement near the Giza pyramids; see *Aeragram* 9, 2008, p. 3 (consulted in the internet in march 2010: http://www.aeraweb.org/aeragram.asp), but it could have been an import.
47 Hepper, *Pharaoh's Flowers*; Serpico, White, in Nicholson, Shaw (eds.), *Ancient Egyptian Materials*, p. 398-401.
48 Linnaeus, *Species Plantarum*, I, p. 202.
49 Germer, *Flora des pharaonischen Ägypten*, p. 116; Baum, *Arbres et arbustes*, p. 135-148.

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the Predynastic Period.[50] The archaeobotanical evidence for grape wine in Egypt includes both charred and desiccated remains like whole fruits or fruit fragments, grape seeds, stems (or peduncles), leaves and wood. The oldest record of seeds originated from the Predynastic sites in el-Omari (Maʿadi), Tell Ibrahim Awad and Tell el-Faraʿain (Buto) in the Nile Delta.[51] They have also been recorded from Middle and New Kingdom sites, as well as from the Graeco-Roman Period.

Thus far, the available archaeobotanical record for the grape vine is based on the discovery of seeds and fruits. It also includes evidence from a floral bouquet found by Schiaparelli in Dra Abu el-Naga dating to the 20th-26th Dynasties;[52] at the Douch necropolis from the Graeco-Roman Period;[53] and at the Roman site of Sheikh ʿIbada dated to AD 200-300.[54]

6. Arecaceae. Date palm: *Phoenix dactylifera* L.[55]

The date palm is a multipurpose species. In southern Arabia and in Africa, south of the Sahara, date palm cultivation is in contact with wild populations of *Phoenix reclinata* Jacq., whereas in the Indus Valley contact occurred with *Phoenix sylvestris* (L) Roxb.[56] Hybridization has been observed between cultivated date and the wild species in both areas.

Trunks, leaves and fibres of date palm were used during the Pharaonic Period. It was recorded in texts dating from the 1st and 2nd Dynasties under the name *bnrt*.[57] However, we should keep in mind that the possibility of identification mistakes is usually high with written names.[58] In other words, the term *bnrt* could indicate other trees in addition to the date palm. It has been recorded in drawings on pottery from Predynastic times and in later periods as a garden plant.

Phenological Aspects

Presence of well preserved flowers and fruits in some of the bouquets under study should be attributed to the arid climatic conditions in Egypt. Branches carrying flowers and fruits were discovered in three bouquets: one of *Mimusops laurifolia* (Forssk.) Friis (fig. 3, Type I last two figures) and two of *Cordia myxa* L. (fig. 4, Type II.3 details a-b). This circumstance has enabled us to identify the season in which these bouquets were deposited inside the pit. The season of flowering and fruiting were compared with herbarium specimens collected from Upper Egypt and kept at Cairo University. The following table shows that the phenological aspects (time of

50 D. Zohary, P. Speigel-Roy, "Beginnings of fruit growing in the Old World", *Science* 187, 1975, p. 319-327; D. Zohary, M. Hopf, *Domestication of plants in the Old World*, Oxford, 2000, p. 143, 150.

51 Germer, *Flora des pharaonischen Ägypten*, p. 117.

52 Germer, *Katalog der Altägyptischen Pflanzenreste*, p. 24. De Vartavan, Asensi-Amorós, *Codex of Ancient Egyptian Plant Remains*.

53 Barakat, Baum, *La végétation antique de Douch*, p. 1-99.

54 Bonnet, *Annales du Musée Guimet* 30, 1902, p. 153-159.

55 Linnaeus, *Species Plantarum*, II, p. 1188.

56 Zohary, Hopf, *Domestication of plants in the Old World*, p. 157-162.

57 Germer, *Flora des pharaonischen Ägypten*, p. 232; Baum, *Arbres et arbustes*, p. 90-106.

58 N. Baum, "L'organisation du règne végétal dans l'Égypte ancienne et l'identification des noms des végétaux", in S. Aufrère (ed.), *Encyclopédie religieuse de l'Univers végétal. Croyances phytoreligieuses de l'Égypte ancienne*, *OrMonsp* 10, 1999, I, p. 421-443.

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flowering and fruiting) *of Mimusops laurifolia* (Forssk.) Friis and *Cordia myxa* L. are within the same period, between April and May. The rest of the vegetative branches are without flowers, indicating that their flowering period had occurred earlier (February-March). The data seems to indicate that the bouquets were thrown inside the pit sometime in late spring/early summer.

Species	Flowering time	Fruiting time
Assyrian plum (*Cordia myxa* L.)	April	August
Olives (*Olea europaea* L.)	February-March	April-May
Persea [*Mimusops laurifolia* (Forssk.) Friis]	May	August
Vine (*Vitis vinifera* L.)	March-April	May-June

Phenological aspects of plant species used to make bouquets at Dra Abu el-Naga, TT 11.

The present study suggests that the pit was used to dump floral/vegetative bouquets and vessels after they had been used during a funerary ceremony celebrated at the courtyard of the tomb of Djehuty, in the central area of Dra Abu el-Naga. We can further refine the activity to the late spring/early summer, some time in the 20th or 21st Dynasty, *c.* 1000 BC. The deposit could be associated with one of the burials that took place there almost five hundred years after Djehuty was dragged into his rock-cut tomb-chapel. The ensemble may be interpreted as the archaeological evidence of the custom of bringing flowers to farewell the deceased, and/or of the ritual of 'breaking the pots' depicted in several tombs at the end of the 18th Dynasty.

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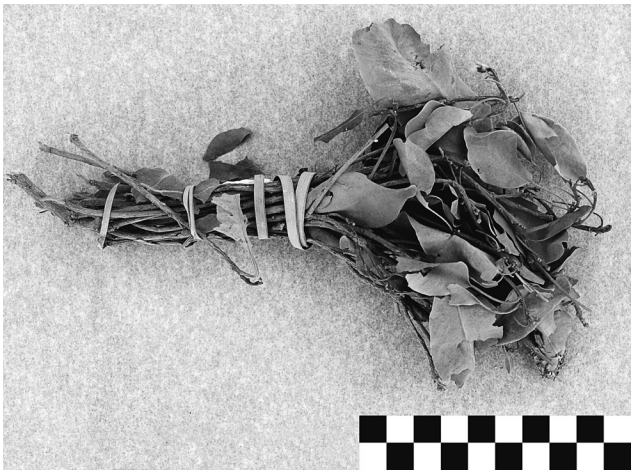

© Proyecto Djehuty


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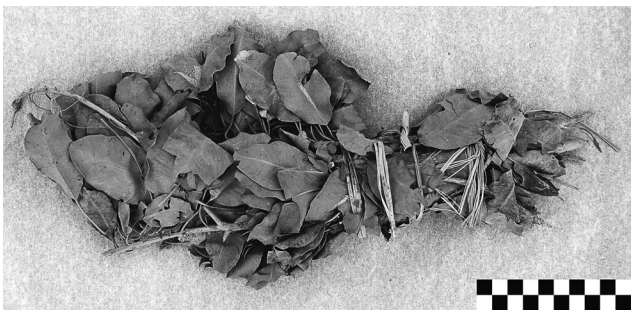
FIG 1. Courtyard of the tomb-chapel of Djehuty (TT 11), with location of the pit and detail below.

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Type I. 1.


Type I. 2.


Type I. 3.


Type I. 4.


Type I. 5.

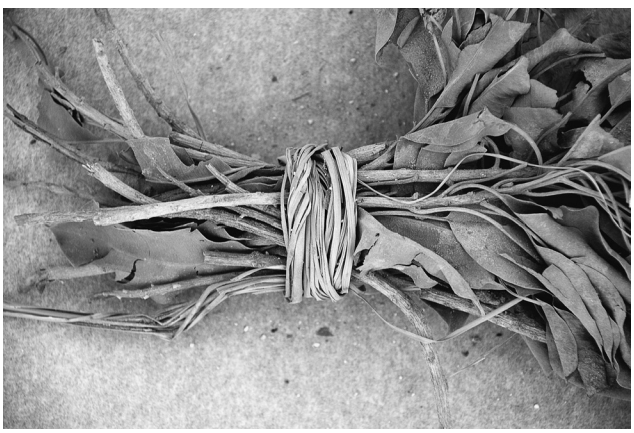
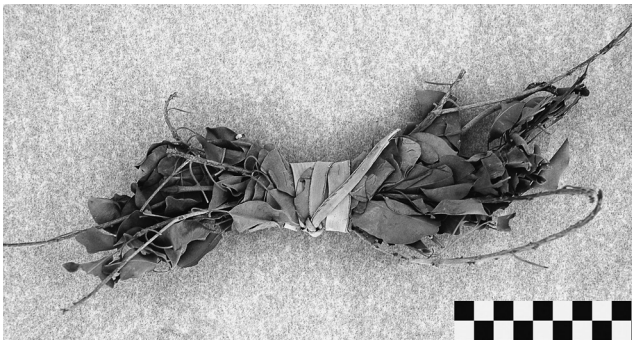
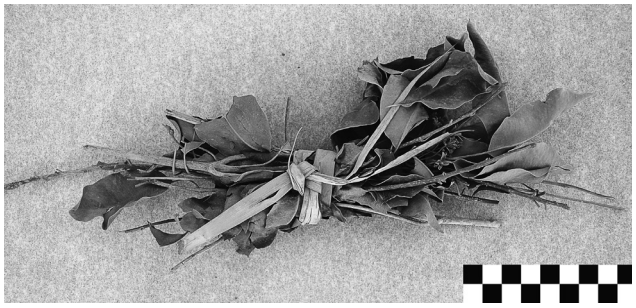

Type I. 5. Détail.

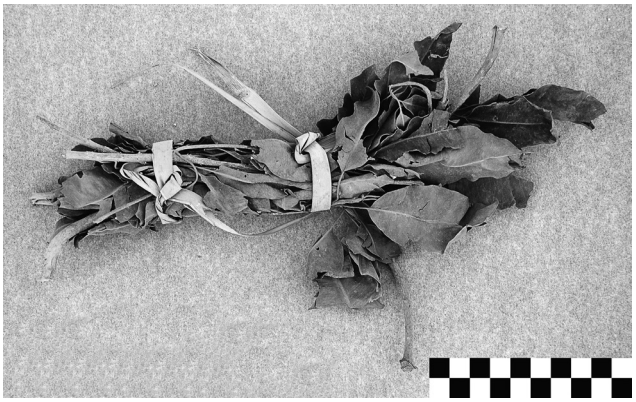
FIG. 2. Type I (Persea).

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Type I. 6.


Type I. 7.


Type I. 8.

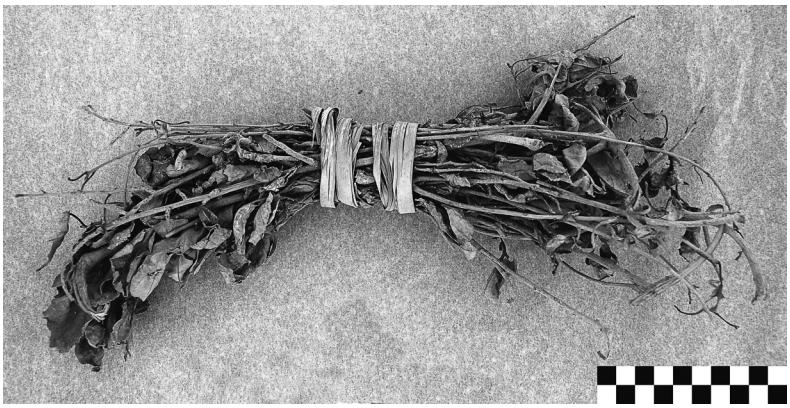

Type I. 9.


Type I. Persea Flower Bud.


Type I. Persea Flower.

FIG. 3. Type I (Persea).

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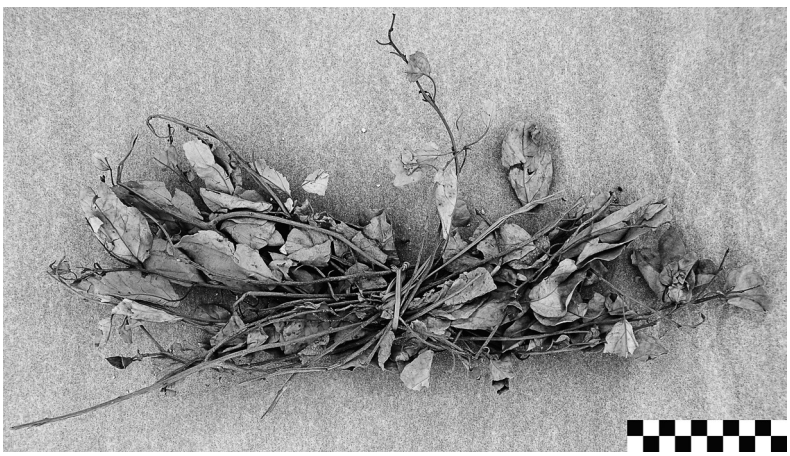
Type II (Assyrian plum). 1.



Type II. 2.



Type II. 2. Détail.



Type II. 3.



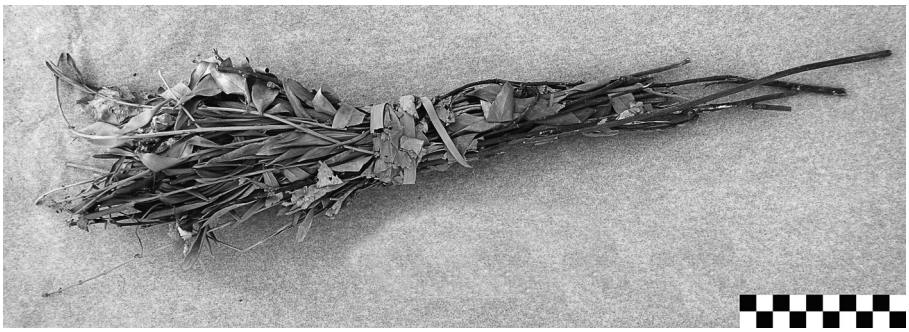
Type II. 3. Détail a.



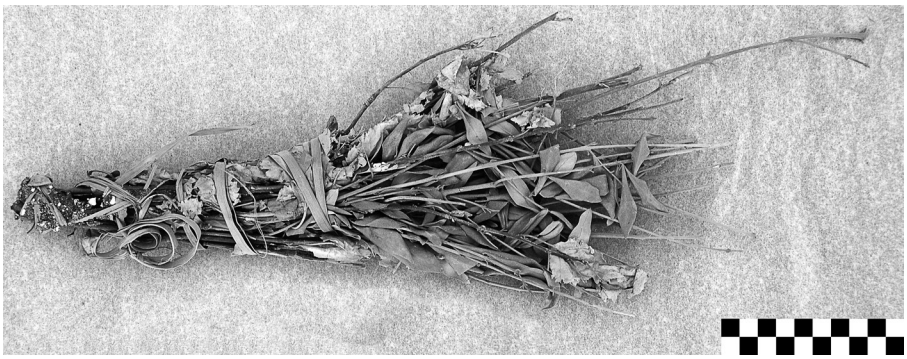
Type II. 3. Détail b.

FIG. 4. Type II (Assyrian plum).

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Type III. 1 (Olive & Rosaceae).



Type III. 2.



Type III. 3.



Type III. 2. Détail.



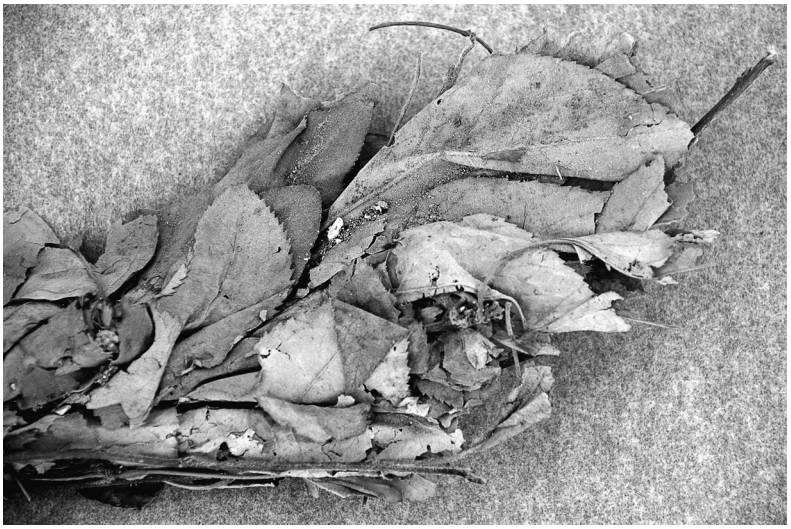
Type III. 3. Détail.

Fig. 5, Type III (Olive and Rosaceae).

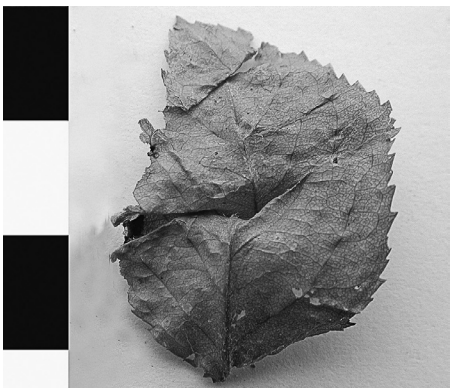
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Type IV. 1 (Rosaceae).



Type IV. 1. Détail a.



Type IV. 1. Détail b.



Type V. 1. (Grape vine).

FIG. 6. Type IV (Rosaceae), Type V (Grape vine).

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