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JEWELLERY FROM THASIAN GRAVES¹

Ancient jewellery from Thasos not only brings to light a craft thus far obscured by the lack of finds, but offers some dim but valuable indication of the character of smithery in this metal-producing area of the Greek world. The examination of this aspect of Thasian art gains in importance in view of the key role played by the island in merchant traffic between the South Aegean and the Black Sea, Macedonia, the East, and inland Thrace, all areas with a rich history in the discovery of objects made of precious metals.

During the last decades, the intensification of the salvage work outside the walls of the ancient city of Thasos, due to the extension of the modern town in the area, has contributed to the recovery of a fuller and more coherent picture of an extensive and important ancient cemetery. The graves lined the main roads leading from the χώρα to the Δοῦλος and most were simple shafts lined and covered with marble slabs, built to accommodate one or multiple burials. The burial groups so far excavated span a time period from the late fifth to the second century BC.

Amidst other grave goods, the presence of precious objects is rare and discrete (the deceased may be accompanied by one or two pieces of jewellery, a coin, a strigil, or a mirror and very few pots). The material examined here comes from the salvage digs of two burial groups. The first comprised 54 tombs excavated in a plot about a mile to the southwest of the ancient city walls (Soultou plot, indicated in the catalogue with the letter S),² the other was a grave group of eighteen tombs discovered accidentally in 1996 during the construction works for the modern city’s sewage system, about half a mile to the northeast, at the area known today as 'Εργατικές Κατοικίες' (indicated with the letters EK in the catalogue).³

The most spectacular items among the jewellery in these graves were two gold sheet diadems of the pedimental type. The first (I; FIGS. 1-3) was found in cist S-XII. The grave, excavated in 1974, contained skeletal material in highly deteriorated condition which was not preserved for study. From the nature of the offerings, however, we can assume with relative certainty that it belonged to a female. A stone alabaster vase (2), a strigil (7) and a fourth-

¹ I am deeply indebted to Ch. Koukouli-Chryssanthaki for permitting me to combine material from the older excavations of the 8th Ephorate with the more recent finds, and for her encouragement and support through the demanding task of studying the important burial groups of the Thasian nekropolis.

² Special abbreviations:
Blonde = F. Blonde, 'Le complément d'un puits public à Thasos', 3. La céramique', BCH 113 (1989), 481r. 345.
Greek Gold = B. Deppert-Lippitz, Griechischer Goldschmuck (Mainz, 1987).
Τάφοι = P. G. Themelis and I. P. Touratsoglou, Οι Τάφοι του Δεμβένου (Athens, 1997).

² The burial group at the Soultou plot was excavated in the course of four excavation seasons: A. Delt. 29 (1973-4), 788; 30 (1975), Chr. 278; 37 (1982); 316-22; 51 (1996) (in press). See also K.-Ch.-S.-A. 769, 771 fig. 1. 9.
Fig. 1. Gold diadem from grave S-XII.

Fig. 2. Gold diadem from grave S-XII central panel.

Fig. 3. Gold diadem from grave S-XII lateral panels.
century bronze coin (3) were probably placed in the deceased's hands, as we may infer from their find spot at the level of the pelvis. A black-glazed one-handler and two unpainted pots (4, 5, 6; FIG. 4) which belong to well-known types of Thasian pottery characteristic of the mid fourth century, were buried at her feet.

The diadem was located in the area of the skull. It bears a rich floral decoration which was produced by pressing several times a single piece of sheet gold into the designs carved in intaglio in two small dies. One die was pressed three times on the upper zone. It consisted of a central thirteen-leaf palmette with the bottom leaves curving inwards and growing above the rest, supported on two facing horizontal acanthus leaves from which issued two thin running tendril scrolls ending in three and four-petalled semi-palmettes and finishing in a four-petalled open lotus-bud at each side. The palmette of the central unit, a little higher than its lateral counterparts, was left to decorate the apex of the diadem's pediment while the palmettes of the lateral units were eliminated when the outline of the piece was cut out (FIG. 2). A continuous running spiral motif was pressed twice out of a different die on the lower zone (FIG. 3).

The second diadem (8; FIGS. 5–7) is of a similar type but has a different outline with rounded ends. It was deposited in a young woman's grave (EK-II) dated to the early fourth century by the Thasian silver hemiketon (11; FIG. 8 b) found in it. Other grave goods included a gold ring with flat, plain oval bezel (9; FIG. 9), remains of a gilded wreath (10; FIG. 10), a miniature squat lekythos decorated with a simple palmette (12; FIG. 11) and pieces of an iron strigil (13).

The border of the diadem consists of two rows of beads, the outer row forming a higher peak than the inner one, thus creating a separate decorative field on the pediment which is filled with a five-petalled flower with a bee perched on top and two closed buds leaning on either side (FIG. 6). Underneath, a gorgon head is flanked on either side by scrolling tendrils sprouting from a palmette set on an acanthus bush. The diadem gives the impression that it was produced out of one die, but the closer examination of particular details shows that individual items were made out of separate dies (bee, gorgon-head, flanking tendrils). Traces of what must have been the beginning of an additional branch consisting of an acanthus leaf and a semi-palmette sprouting from the last scroll at each end (FIG. 7), reveal that the units at the sides of the diadem were pressed out of larger dies and parts of the scrolling stalk that did not fit the space at each end were subsequently eliminated by smoothing.

Pedimental diadems belong to a jewellery type that has a long history reaching back into the Geometric period and surviving well into the Roman era. Such diadems are found most commonly in the Eastern Mediterranean with a high concentration on the coast of Asia Minor. The finest comes from Madydos and bears a representation of Dionysos and Ariadne faced by five seated Muses on each side, separated and supported by thick, floral spirals. Despite its rich tradition in decorated gold sheet, Macedonia has yielded so far a limited...
FIG. 4. Pottery from grave S-XII.
JEWELLERY FROM THASIAN GRAVES

Fig. 5. Gold diadem from grave EK-II.

Fig. 6. Gold diadem from grave EK-II central panels.

Fig. 7. Gold diadem from grave EK-II lateral panels.
number of diadems of this type and period. Most are crudely made, or decorated with florals which incorporate the so-called ‘Italian elements’ such as the trumpet flower, lilies, and the thin stalks evolving in three-dimensional designs.

The stylistic affinities (beaded borderlines, two-dimensional stylized spirals following a rhythmic alteration with the acanthus knots) that the Thasian diadems seem to share with diadems found in areas of Asia Minor and Attica are certainly not accidental. The

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FIG. 10. Remains of gilded wreath from grave EK-II.

FIG. 11. Miniature lekythos from grave EK-II.
proximity of the island to the coast of Asia Minor resulted in a series of Ionic and Aeolian influences in Thasian art which were strongly felt during the Archaic period, while the impact of Attic art can be clearly recognized in fourth-century Thasian styles.

Similar motifs, consisting of a central anthemion flanked by subsidiary scrolling patterns evolving on each side, have an architectural character and may be connected with the floral compositions appearing on pediments of grave stelai. In fact, it would be tempting to draw associations between late fifth-century Macedonian grave monuments, representative of the eclectic North Ionic style, and the florals on our diadem.

The fact that pedimental diadems were usually carelessly made, with no respect for the ornamental pattern and often with no regard for the representation, the simple, inexpensive technique, and very often the iconographic themes, which include floral motifs, Muses or fertility goddesses, made several scholars suggest that diadems of this type were exclusively made for sepulchral use. The pedimental diadem from a grave in Eretria, the fronto decorative element of which, a crouching Pan, was covered with a separate gold sheet on which was hammered the representation of a lyre-playing Muse, a theme suited to current beliefs about the afterlife and the immortality of the soul, certainly shows that funerary function often required a special type of iconography.

Seen in this light, the decorative themes on the second diadem may not be purely ornamental and without meaning. In Greek mythology and religious practice, bees are connected with ideas pertaining to holiness and sanctity since μέλισσα was a name commonly attributed to women initiated to sacred rites, priestesses of Demeter and Apollo endowed with the gift of prophecy, and women ministering to Dionysos, Rhea, the Muses, and Persephone. Of these, the connection of the bee with the sacred rites of Demeter becomes more interesting in the light of the Parian origin of the myth and the ancestral roots of the Demeter cult in Thasos. References to the μύστικος of Demeter are altogether absent from the pictorial record, but the local importance of the Thesmophoria, as evidenced both in the tradition and in the archaeological record, may justify the discrete reference to the function of μέλισσα or Δήμητρος μύστικας performed during the lifetime of the deceased.

Bees are also intimately connected with notions pertaining to the immortality of the soul and with Orphic beliefs about the afterlife, current in fourth-century society, that can be often...
detected archaeologically. There is some evidence that, through the myth of Aristaeus, the legendary inventor of beekeeping, the connection of bees and honey with aspects of death and the afterlife was exploited in Greek funerary art as early as the fifth century BC. These associations may suggest that by putting the unusual motif on the diadem the craftsman used a well-established symbolism: the bee may represent the soul of the deceased who, having led a proper life, according to Orphic teachings, thus expressed her hope of having her soul buried with her in order to break the circle of continuous reincarnations and enter the orbit of eternal being.

The strong religious and ritual significance of bees and the well-known connection of honey with the cult of the dead, which led scholars to the hypothesis that jewellery with representations of bees was expressly made for the grave, corroborate this interpretation. It would be also tempting to interpret the flower upon which the bee sits and the flanking buds as poppies, flowers intimately connected with Demeter and deities of the afterlife, especially Hypnos, to whom the Orphic Hymns attribute the role of ψυχοσωμάτος. Usual representations of the poppy bud, however, differ in including one or more knob-projections on one end.

The anthropological data, and in particular the study of the skeleto-muscular markers of the individual buried in the grave, offer an alternative explanation. The young woman, although slender and generally sheltered from strenuous activities, was especially engaged in movements that required flexing and extension of the arms, forearms, wrist, and especially the fingers. To put it in simpler terms, she may have spent a lot of time working on the loom or with the spindle (see Appendix). If we consider that excellence in domestic duties was an exemplary female virtue and that the ideal woman was exemplified by the chaste, hard-working bee in the poetry of Semonides, then the bee, the crowning decorative element on the diadem, may also be taken as an iconographic tribute to the deceased's industrious character.

In the light of the above, it would not be totally unreasonable to consider that the decoration of the diadem carried symbolic meaning. The fact that other diamems of this type

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22 The infiltration of such beliefs in popular consciousness is detected in the 5th-c. Dionysiac cult at Olbia and seen in the inscribed bone tablets both in the sanctuary and the city: M. L. West, 'Orphies at Olbia', ZPE 45 (1982), 17–29. See also the Derenvi papyri: M. Karpomenos, 'Ο Ορφικός πάμφως τής Θεσσαλονίκης', A. Del. 19 (1964), Mel. 17:25; L. Brisson, 'Les Théogonies orphiques', in id., Orphée et l'orphisme dans l'antiquité gréco-romaine (Aldershot, 1993), 389–420; A. Lats and G. W. Most (eds), Studies on the Derenvi Papyri (Oxford, 1997); Funerary epigrams of the mid-4th c. often place emphasis on the contrast between body and soul (τόπος ψυχῆς, τόπος σώματος); N. Karouzos, 'Τραγουδιές Μνήμης', in Χαριστήριον εἰς Α. Κ. Ορφλάνδον (Athens, 1976), 274.

23 Three white-ground cups by the Sotades Painter allegedly found in the same grave in Athens have been interpreted as illustrating interlinked mythical incidents (Myth of Glaukos, nymph Melissa picking the apples of eternal life in the Garden of Hesperides, Aristaeus killing the snake that bit Euridice to her death) in which bees and honey are connected with aspects of death and the afterlife: L. Burn, 'Honey-pots: three white-ground cups by the Sotades Painter', Ak 28 (1985), 93–105.


28 We should further point out that fruits, buds, and blossoms of various kinds embellish the floral patterns on contemporary grave stele, cf. a late 5th-c. grave stele from Kerē: C. Blümel, Die klassisch-griechischen Skulpturen der Staatlichen Museen zu Berlin (Berlin, 1966), pl. 8. no. 8.

were embellished with scenes of eschatological and religious significance (the Muses, or Dionysos and Ariadne) may reinforce the assumption that the iconographic symbolism reflected afterlife beliefs. We should note, however, that references to Orphic or other sort of afterlife notions are altogether missing from the Thasian burial groups.

Silver, bronze and gold rings with plain bezels were often placed in Thasian graves of men and women. Two of them bear representations on the bezels. The first (14; FIGS. 12 b, 13) is decorated with the image of a winged Eros seated on top of tendrils sprouting from a double-leaf acanthus bush. He seems to hold an object too summarily depicted to figure out its identity, maybe an ἰμάτιον, a magic love charm arousing desire. The representation is chased with spare use of engraving, the lines are hard and the result somehow awkward. The groove running behind the face of the bezel was produced when beating the bezel flat, preparatory to chasing.

The ring formed part of a 35-year-old woman's funerary adornment (grave EK-VIII) which included two more pieces of gold jewellery: a necklace made of plain gold-sheet beads (15; FIG. 14) and a pair of gold-disc earrings (16; FIGS. 15–16). The earrings, decorated with concentric rows of decorative wire enclosing a ring of ovolos along the outer edge and a two-tiered rosette in the centre, represent an ancient type of jewel, particularly common in Asia Minor and Cyprus but also occurring in South Italy, Thrace, and the North Pontic area. The Thasian pair differs, however, from the normal type, in not having the usual large tube in the back, which passed through a hole in the earlobe held in place by a tight-fitting stud; instead, it was furnished with suspension hooks, which fitted into rather unusual conical studs, a device common on disc earrings with pendants (FIG. 16).

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30 See the gold-sheet ring in grave EK-V (28, FIG. 20) which belonged to a man.
31 For a similar motif cf. Greek Gold, 207 no. 138.
32 Tfd. 20.
33 On the feature commonly found on rings of this type see J. Boardman, Greek Gems and Finger Rings (London, 1970), 212.
35 Cf. the more elaborate examples, finely decorated with filigree, from Cyme: Marshall (n. 10) nos. 2660–1; D. Williams, 'The Cyme Treasure', in Calinescu (n. 5), 120, fig. 3.
36 Greek Gold, 98 nos. 51–2.
Fig. 14. Gold bead necklace from grave EK-VIII.

Fig. 15. Gold earrings from grave EK-VIII.

Fig. 16. Gold earrings from grave EK-VIII reverse.
A bronze mirror (20), an iron tool (21), and a strigil (22) that must be classed among the dead woman's toilet \(^{37}\) accompanied her in her last journey. The vases placed by the deceased's feet, a miniature squat pitcher and a small black-glazed and lidded lekanis (18, 19; FIG. 17) offer a date in the early fourth century BC, matching the slightly earlier date usually proposed for the silver coin of Thasos with a running Silenos on the obverse and a volute crater on the reverse (17; FIG. 18 a–b).

Another ring (23; FIG. 12 a, 19), with decorated bezel, was found in a grave of the same burial group (grave EK-I). The burial belonged to an older (35–45) and more robust woman (see Appendix) who was furnished with fewer and less valuable goods (23–7), such as a fourth-century silver coin of Thasos (24; FIG. 8 a). A crouching girl playing with knucklebones \(^{38}\) is depicted on the oval bezel of the ring. The technique used was chasing with use of engraving for details on the girl's hair and robe. There is a single ground line, as on many rings of this type which exhibit a strong preference for kneeling figures.

\(^{37}\) On the presence of strigils in female graves see Tάφοι, 167 nn. 165–6.

\(^{38}\) Cf. Boardman (n. 33), 183, fig. 726.
The two rings are of a type common throughout the fourth century BC (Boardman’s type VI). They differ in the shape and size of the bezel. Certain details of the representations, such as the slender figures with the unnaturally oblong faces tapering towards the chin and the protruding breasts, suggest some sort of stylistic affinity. These similarities are overshadowed by the fact that the ἀπραγματίζομαι is a more voluminous figure than Eros who is rendered with linear strokes of the chase. The rough design on the bezel of the Eros ring may be attributed to the different technique used; it may be also due to the development in the style of one craftsman or, most probably, one smithy. We should note that, according to the evidence of the coins found in the two graves (17, 24; FIGS. 18, 8), a time span of at least fifty years separated the two burials, but this cannot be used as an argument even for the relative dating of these items, since we do not know how or when their owners acquired them.

Jewellery in other media was also included in tombs; it seems that not only social position but also the age and condition of the women played some role in dictating the type and value of the items selected for their burial.

A young female of possibly frail health at the threshold to her twenties (see Appendix) was buried with a set of jewellery made of silver, gold, bronze, and ivory (grave S-VI, 32-40). The grave also contained remains of the bones of a cremated male, but all the grave-goods must be
associated with the burial of the young woman. The pair of silver, spiral earrings with the granulated triangles and the larger globules at the finials (32; FIG. 21) comes closest in form and style to a gold pair, now in Athens and to examples found in Thrace. A second pair of earrings, gilded, with disc and boat-shaped pendants (33; FIG. 22) which was placed in the same grave, may suggest that the silver spiral pair may have had an alternative function as hair decoration, a use proposed for jewellery of this type.

A pair of bronze bracelets with snake-head terminals (34; FIG. 23) and numerous ivory beads (36; FIG. 25) found near the pelvis—probably the decoration of some sort of ornate belt—completed the inventory of the deceased's adornment. In the same grave a bronze mirror (37) coexisted with an ivory spindle (38; FIG. 26), symbol of domestic virtue.

Female adolescents were often given a luxurious grave trousseau. The 12-year-old in grave S-XVIII was offered a garment or, most probably, a headband sewn with gold strips and gold-sheet leaves, as is suggested by the perforations at the bottom of the leaves and along the edges.
preserved edges of the gold-sheet tainia (41-5; Figs. 27-8). This constituted an allusion to a wedding never concluded and to her becoming bride of Hades.17 The intermediate age of the deceased between childhood and adulthood was further emphasized by the placement of characteristic items of female adornment, like the bronze mirror and the remains of a pyxis containing cosmetics (47-9), next to toys such as knuckle-bones (50) and a rattle (54). The

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17 For wedding garlands see M. Blech, Studien zum Kronz bei den Griechen (Berlin, 1982), 340–8. The symbolic use of wedding themes in funerary art and practice is well known and attested by a variety of sources; see J. M. Barringer, ‘Europe and the Nereids’, AJA 95 (1993), 657–67 for a comprehensive survey on the funerary symbolism of wedding themes and the close connection between marriage and death in popular belief, art, and ritual with extensive bibliography.
special treatment offered to females of this age group indicates that their premature death was conceived as a great loss by kin and community.

The silver jewellery found in a funeral pyre may be similarly associated with the posthumous honours presented to an adolescent female. Among the ἐναγιομοί, the funerary pyres offered beside the graves in honour of the deceased,48 which usually contained remains

48 For the use of ἐναγιομοί see D. C. Kurtz and J. Boardman, Greek Burial Customs (London, 1974), 124, 175.
of funeral meals, pyre D at the Soulou plot presented special interest because in it was thrown a whole set of silver jewellery. The character and small size of some of these pieces strongly suggest that part of it constituted the adornment of a young girl.

A silver necklace of the amulet type (FIGS. 29–30) consists of a central amber knucklebone tied with silver wire forming a suspension loop (FIG. 31) and pairs of bees, turtles, frogs, double-axes, round buttons, lion-heads, Silen's-heads, trefoils, and button-like pendants (FIGS.

* The practice of throwing jewellery into pyres is also attested in the necropolis of Samothrace where bronze jewellery pendants were found in or around pyre areas, Dusenbery (n. 41), 965–7.
arranged on either side. Except from the double-axes, which were cast, the rest were all made of thin silver sheet, shouldered into thin back-plates. The lion heads have a beaded wire edging (FIG. 35). They were all suspended from tubular loops fastened to the back-plates, but we cannot be sure of the elements that kept each item apart. These may have been of a perishable material (leather; thin bronze wire) consumed by the fire. The central item was probably hung from the two twisted wires ending in double loops⁵⁰ that were thick enough to be preserved. The necklace has greatly suffered from the fire, which made some of the finest pieces extremely brittle. The suggested placement of the individual pendants in two tiers, as seen in FIGS. 29-30, is for the most part speculative since the situation of the piece at the time of discovery did not permit the restoration of the original position of each item with certainty.

The first evidence for this type of amulet-necklace with a variety of pendants comes from a representation on a fourth-century black-glazed calyx crater⁵¹ but the originals that have come down to us date no earlier than the third and second century BC.⁵² Some of the gold necklaces

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⁵¹ Greek. Gold. 169, figs. 118-19.
⁵² I. Blank, Studien zum griechischen Halschmuck der archaischen und klassischen Zeit (Cologne, 1974), 93.
from Sindos combine beads of various shapes and one would think that they are transcriptions in gold of this type of amulet. As far as I know however, considering the evidence of the pottery found in the same pyre (60, 61; Fig. 40), this must be the earliest actual example of the type of amulet-necklace presently known. Fashionable pendent figures, known from other

necklaces of this type, such as the animal and human heads or the double axes, are combined with turtles, frogs, and bees; one is inclined to believe that these were additions by the jeweller, thought to befit the young owner.

The character of the necklace, which had a prophylactic value—it was a φιλακτήριον which was worn by children according to Hesychios—and the fact that ἀστράγαλοι were a common offering in the graves of young people, especially children, may reinforce the assumption that the necklace was part of the adornment of a little girl. Unfortunately, it was not possible to associate the pyre with any of the graves excavated close by and no further information concerning the owner of the jewellery could be obtained.

Two silver bracelets with snake-head finials (56; FIG. 36) and a similar armband (57; FIG. 37) are small enough and, no doubt, belonged to the same owner. They represent a jewel type whose immense popularity has been attributed to the amuletic character of the snake and its possible connection with Artemis. Two small clay figurines of a crouching boy (62; FIG.

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55 Human heads and busts as necklace pendants: Higgins, 127–8; Miller (n. 54), 28–9; Greek Gold, 265 no. 135. Animal heads: Greek Gold, 55 no. 8.
56 Double-axes are common pendant items on the archaic necklaces from Sindos: Sindos (n. 53), 96 no. 148, 179 no. 285, 291 no. 479.
58 Y. Papaioikonomou, ‘L’enfant aux astragales’, *BCH* 104 (1980), 255–63; Themelis and Touratsoglou (n. 37), 167–8; for astragaloi on jewellery see *Αρχαία Μακεδονία* (n. 8), 45 no. 84, pl. 17. The numerous pierced astragaloi found in Samothracian child burials were possibly used as amulets: see Dusenbery (n. 41), 950. On the possible meanings of astragaloi see Kurtz and Boardman (n. 48), 77, 208–9, 263, and R. Hampe, *Die Stele aus Pharsalos im Louvre* (Winkelmansprogramm 107; Berlin, 1951), 5–39.
59 It has been also suggested that ‘the inclusion of a necklace in a burial, whether it decked the corpse or was an offering committed to the fire may have been symbolic of a wish for a merger of the human with the divine’, Dusenbery (n. 41), 964.
60 Cf. the similar miniature silver bracelet found in a child's grave at Mesembria-Zone: A. Vavritsas, *PAE* 1969, pl. 90 ε.
61 For a close parallel cf. a chance find from Central Macedonia in *Ελληνικό Κόσμικα* (n. 8), 120 no. 112.
41), a black-glazed bolsal, and a miniature calyx crater (60, 61; FIG. 40), which were thrown on the same pyre, can be also considered indicative of the age of at least one of the deceased being honoured. These items may also date the group to about the beginning of the fourth century BC. Three silver rings with plain bezels (58; FIG. 38) and two with plain rock-crystal gemstones (59; FIG. 39) are larger in size and probably belonged to an older person.63

The evidence from the Thasian tombs which contained jewellery permits the drawing of some conclusions of preliminary character that remain to be validated by future finds and by more solid statistical data. Only a small portion of the ancient necropolis has been brought to light so far and the burials containing items in precious metals, which were all presented here, constitute but a very small percentage, about 5%, of the total number of the graves excavated. This absence of valuable grave-goods, combined with the relative uniformity observed in the types of burials of the Thasian necropolis, may be connected with the democratic structure of the city and the possible existence of restrictive legislature.64

63 An alternative hypothesis would be to consider that the whole set was owned by a female who approached adulthood and included items worn by her at earlier ages.

As far as the social identity of the women buried with this type of grave-goods is concerned, the skeletal analysis may offer valuable clues. The picture emerging from the Appendix is as follows: young adolescents (S-VI, S-XVIII, pyre D) could be buried with an abundance of jewellery in various media (silver, bronze, ivory), in comparison to mature females, where one notes a sort of sobriety at least in the amount of the items included. Gold objects, however, although rare, seem to belong to maturer women; the graves where such objects were found (EK-I, II, VIII), belonged to adult females, past their twenties. Caution is enjoined by the possibility that this observation may be strongly biased by the fact that only grave-goods of durable material have come down to us and therefore we cannot know what kind of luxury was included and what sort of symbolism may have been expressed in perishable media. Remains of carbonized matter have been observed and collected in many instances (e.g. in grave EK-VIII). With the exception of the adult woman in grave EK-I, who exhibited a marked robustness, and the individual in grave EK-V, who was a man, the rest had gracile skeletal features, which indicate that they were sheltered from strenuous physical activities, and dietary habits that may reflect a relatively high standard of living.

The grave ornaments presented here offer us an idea on a little-known aspect of Thasian art. We may be reasonably confident in assuming that raw material was drawn from local
resources. The connection of Thasos with the extraction of precious metals is, after all, well known from the ancient sources\(^65\) and fairly well documented archaeologically.\(^66\) The exploitation of the gold and silver mines of the island goes back into the Iron Age and the search for precious metals undoubtedly constituted the basic motivation not only for the Parian colonization of the island,\(^67\) but also for the subsequent expansion into the Thracian territory. A workshop of bronze and gold objects dating to the later part of the sixth century, and a bronze workshop of the mid-fourth century, have been found in the city of Thasos itself.

\(^{65}\) Helt. vi. 66 7.


\(^{67}\) Ch. Koutouki-Chryssanthaki, ‘Τα μεταλλα της Θασιακής περιοχής’, in _Μυθη Αλεξανδρία_ (n. 20), 193 572; M. Y. Treister, _The Role of Metals in Ancient Greek History_ (Mnem. suppl. 159; Leiden, 1996), 169 70.
in the area of the gate of the Silenos.68 The actual metal objects, however, that could offer tangible evidence of the island's styles and fashions in metalworking, are extremely rare.

The elements out of which the Thasian jewellers created their artistic language and continued to articulate it thereafter are nonetheless easily discernible in the items presented above. Its ancestry can be confirmed by the scarce but valuable finds from the Archaic votive offerings at the sanctuary of Artemis. The antecedents of the gold-sheet diadems can be traced back to the gold-band diadem decorated with animals and rosettes, with its strong connections with the Cycladic and East Greek world.69 Despite the intervening gap of more than a hundred years in the archaeological record of gold and silver objects,70 we may surmise that the craft must have had an uninterrupted development in the island. The relatively few pieces that found their way into the fourth-century Thasian tombs71 seem to confirm this conjecture. They testify to a close attachment to Attic–Ionic stylistic traditions with clear connections to the East, features that may pinpoint the character of a local workshop. We have, no doubt, one more aspect of an art that, without being provincial in character, adapted rather than created and kept pace with the late Classical artistic koiné by assimilating the dominant artistic trends of the period, with a particular dynamism, as it were a ‘passivité très active’.72

Of course, the scientific analysis of samples currently under way could further validate some of these preliminary observations, and one should always keep in mind that we are dealing with a rather limited corpus of artefacts which represent a very restricted sample of fourth-century Thasian metal craft.

The problem of identifying the sources of the exquisite metalwork on jewellery and metal vases found in the northern territories, where burial customs and the abundance of precious metals caused the accumulation of wealth of this type in funerary context,73 has led to numerous discussions.74 The amount of fine Attic pottery discovered along with precious objects in these tombs from the fifth century BC, and the fact that Athens was the ruling power in the Aegean at this time, led to an Athenocentric view of the influences that made their way to the north and further deep into the Thracian territory. However, recent studies on minor arts tend to overturn the picture. It is being increasingly recognized that skilled craftsmanship in metalwork must have developed in areas with ready access to natural resources such as Asia Minor and the North Aegean. The treasures from Asia Minor that found their way into European collections tend to verify this assumption. The image emerging from the recent finds

70 See also the gold ring with a representation of a satyr’s head on the bezel which was found in Hellenistic deposits of the Sanctuary of Artemis, J.-J. Massicr and F. Salvati, ‘Chronique des fouilles à Thasos’, *BCH* 102 (1978), Chroniques 827 fig 34 a.
71 It may not be accidental that the presence of precious jewellery into Thasian tombs coincides with an intensification in the exploitation of gold and silver mines observed during the 4th c. BC, a period of general reorganization and blooming of the city’s wealth and prosperity. Ch. Koukouli-Chryssanthaki, ‘Die archäologische Funde aus den Goldgruben bei Kinyra’, in Wagner and Weisgerber (n. 66), 177. On the gold mine of the Akropolis, where the main period of activity was the 4th c. BC see A. Muller, ‘La mine d’or de l’acropole de Thasos’, ibid. 180–97.
72 Holtzmann 1992 (n. 13), 189.
of the Archaic cemeteries of Macedonia is that of a culture maintaining a wide and variegated network of exchanges not only with the cultural centres of the south but also with the islands and Ionia to the east. Thasos with its intense commercial activity and its close contacts with major artistic centres met the fundamental conditions favourable to the creation of a particular style: local resources, tradition, expertise, and artistic inspiration coming from rich influences.

Rich finds from the Classical and Hellenistic cemetery of Amphipolis also testify to the metalworking activity at the feet of Mount Pangaion. Influences or direct imports from Amphipolis have been already detected in the splendid pieces from Panygyriště while vessels from the same treasure have been attributed by some to a Thasian workshop. The role played by the North Aegean colonies in the diffusion of current types further north, where, even in the early fifth century BC, Greek styles and techniques were being assimilated to indigenous, traditional, highly conservative forms, has been increasingly recognized while the part played by the Pontic colonies in that process seems to have been less important than previously thought.

Thasos, as a centre of precious metal production and craftsmanship with a strong identity, not only recipient but also transmitter of influences, should be considered when trying to detect links in the minor arts of inland Thrace and the north Aegean. Such interconnections cannot be drawn clearly, because they were multiple, multi-oriented, and involve complicated questions, such as clients' tastes and the function of the objects within different cultural contexts. We should, however, remain sensitive to all new evidence coming from the gold-bearing areas of North Aegean because these could change in many respects our traditional view on these issues.

**CATALOGUE**

In the following catalogue the objects are arranged by tomb groups. Details are given only for jewellery, coins, and pots; the rest of the grave-goods are summarily presented. The following abbreviations are used: S = Soltau plot; EK = Εργατηκεις Κομικης 1999; D. = diameter; H. = height; L. = length; W. = width

**GRAVE S-XII**

1. Pediment-shaped gold diadem with floral decoration (Figs. 1–3)

Preserved L. 35.5 cm, H. in centre 6.5 cm, at edges 1.9 cm; weight 11.5 g

The diadem was made by repeatedly pressing a single piece of sheet gold into the designs carved in intaglio into two smaller dies. The motifs on the upper zone were pressed out of the same die: a central thirteen-leaf palmette with the bottom leaves curving inwards and growing above the rest, supported on two facing horizontal acanthus leaves from which issue two thin running tendril scrolls ending in three- and four-petalled semi-palmettes and finishing in a four-petalled open lotus-bud at each side. This pattern was repeated three times within an incised horizontal band.

75 S. G. Miller, 'New developments in the archaeology of Northern Greek Jewellery', in Calinescu (n. 5), 37, ed., 'Macedon and Athens: a golden link?'; in Williams (n. 50), 23–4.

On the increasing tendency to discern local metal workshops in the area of Macedonia see P. Themelis, 'Μεταλλευτική Μακεδονία', in Panderis et al. (n. 8), 495–517.

76 Θρακιανές της Αρχαίας Μακεδονίας, Κατάλογος της Εκθέσεως, Αρχαιολογικό Μουσείο Θεσσαλονίκης (Athens, 1979), 90.

77 C. Marcov, 'Пенетрация в Тракия от влияние на Египет в VII—III в. в. н. е.', Тръбениски конгрес (n. 34), 114–15.

78 Bakalakis (n. 74), 20–1 n. 12 with bibliography.

79 L. Byvanck-Quarles van Ufford, 'Remarques sur les relations entre l'Ionie grecque, la Thrace et l'Italie', Bâle Arch. 41 (1966), 47–8. It has been suggested that the lion-headed earrings found their way into tombs of South-West Bulgaria through the contact developed between the Thracian centres and the North Aegean colonies, M. Dimitrova, 'Boucles d'oreilles à tête de lion de l'époque hellénistique', Archeologie, 31 (1989), i–14 no. 3. For resemblances detected in jewellery of Seuthopolis and Abdera see Greifenhagen (n. 16), i. 35, pl. 13. 9; Αρχαια Μακεδονία (n. 8), 102 no. 423; M. Tonkova, 'Traditions and Aegean influences on the jewellery of Thracia in early hellenistic times', Arch. Bulgarea 1 (1997), 20–6.

times on the upper zone. The central unit was placed a little higher than the lateral ones and the palmette was left to decorate the apex of the diadem's pediment while the palmettes of the lateral units were eliminated when the outline of the piece was cut out. The lower zone was decorated with a continuous running spiral motif. The ends of the diadem were damaged.

K.-Ch.-S.-A. 794, fig. 10.

2. Stone alabaster
H. 22 cm, D. mouth 7 cm
On alabasters as grave-goods see Táφοι, 43 (Athens, 1997), with bibliography.

3. Coin Α'E
0.9 mm, weight 0.802 g
Obv. Head of Dionysos. Rev. [ΘΑΣΙΟΝ] Heracles the Archer

GRAVE EK-VIII

8. Pediment-shaped gold diadem with floral and figural decoration (FIG. 8–7)
L. 326 cm, H. in centre 7.2, at edges 3.4 cm, weight 11.8 g
The border consists of two rows of beads, the inner row forming a smaller and lower pediment than the outer one, thus creating a separate decorative field in the pediment which is filled with a five-petalled flower with a bee perched on top and two closed buds leaning on either side; in the centre, underneath: a gorgon head; on either side: scrolling tendrils sprouting from a palmette on an acanthus bush.

The diadem was made by pressing a single sheet of gold into several smaller dies (bee, gorgon head, floral motif). The flanking tendrils were pressed out of one die which contained a longer floral motif. Traces of what must have been the beginning of another branch, consisting of an acanthus leaf and a semi-palmette sprouting from the last scroll at each end, reveal that parts of the scrolling stalk that did not fit the space at each end were not included and their traces were subsequently smoothed away.

The ends of the diadem are pierced by a pair of holes so that it could be fitted with a cord and tied to the forehead.

9. Gold ring (FIG. 9)
W. 1.9 cm, L. of bezel 0.9 cm
Plain oval bezel with bevelled backside, groove running behind the face of the bezel. Semicircular hoop, circular on the outside, bevelled inside.

10. Remains of a gilded wreath (FIG. 10)
Thirty-five acorn-shaped gilded clay beads 1.2 × 0.8 cm, 23 smaller amphoroid gilded beads 0.8 × 0.5 cm, and twelve pieces of gilded wood.

11. Coin Α' (FIG. 8 b)
D. 9 mm, weight 0.805 g
Obv. Head of Dionysos. Rev. [ΘΑΣΙΟΝ] Heracles the Archer
Silver hemiekton. Fourth century BC.

12. Miniature squat lekythos decorated with a simplified palmette (inv. no. 7671) (FIG. 11)
H. 5.5 cm, D. 3.5 cm
Agora, xii. 154, no. 1222; Blondé, fig. 2 and 508 for a Thasian variant of the type.

13. Iron strigil
[Young female, 25–8 years old with gracile skeletal features.]

GRAVE EK-VII

14. Gold ring (FIG. 12 b, 13)
D. of hoop 1.9 cm, H. of bezel 1.1 cm, weight 3.35 g.
The flat oval bezel is decorated with the figure of an Eros, holding an unidentified object, probably an Ερός, hovering over an acanthus motif from which rise long spiral motifs. Representation chased with spare use of engraving.
Circular hoop rounded outside, bevelled inside. Groove running behind the face of the bezel.

15. Forty-three gold beads (FIG. 14)
D. 0.4–0.5 cm, weight 0.06–0.09 g
Made in left and right halves from plain sheet gold.
Seams visible. No terminals preserved.
16. Pair of gold earrings (FIGS. 15–16)
D. of disc 2.5 cm, thickness 0.4 cm, H. of back stud 1.6
cm, weight 3.44 and 3.97 g
Pan-shaped disc the outer edge of which is decorated
with concentric circles of decorative wire (plain, spiral
beaded, plain), a ring of ovolos in beaded wire, and a
ring of plain wire.
In the centre is set a rosette encircled in a plain wire.
The rosette is made up from two tiers of petals all
bordered in spiral beaded wire. The large outer petals
are convex, the smaller inner ones are concave and
there is a central granule.
The hook behind the disc—a plain, tapered wire—is
without finial in order to fit into the hole of the back
stud. The back studs are conical, flanked on top and
bottom by alternating rows of plain and spiral wire,
and end in a spherical bead pierced by a hole in the
bottom. Vertical seams are visible.
17. Coin. [A] (FIG. 18)
D. 12 mm, weight 0.815 g.
Obv. Running siren holding kantharos. Rev. [ΘΑΣΙΟΝ]
volute crater
Trihemiobole. End of fifth century BC.
O. Picard, ‘L’organisation’ (no. 11).
18. Small black-glazed lekanis (inv. no. 7681) (FIG.
17 b)

GRAVE EK-I

23. Gold finger-ring (FIG. 12 a, 19)
H. of hoop 0.2 cm, of bezel 1.2 cm, weight 5.15 g.
The flat oval bezel bears a figure of a woman kneeling
on a plain ground line and playing with astragaloi.
She has her hair tied in a knot and wears a chiton and
a himation falling from her left shoulder, wrapped
around her right thigh.
Underside of bezel bevelled. Hoop of rounded cross-
section, hexagonal with a semicircular bottom.
24. Coin. [A] (FIG. 8 a)
10 mm, weight 0.915 g

GRAVE EK-V

28. Gold ring (FIG. 20)
H. of bezel 1.7 cm, D. of hoop 1.9 cm, weight 1.93 g.
The ring is made out of sheet gold. Plain strap hoop
and oval bezel, convex on top and concave on the
back.
29. Miniature squat lekythos decorated with palmette
(inv. no. 7672).

JEWELLERY FROM THASIAN GRAVES

Ring foot, glazed underside, slightly rising horse shoe-
shaped handles, circular in section with two small
knobs on either side, flange for lid.
Lid decorated with wave pattern. Knob missing.
Glaze flaked
Agon, xii. no. 1222.
19. Small, plain one-handled squat oenochoe (inv. no.
7682) (FIG. 17 a)
H. 4.8 cm, D. 6.6 cm
The walls are thick in order to diminish capacity.
Possibly a libation vase.
Probably a local imitation of the small-sized oenochoe
or olpe commonly found in tombs, a shape not
surviving beyond the fourth century BC.
S. Drougou and I. Touratsoglou, ‘Χρονολογημένα
όνομα Ελληνιστικής κεραμικής από την
Μακεδονία’, in Ι’Επιστημονική Συνάντηση για
την Ελληνιστική Κεραμική, Θεσσαλονίκη 24–
27 Σεπτεμβρίου 1991, (Athens, 1994), 134–5, pl. 73
v.
20. Bronze mirror
D. 9.5 cm.
Thin, round bronze plate, slightly broken at the point
of attachment of the handle which is missing.
21. Iron tool
22. Pieces of an iron strigil

[Female, 32–5 years old.]

Obv. Head of Dionysos. Rev. [ΘΑΣΙΟΝ] Heracles the
Archer; countermark: thunderbolt.
Same as 11.
25. Bronze mirror
D. 17 cm, H. of handle 8 cm.
Thin round plate with shallow ridge running along
the perimeter on the inside.
26. Iron strigil, broken in three pieces
27. Bronze rings

[Female, c. 43 years old.]

H. 8 cm, D. 4.5 cm
Similar to 12.
30. Iron knife.
31. Pieces of an iron strigil.

[Young adult female 19–25 years old with robust
skeletal features.]
32. Pair of silver spiral earrings (FIG. 21)
H. 1.9 cm, W. 1.8 cm, D. 1.7–1.9 cm, weight 4.47 and 5.22 g
The spirals terminate in three granules at each end supported by triangles of grains, below which are cylinders decorated with triangles and lozenges of granulation between borders of plain wire and a lower tier of granulated triangles.

33. Pair of gilded earrings with disc and boat-shaped pendant (FIG. 22)
D. of discs 1.7 cm. Boat L. 2.5 cm, H. 2.2 cm
Each disc consists of an outer ridge imitating spiral, beaded wire and a spiral frieze surrounding an inset motif which is now missing. The bronze hook is preserved on the back of one disc.
The boats are decorated with rosettes along the contour; the three rosettes of the top are larger. There is a central vertical division on the hull of the boat, marked by a band of beads. Miniature Nike figures are seated on either end. Four amphoroid and two human-shaped beads are suspended from each boat.
Traces of the bronze fastenings connecting the boat and the amphoroid pendants are not preserved, they were probably in bronze.
K.-Ch.-S.-A. 794, fig. 11.

34. Pair of bronze bracelets with snake-head terminals (FIG. 23)

GRAVE S-XVIII

41. Four pieces of a gold strip (FIG. 27)
H. 0.6 cm
(a) L. 13 cm, weight 0.53 g; preserves one rounded end pierced by a hole; (b) L. 9.8 cm, weight 0.39 g; (c) L. 5.5 cm, weight 0.19 g; (d) L. 2.3 cm, weight 0.09 g.

42. Five pieces of a gold strip (FIG. 28)
H. 0.8 cm.
(a) L. 4 cm, weight 0.07 g; (b) L. 3 cm, weight 0.06 g; (c) L. 3 cm, weight 0.05 g; (d) L. 1.6 cm, weight 0.05 g; (e) L. 1.6 cm, weight 0.05 g.

43. Two gold leaves, triangular, pierced by a hole on the base (FIG. 26)
H. 2 cm, W. 1.4 cm, weight 0.07–0.08 g.

44. Nine gold leaves, orthogonal, with triangular tips (FIG. 27)
H. 1.8–2 cm, W. 1.4 cm, weight 0.11–0.07 g.

45. Coin AR

OFFERING PYRE S-D

55. Silver necklace consisting of seventeen pendants (FIGS. 29–30)
All except (a), are made of thin silver sheet shouldered on thin back plates and suspended by tubular beads glued on their back.
(a) Amber knuckle-bone tied by a silver wire forming a suspension loop on top (FIG. 31)
H. 4 cm
Appendix: Report on the Anthropological Forensic and Palaeopathological Study of a Select Sample of Human Skeletal Individuals from the Ancient Necropolis of Thasos

By Anagnostis P. Agelarakis

This physical anthropological communication, reporting on a select number of six human individuals, is part of a larger archaeological forensic/palaeopathological project implicated in the study of the human skeletal population recovered from the necropolis of the ancient city of Thasos. Considering that the following document reflects on case studies, hence lacks the potential of providing statistical contributions to the context of a population approach, an attempt was made to present the six individual report sheets in a format where available information was conferred under specific thematic

Archaeological Museum of Thasos
units of analysis, possibly allowing the reader better to address and juxtapose compatible data between the individuals involved.

1. Site and Context Information. Thasos-Limenas, Soultou Plot, Tomb VI-Dry Bones.

Date of Excavation. 5 July 1974.
Date of Lab Analysis. 28 May 1996.
Lab No. 6a of the 1986 Thasos Database.
Homo Lab No. Homo 2, of Burial VI.

General Description of Skeletal Remains. This individual was represented by a relatively complete but moderately fragmented skeleton comprising axial and appendicular remains from the cranium, dentitions, and postcranium. Whereas the degree of fragmentation, caused by taphonomic conditions, significantly hindered the extraction of metric data, preserved bone surfaces revealed more than adequate anatomical loci for morphological studies and forensic evaluations. Hence, it was possible to determine that developmentally speaking the skeletal maturation process was incomplete—as revealed by unfused and/or partial epiphyseal ossifications of axial and appendicular structures and of their diaphyseal counterparts, and that the general skeletal morphology revealed gracile characteristics with very unaccentuated muscular imprints.

Dental Information and Pathology. Nineteen teeth had been preserved in the upper and lower jaws of this individual, most of them found in situ—in the alveolar sockets, representing both labial and buccal dentitions. None of the third molars had erupted, but their crowns and the proximal quarter of their root systems had already developed within the alveolar chambers. Two out of the nineteen teeth were retained deciduous, namely the distal root segment of the left second mandibular molar and the entire right second mandibular molar, hence causing the impaction of both second mandibular permanent premolars—which were unerupted. An additional anomaly was observed at the left maxillary hemisphere where the permanent canine was ectopic, having erupted in what should have been the position of the second lateral permanent incisor—which was impacted and thus unerupted. As a co-relative factor to the latter canine ectopism, one should consider the effects of prolonged retention of the deciduous canine, which based on alveolar reactive surfaces must have been lost shortly before death. Further, labial incisal and buccal occlusal surfaces showed a very slight degree of wear, of cusp tip polishing, whereas the alveolar interdental septae revealed a slight flattening, due to an initiation of absorptive processes possibly caused by gingival irritation and inflammation.

Dental linear enamel hypoplastic (LEH) markings had affected the crowns of permanent teeth. These linear permanent markers of early life systemic stress are induced by ephemeraly stunted and subsequent improved growth of the functions of enameloblastic cells producing and depositing enamel on dental crowns. Parenthetically, LEH are caused by a gamut of pathological conditions (including fevers, exanthemas, and diarrhoeas), trauma, malnutrition and/or under nutrition (including weaning diarrhoea) and temporary starvation, though a factor of genetic predisposition should also be considered as a possible causative agent. Based on metric evaluations of recurrent LEH which had marked the mandibular right lateral incisor (R. I.), it was assessed that they had taken place during three temporal junctures, namely at 0.75, 1.25, and 3.75 years—all occasions falling within the first half of the Infancy I age group. The individual survived all three conditions of stress otherwise no LEH would have formed.

In addition, a singular enamel hypoplastic pit, of a ‘laccoid’ type, marking the labial surface of the mandibular right central incisor probably reflected on: (a) a traumatic event which had affected locally the developing crown of the tooth between 18 months (±3) months to 4 years (±9 months) of age—during which the developing crown was unerupted in the alveolar bone; (b) the implication of an apparatus which could have assisted either in the binding of the neurocranium—owing to a certain cultural habit/mandate, or in the lactation/feeding process, and/or the pacification of the individual during the earlier stages of Infancy I, while the dental crown was still developing, if the apparatus was applied at that specific locus, with sufficient pressure in the form of benign stress, thus
deterring at a micro-environmental level normal enameloblastic cell activities; or (c) a case of genetic predisposition.

Cranial/Post-cranial Pathologies and Trauma. Cranial, dental, and post-cranial remains showed absence of discernible pathological changes with the exception of a temporo-mandibular joint surface which revealed a well-defined concave and roughly circular lesion. In differential diagnostic processes against osteoarthritis it was determined that the defect had been caused by *osteochondritis dissecans* resulting from a traumatic event which impacted the hyaline cartilage of the joint. Based on the fact that the concavity was well defined and with rather smoothed slopes it was further assessed that the traumatic event had taken place long before the occurrence of death.

Skeletomuscular markers of habitual and occupational stress (MHOS). None observed.

Age assessment in years and age group. Based on morphological characteristics of the pubic symphysis combined with the stage of epiphyseal/diaphyseal maturation and ossification processes, and lastly by dental development and wear it was assessed that this individual was over 16/17 years but under 20 years of age—within the terminal ceiling of the Subadult age group to the initial stages of Young Adulthood.

Sex assessment. Pubic symphysis and overall skeletal morphocharacteristics indicated that this was a female individual.

Discussion. The overall gracile skeletal morphology coupled by a lack of any emphasized muscular imprints certainly indicate that this young female individual was sheltered from any strenuous and/or repetitive physical activities during her life. It should be noted, however, that no discernible physiological weakness could be detected from the remains of the skeletal body, since the structures of the skeleton did not reveal atypical growth patterns of bone components. Further, considering the impeccable kind of dental wear patterns it is suggested that the dietary intake of this female was extremely well prepared. Such skeletal evidence, taken in the context of the larger and coeval Thasian skeletal population, might suggest an individual of a higher socio-cultural standing. Nevertheless, as deciphered through the LEH she could not have been protected from the repeated early life stress conditions she experienced—most probably due to pathogenetic causative agents rather than malnutrition. These although not immediately responsible for the cause of her death, impacted her constitutionally at a very sensitive period, with potential long-term effects on her biological growth.

2. Site and context information. Thasos-Limenas, Soultou Plot, Necropolis, Tomb XVIII—Dry Bones.

*Date of excavation.* 10 September 1975.

*Date of lab analysis.* 30 May 1996.

*Lab no. and database information.* 3a of the 1986 Thasos Database.

*Homo lab designations.* Homo 2, of Burial XVIII.

*General description of skeletal remains.* This individual was represented by a very incomplete skeleton involving several cranial vault bones—showing suturaleal eminences, and seven permanent teeth. Hence, the degree of skeletal preservation seriously obstructed a thorough physical anthropological study. Nevertheless, it was possible to conduct some analyses of the remains for deriving basic forensic assessments. Subsequently, it was determined that the remains represented a skeletally speaking immature individual with gracile morphoanatomical characteristics.

*Dental information and epigenetic variation.* Seven teeth represented the maxillo-mandibular dentitions. The maxilla preserved the left central incisor, the right first premolar, and all three right molars, while the mandible yielded the right lateral incisor, and right first premolar. All teeth were erupted with the exception of the right third maxillary molar, which was visible inside the alveolus having completed the formation of its crown to the cemento-enamel junction. Whereas dental wear patterns were insignificant—simulating initial stages of the cusp tip polishing level—the mesiopalatal crown surface of the right first maxillary molar was clearly marked by a dental epigenetic trait of non-metric variation, namely the trait of Carabelli—expressed as a tubercle.

*Cranial/post-cranial pathologies and trauma.* None observed.
Skeleto-muscular markers of habitual and occupational stress (MHOS). None observed.

Age assessment in years and age group. Based on the degree of dental maturation, development, and eruption processes it was assessed that this individual was slightly older than 12 years of age (± 6 months), that is past the terminal stages of Infancy II (ranges from >6 to 12 years of age), and initial stages of the Juvenils age group.

Sex assessment. A pertinent forensic assessment was not possible owing to the limitations imposed by preservation. However, as an inductive assessment it could be mentioned that the cranial morphology and some metric values of the cranial components fell within the mensurational ranges seemingly typical for female individuals—though a relative discriminatory function database is as of yet incomplete and the factor of biological sex variation could not be minimized.

Discussion. It would be feasible to indicate that the dietary intake of this individual was prepared very well based on the minimal dental incisal and occlusal wear for this age subgroup. Further, the absence of dental LEH manifestations provides some evidence for a scarcity of early life systemic stressors—that would have caused enamel hypoplasias.

Date of Excavation. 30 September 1996.
Date of Lab Analysis. 5 June 1998.
Lab number and database information. 7 of 1998, Thasos Database.

General Description of Skeletal Remains. This individual was represented by a nearly complete skeleton. Given the state of preservation it was possible to retrieve a variety of forensic metric data coupled by morphoanatomical and palaeopathological studies. A study of skeletal morphology indicated a plethora of female characteristics—especially of the imminata and of their pubic symphysis, on a robust skeletal body with emphasized muscular imprints and specific bone changes indicative of in vivo osseous responses to daily load-bearing and kinetic activities. Such manifestations were observed on selected cranio-infracranial areas allowing for forensic reconstructions of implicated synergistic skeleto-muscular systems, see MHOS below. The shape of the cranial vault revealed right frontopetally and a corresponding left parietopetally hence reflecting on a case of cranial developmental asymmetry. Further, the occipital condyles appeared to have been compressed in a superior direction, with emphasis on the right side, in addition to being flatter in the shape of their articular platforms, corresponding to the articular counterpart surfaces of the first and even second cervical vertebrae.

Metric studies overwhelmingly confirmed the morphologically derived female characteristics with the exception of the femoral midshaft circumferences which yielded male readings—a result of robustness and emphasis of their dorsal linea asperae reflective of significant muscularity.

Dental pathology. Both jaws were well preserved with all teeth in situ with two exceptions: (a) the maxillary central and lateral incisors, as well as the maxillary left canine and first premolar were lost owing to taphonomic reasons; and (b) the first and second mandibular molars had been lost, bilaterally, ante mortem. The alveolar areas of the latter teeth revealed well healed surfaces, indicative of a completion of osteoblastic reparative processes which had taken place long before death. Subsequently, the third mandibular molars shifted their original anatomical positioning in the alveolar processes, as a consequence of the hiatus resulting from the loss of the first and second mandibular molars and the exposure of the remaining teeth to shifted interrelations of trajectory loci of stress between buccal mandibulo-maxillary teeth during mastication processes. Dental wear patterns of the preserved teeth revealed a slight degree of masticatory wear with horizontal incisal edges and occlusal platforms. It was possible to discern a greater emphasis of wear on dental surfaces of the right maxillo-mandibular quadrants—side preference in mastication due to habit and/or for alleviating pain or irritation, and on the incisal edges of the labial teeth—exposing dentin through traceable continuous mesiodistal islets. Further, with the exception of periodontal disease, there were no flaked off enamel surfaces affecting the enamel
rings of dental crowns, cariogenic lesions, nor any traces of LEH—possibly with the exception of scant enamel pitting.

_Cranial and post-cranial pathologies._ Osteoarthropathies and spondyloarthropathies were the most significant pathological osseous changes which had affected this female individual. Multiple appendicular joints had been affected in a bilateral fashion implicating from the upper extremities, the shoulders, the elbows, and in a lesser degree the wrists, whereas the lower extremities revealed the greatest severity of osteoarthritis in the knee joints and in a lesser degree at the hip and ankle/talo-calcaneal areas. There were manifestations of articular surfaces’ porosity, osteophytic growths, and marginal lippping. In addition, the diarthrodial vertebral and costovertebral joints showed similar changes, whereas the areas around the synchondrotic vertebral cartilaginous discs, discerned marginal lippping changes with emphasis at the first, second, and third lumbar vertebrae.

Whereas there were some palaeopathological symptomatic indications pointing to rheumatoid arthritic changes, the fact that there were no joint subluxations, joint disfigurements, and/or ankyloses, nor any osteoporotic manifestations but rather osteophytic growths and marginal lippping coupled by joint mobility, a differential diagnosis strongly supports the case of degenerative arthritis, even as an end-stage, superimposing, that is, alternative underlying forms of arthritits. Further, following a synthesis of palaeopathological manifestations caused by arthritic and traumatic changes with the mapping of synergistically functioning muscular systems, it is assessed that the conditions of degenerative arthritis were the result of the very rigorous lifestyle of this female. Finally, the bilateral ossification of the cartilaginous connections between ribs and manubrium sterni further indicates degenerative conditions, typical among the elderly but slightly premature for the case of this younger female, and therefore attributed to an accelerated degeneration due to rigorous physical activities, see MHOS, below.

_Trauma._ Axially oriented conditions of stress had caused through overcompression of the intervertebral lumbar discs an overexpansion of the discs’ nucleus pulposus material into the superoinferior vertebral bodies’ plates, resulting in depressed lesion with traces of sclerotic floors, designated as Schmöl’s disc herniations. Although a case of degenerative intervertebral disc disease was considered, it was strongly suspected that these manifestations were the result of increased load-bearing conditions causing trauma, and/or trauma resulting from strenuous physical activities—including axially oriented fall(s).

Further, under the rubric of ‘trauma’ it should be pertinent to describe manifestations possibly relative to pregnancy, such as minor pitting/erosion and subsequently nodules of parturition (?) observed mainly on the left pubic bone, coupled by relative changes in the iliac preauricular sulcus.

_Skeleto-muscular markers of habitual and occupational stress (MHOS)._ A gross skeleto-muscular study allowed for forensic reconstructions elucidating certain kinetic activities reflective of important ante mortem physiological endeavours. It should be underlined that such undertakings could implicate physical exercises, labour related and/or habitually mandated activities conducted with a regular mode on a long term basis over at least the post-adolescent part of her life and certainly very close up to the occurrence of death. Integrated information derived from the occipito-atlantic, sterno-clavicular, and sacroiliac joints indicated significant downward directed load bearing conditions on the head, back, and/or shoulders. Further support for this argument is derived from the lumbar nodules of Schmöl’s disc herniations, the accessory sacroiliac facets, the flattening and the outwards flaring as well as the distally oriented extensions of the sacroiliac auricular surfaces, the marked enthesophytic growths on pertinent innominate bones areas, and finally the robustness of the lower extremities responding to tension and pressure stressors.

Muscular loci of origin and insertion from the bones of the upper extremities indicated the implication of such activities as necessitated for functionally stressing the shoulder joints combined with a very vigorous flexion, extension, and rotation of the elbow and wrist joints with a considerably strong hand grip, as well as right handedness.
Additionally, the lower extremities, confirming the assessments on axial asymmetry and handedness, as described above, revealed significant data pertinent to locomotory behavior and certain bodily postures. Hence it was determined that the female individual had been walking and/or running on uneven precipitous terrains with a rough gait, descending rapidly from steep-sloped landscapes, with significant dorsi-flexion of the ankle joints. Further, she had been habitually assuming a squatting bodily posture—i.e. possibly while resting or working.

Age assessment in years and age group. A range of morphocharacteristic evaluations indicated a mean value of 43/44 years at the time of death, that is within the Late Adult age group which spans from 35 to 45 years. Specifics of the most important age assessments are as follows: (a) cranial sutural synostosis indicated >25 to <30 years; (b) dental surface wear about 25 to 30 years; (c) palaeopathological manifestations of osteoarthritis >35 to a maximum ceiling (based on the manubrial ossification of the costal ligaments) of about 60+ years—although the latter ceiling has been rendered unlikely due to differential palaeopathological diagnosis; (d) the sternal ends of ribs reflected degenerative changes occurring between 43 and 46 years; and (e) the pubic symphysis indicated morphocharacteristics appearing between 38 and 48 years. Items (d), and (e) are considered as carrying the most reliable information.

Sex assessment. Skeletal morphocharacteristics coupled by metric data indicated this was a female individual. Some of the most basic morphocharacteristics used are these of the pubic symphysis' morphology, subpubic angle, and additional innominata and pelvic morphology. Further, several metric indications include but are not limited to the following (all measurements reflect the right side): (a) 31.360 mm for the length of the scapular glenoid cavity; (b) 140.0 mm for the clavicular maximum length; (c) 295.0 mm for the maximum length of the humerus; (d) 40.15 mm for the vertical diameter of the humeral head; (e) 56.65 mm for the epicondylar width of the humerus; (f) 435.0 mm for the maximum femoral length; (g) 40.61 mm for the femoral head diameter; and (h) 74.46 mm for the bicondylar femoral width (this was an ambiguous mean value for females but the left counterpart measuring 72.74 mm fell very close to the upper ceiling of the female readings). The femoral midshaft circumference measuring 84.0 mm bilaterally fell above the female cutting point, but it should be underlined that earlier physical anthropological/forensic studies conducted by this author on Late Bronze/Early Iron Age skeletal populations from the acropolis of Kastri, in the region of Theologos, revealed that Thasian populations tend to express such morpho-metric values (in fact males often surpass 99.0 mm in femoral circumference), as relative biological responses—over generation time (biological adaptations) to environmental/geomorphological stimuli, cultural behaviour, dietary patterns, and gene-pool information and dynamics.

Stature estimation. Estimated at 153.265 cm (corrected with a regression formula for individuals older than 30 years).

Discussion. This was, physically speaking, a very active female individual with a very robust, athletic type of body living a rigorous life style and exerting serious physiological stress on a multitude of trajectory load-bearing anatomical loci, resulting in the degenerative and traumatic changes as described above. Whereas lack of debilitating diseases—including early life conditions of stress, a high standard of dental hygiene and the excellent quality and preparation of foods consumed might reflect a relatively speaking significant standard of living, she was not sheltered from long-term strenuous physical activities.

4. Site and context information. Thasos-Limenas, EK Sector A, Tomb II.
Date of excavation. 1 October 1996.
Date of lab analysis. 3 June 1998.
Lab number and database information. 5 of 1998, Thasos Database.
Homo lab designations. Homo A, of Burial II.
General description of skeletal remains. This individual was represented by a fairly well preserved skeleton involving cranial (although fragmentary), dental, and postcranial remains, the postcranium having been
preserved best. Osseous components and surfaces allowed for an adequate study of morphocharacteristics, palaeopathology, and for retrieving metric data. Hence, morphological evaluations provided multi- variate female characteristics, subsequently confirmed by the results of metric analyses.

A gross anatomical analysis focusing on skeletal biological growth and maturation indicated a healthy development of skeletal structures, with an absence of early-life systemic stressors, and basically void of any significant pathologic and/or traumatic conditions which would have affected the bones of this female. Nevertheless, this individual was very active in vivo, presenting skeletomuscular areas reflective of a number of physical activities—however, not strenuous, performed on a long-term basis over the duration of at least her post-Subadult life, see MHOS, below.

Dental pathology. Most of the maxillary teeth were recovered, and repositioned in the alveols, with the exception of the third molars, and from the mandibular dentitions all teeth were missing with the exception of the three left molars. Dental surfaces, at an excellent state of preservation, revealed an insignificant degree of wear of incisal and occlusal surfaces—designated as cusp tip polishing, void of any flaked-off enamel due to microtraumatism, and lacked cariogenic lesions, as well as enamel hypoplasias of any kind. This otherwise impeccable standard of dental hygiene and evidence of the excellent quality and preparation of foods consumed—however, a food intake with inadequate roughage—was nicked by traces of dental supra- gingival calculus deposits and a discernible alveolar bone resorption, with greater emphasis at the buccal areas (of the posterior teeth), and development of a periodontal alveolar ridge, typical manifestations for the presence of slight periodontal disease. Additionally, some dental morphological manifestations of enamel drip (towards the bifurcations) on the buccal sides of all preserved mandibular molars might have implicated tissue reaction for locally alleviating alveolar ridge irritation. Finally, an enamel pearl substrate was detectable at the left first mandibular molar.

Further on morphocharacteristics, both central and lateral maxillary incisors revealed deep distal lingual grooves, with a greater emphasis on the lateral ones, whereas the maxillary right second molar showed a very prominent anterior transverse ridge extending to the mesial marginal ridge and hence producing a ‘bicuspid’-like mesio-buccal cusp.

Cranial and post-cranial pathologies. This female individual presented cranio-postcranial structures nearly free of pathological manifestations. Slight periosseous reactive layers, healed long before death, were observed mainly on both tibiae and faintly on both femorae. The periostal reactions were classified as primary since the underlying causative agent(s) could not be revealed from osseous manifestations. However, since the periosseous reactive traces were rather localized it could be ascertained that the causative agent(s) did not act in a systemic pattern.

Trauma. None observed.

Skeleto-muscular markers of habitual and occupational stress (MHOS). Careful study of skeletomuscular manifestations revealing emphasized imprints at loci of muscular origins and insertions provided evidence for right-handedness and the implication of both upper extremities in kinetic functions which required flexion and extension movements of the arms, forearms, wrist and especially of the hand phalanges, with a strong hand grip. Further, the lower extremities reflected on locomotory patterns conducted on rough and precipitous substrates and in fact when walking down from such precipitous landscapes both knee joints had been frequently in a ‘locked’ position—a serious imposition of trajectory stress with no tibiofibular flexion at the knee joint.

She could certainly not compare in skeleto-muscular robustness with male individuals from the larger context of the ancient necropolis of Thasos, nor even with the female individual of burial number T1 (lab. no. 7, of 1998), and neither with the majority of females studied so far, nevertheless she was, physically speaking, moderately active—although definitely sheltered from excessive stress and trauma.

Age assessment in years and age group. Several morphocharacteristic analyses indicated she was about 26 years at the incidence of death, within the Middle Adult age group. The following presents some of those basic evaluations: (a) cranial suturaleal synostosis suggested a biological age between 25 to 28 years; (b) dental wear reflected 24 to 27 years; (c) pubic symphysis morphology indicated >19 to about 25 years; and (d) a near terminal stage of ossification process of the sternal clavicular epiphyseal plate...
disclosed an age between 25 to 30 years of age. The latter two might present the most reliable age-related evidence.

Sex assessment. Based on morphometric analyses it was easily assessed that this was a female individual. Specifically the innominate bone morphology—and in fact the pubic symphysis, was considered as the most reliable out of the entire gamut of female characteristics. Further, metric data provided for the same assessment: (a) 294.5 mm for the humeral maximum length; (b) 40.0 mm for the vertical humeral head diameter; (c) 54.67 mm for the epicondylar length of the humerus; (d) 426.0 mm for the maximum length of the femur; (e) 40.57 mm for the femoral head diameter; (f) 72.70 mm for the bicondylar femoral width; and (g) 79.0 mm for the femoral midshaft circumference.

Stature estimation. 159.66 cm.

Discussion. As indicated above, it is suggested that this female individual, having grown with no skeletally detectable health obstacles, consumed very well-prepared foods, was basically sheltered from strenuous activities, and trauma, presenting a nearly disease free skeleton, while being moderately active, physically speaking, with certain upper extremities’ kinetic functions—for example, but not limited to, working on a horizontally arranged loom, and presenting locomotory behaviour manifestations rather typical for the landscape context of the city of Thasos.

5. Site and context information. Thasos-Limenas, EK Sector A, Tomb V.
Date of Excavation. 2 October 1996.
Date of Lab Analysis. 3 June 1998.
Lab number and database information. 4 of 1998, Thasos Database.
Homo lab designations. Homo A, of Burial V.
General description of skeletal remains. This individual was represented by a poorly preserved, very fragmentary and seriously incomplete skeletal body. The available cranial and postprandial fragments nevertheless allowed for some inspectional forensic evaluations without the possibility, however, to coax out of them reliable metric data.

It should also be noted that there were some faunal remains mingled with the human bones.

Dental pathology. Not applicable (no dentitions were preserved).

Cranial, post-cranial pathologies, and trauma. Not applicable owing to limited preservation.

Skeletomuscular markers of habitual and occupational stress (MHOS). It was possible to ascertain that the metacarpal and phalangeal muscles, of the palmar side of the hands, namely the muscles interossei volares were emphasized, indicative of a strong hand grip.

Age assessment in years and age group. Based on the limitations imposed by preservation it was only possible to determine that this was an individual older than Young Adulthood (>25 years) and could possibly be as old as 45 to 55 years of age—within the Maturus age group.

Sex assessment. It is suspected that this was a male individual based on skeletal morphologic characteristics.

6. Site and context information. Thasos-Limenas, EK Sector A, Tomb VIII.
Date of excavation. 3 October 1996.
Date of lab analysis. 2 June 1998.
Lab number and database information. 3 of 1998, Thasos Database.
Homo lab designations. Homo A, of Burial VIII.
General description of skeletal remains. This individual was represented by a fairly well-preserved skeletal body comprising cranial, dental, and postprandial remains. Owing to taphonomic conditions a variety of axial and appendicular irregular and short tubular bones were missing, coupled with several distoproximal eminences of long tubular bones, including the diaphyseal/epiphyseal regions. Whereas there were limitations as to the extent of forensically derived assessments, based on preservation, it was possible to conduct both detailed morphoanatomical analyses of osseous structures and surfaces, as well as to retrieve, however limited, an adequate number of cranio-infracranial metric data. Hence it could be ascertained that this individual presented a gracile skeleton revealing a multitude of female
morphometric characteristics, coupled by palaeopathological manifestations, and some very specific appendicular loci of accentuated skeletomuscular imprints.

**Dental pathology.** The majority of dentitions were preserved in their alveols with the exception of the following maxillary teeth: the right central incisor, both lateral incisors, the right canine, and the two right premolars. Dental surfaces reflected on a slight to moderate degree of wear with horizontal incisal and occlusal surfaces, lacking a curve of Spee, showing isolated initial islets of exposed dentin. Additionally, there was no enamel micro-traumatism—such as notched and/or flaked off enamel chips. Furthermore, there were no enamel hypoplastic defects, nor any cariogenic lesions—the result of infectious lytic activities. There were, however, supragingival calculus deposits on dental surfaces, with emphasis at the maxillary buccal teeth, with flattened and occasionally concave interdental septa—especially among molars where bifurcations were exposed due to alveolar bone resorption, coupled by the presence of an alveolar periodontal ridge. Hence, it was possible to establish the moderate ante-mortem presence of periodontal disease. Though the foods consumed must have been prepared in an exceptional way, at least since the functional use of her permanent teeth, it was apparent that her dietary intake was lacking sufficient roughage.

**Cranial and post-cranial pathologies.** Palaeopathological manifestations of porotic hyperporosis (mainly of cribrotic size) without hyperostotic conditions, were observed bilaterally on the inferoposterior areas of the parietals, and the tuber occipitalis. Further, the parietal bones revealed a flattening and thinning of their diploic components at the areas commencing from the respective eminences of the suture sagittalis and extending bilaterally up to the lineae temporales superiores—the most superior anteroposterior loci of origins of the muscles temporalis at the parietal tuberosities. It should be noted that the eminences of the suture ‘dentata’ sagittalis were spared from such changes considering the osseous density of their composition—pertinent to the synarthrotic functions of the suture. Hence one could roughly describe the top of the vault as resembling a keel shape with a marked mesial ridge. Endocranial observations showed that the depressions of the posterior parietals had only affected the outer cortex and the diploe, being a cancellous component. Given the circumstances of the manifestations it would be rather premature—considering the younger age of this individual (see age assessment), to diagnose a case of osteoporosis symmetraca senilis. While it is suspected that lack of participation in strenuous physical activities—as established forensically for this female, and/or a hormonal imbalance—setting an earlier than expected oestrogenic reduction, could have caused such osteoporotic changes, a developmental abnormality of cranial membranous tissues could not be excluded. Further, it should be considered that the porotic hyperporotic manifestations could have been the result of differential causative agent(s), such as a low-grade acquired anaemia—however not of pernicious nature—as well as of a number of infectious pathogenetic agents.

From the bones of the infracranium it was possible to assess the presence of slight osteoarthropathic changes affecting, as marginal lipping and ostophytic growths the synovial articulations of the shoulders and knees.

**Trauma.** None observed.

**Skeleto-muscular markers of habitual and occupational stress (MHOS).** There were some discrete loci of moderate muscular imprints which were mainly observed on the bones of the upper extremities. Based on forensic reconstructions, it was possible to determine that this female individual performed frequently certain kinetic activities that involved the following: (a) strong flexion of the arm (elbow) possibly against a relatively strong external force/pressure and with considerable flexion of the hand phalanges; (b) a supination and hypertension of the arm; and (c) extension of the humero-ulnar joint (elbow). These movements although described somewhat separately could have very well been performed synergistically. From the bones of the lower extremities, imprints of the adductor group of muscles—with emphasis at the adductor longus of the right femur, and the muscle soleus of the tibia—bilaterally, appeared as the most accentuated. The former was indicative of flexion of the thigh toward the pelvis and subsequently assisting in the forward movement of the lower limb, whereas the latter, stabilizing the foot while standing against forward fall, predominates as an extensor of the foot during locomotory behaviour.
Age assessment in years and age group. Based on a number of physical anthropological evaluations it was assessed that this female individual was about 35 years of age. Specifically, the cranial synostosis indicated an age at death around 25 years, dental wear between 25 to 30 years, the pubic symphysis ≥24 to 32 years, the patterns of epiphyseal ossification between 28 to ≤32 years, and finally palaeopathological changes indicated an age around 35 years.

Sex assessment. This individual was a female based on a synthesis of morphological studies—with emphasis on the pubic symphysis, and metric values. Specifically some of the most basic readings retrieved are as follows: (a) 33.60 mm for the maximum length of the scapular glenoid cavity; (b) 40.45 mm for the vertical diameter of the humeral head; (c) 51.19 mm for the epicondylar length of the humerus; (d) 42.05 mm for the femoral head diameter; and (e) 74.0 mm for the maximum circumference of the femoral midshaft.

Discussion. This was an individual sheltered from strenuous physical activities or severe repetitive skeleto-muscular motions and actions. Her dental hygiene and dietary intake were of high standards—although insufficient in required roughage for better deterring plaque deposition on dental surfaces.

The palaeopathological manifestations observed on the cranial vault bones most probably reflected non-virulent but active debilitating circumstances.