

# ARCHAIC ROOF TILES

## THE FIRST GENERATIONS

THIS PAPER further discusses issues which I touched upon briefly in a study in the last volume of the *Opuscula Atheniensi*a: Why did the tiled roof appear at all, why did it spread as fast as it did, and how was this diffusion achieved?<sup>1</sup>

The basis for my argument is a comparison between documented finds of roof tiles from the period 700–650 and those from 650–600 B.C. From the first half of the 7th century, we know of a small group of tiled roofs from a very restricted area (marked with triangles on the map, Fig. 1). The central monuments are the first temple of Apollo at Corinth, dated to approximately 680 B.C., and the slightly later first temple of Poseidon at Isthmia. The almost identical shape of the tiles from these buildings recurs at two additional sites: Perachora and Delphi. The latter cannot be associated with particular buildings and thus cannot be dated by external evidence. Their close similarity, however, to the specimens from Corinth and Isthmia gives us reason to believe that they are roughly contemporary.<sup>2</sup>

In the second half of the 7th century, the situation changes completely. Tiled roofs are now in evidence at a large number of sites over most parts of the Hellenized world. The list presented here does not aim at completeness. Publications are often very vague on dates, and some items may prove wrong; many more could certainly be added. Still, even in this preliminary state, the list should be more than enough to prove my point. Besides the four places mentioned above, architectural terracottas—plain tiles or decorative ones—are known from the following sites down to *ca.* 600 B.C. (marked with circles in Figure 1):<sup>3</sup>

*Sukas.* Tiles from a Greek sanctuary. Second half of 7th century. P. J. Riis, *Sukas I*, Copenhagen 1970, pp. 52 and 58–59; G. Ploug, *Sukas II*, Copenhagen 1973, pp. 93–94.

*Sardis.* Tiles from private houses. End of 7th century. A. Ramage, *Lydian Houses and Architectural Terracottas (Archaeological Exploration of Sardis, Monograph 5)*, Cambridge, Mass. 1978, pp. 9 and 38–41.

*Ephesos?* Antefix. End of 7th century. Mertens-Horn, 1978, p. 61.

*Samos.* Tiles from various buildings. End of 7th century. Ohnesorg, pp. 181–192 above.

*Athens.* Antefixes from the Akropolis. Late 7th century. *TdA II*, pp. 26–27; Williams, *Στήλη*, p. 349.

<sup>1</sup> Ö. Wikander, 1988, pp. 203–216. The following special abbreviation will also be used: Winter, 1978 = N. A. Winter, “Archaic Architectural Terracottas Decorated with Human Heads,” *RM* 85, 1978, pp. 27–58

<sup>2</sup> Robinson, *AM*, with bibliography for all four sites in note 1 on p. 55. I accept here the dates given by Robinson, even though they are not completely uncontroversial. [As pointed out by R. C. S. Felsch (footnote 40, pp. 313–314 below), the date of 680 B.C., provided by the pottery found in the working-chip layers, provides only a *terminus post quem* for the date of the temple and its roof—Editor.]

<sup>3</sup> Since this list is not intended as a proper catalogue, instead of full bibliographies I give only one or two references for each site.

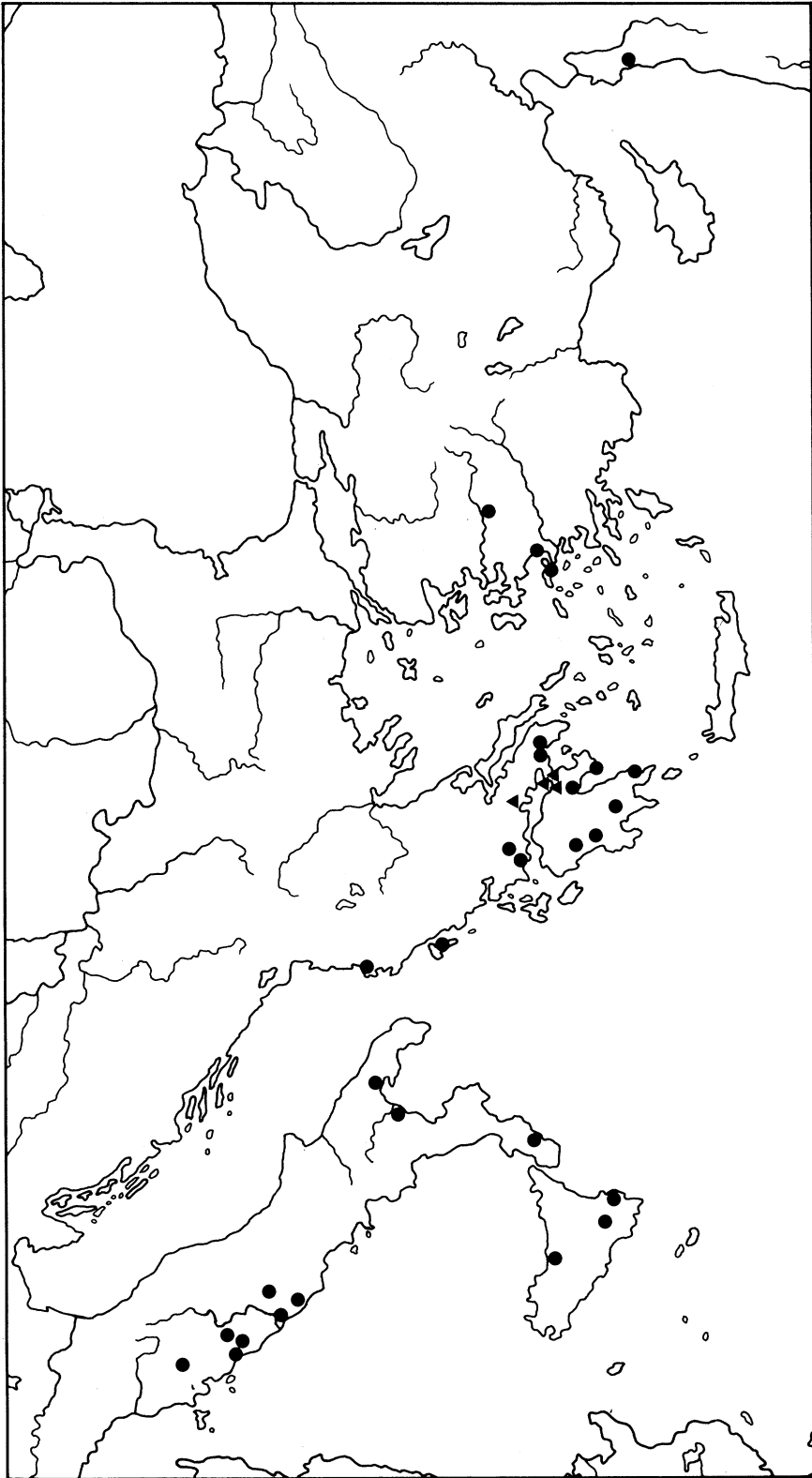


FIG. 1. Distribution of tiled roofs: 700-650 B.C. (triangles) and 650-600 B.C. (circles)

- Eleusis*. Tiles from the Solonian Telesterion. *Ca.* 610 B.C.? K. Kourouniotes, «'Ανασκαφή Ἐλευσίνωνος κατὰ τὸ 1933», *Δελτ* 14, 1931–1932, *Παράρτημα* (pp. 1–30), p. 4; G. E. Mylonas, *Eleusis and the Eleusinian Mysteries*, Princeton, N.J., 1961, pp. 66–67, 70, and 76.
- Argive Heraion*. Tiles and antefixes from the North Stoa or the Old Temple of Hera, or both. *Ca.* 600 B.C.? J. J. Coulton, *The Architectural Development of the Greek Stoa*, Oxford 1976, pp. 29 and 215; Pfaff, pp. 149–156 above.
- Halieis*. Tiles from the Temple of Apollo. *Ca.* 600 B.C.? M. H. Jameson, “Excavations at Porto Cheli. Excavations at Halieis, Final Report,” *Δελτ* 27, 1972, *Χρονικά* (pp. 233–236), p. 234; N. Cooper, pp. 65–93 above.
- Epidaurus Limera*. Antefix from the Temple of Apollo. *Ca.* 600 B.C.? Koch, p. 95; *GFR*, p. 38.
- Sparta*. Tiles, antefixes, and akroteria from the Temple of Artemis Orthia and the Old Menelaion. *Ca.* 600 B.C. W. S. George and A. M. Woodward, “The Architectural Terracottas,” in *The Sanctuary of Artemis Orthia at Sparta* (*JHS* Suppl. 5), R. M. Dawkins, ed., London 1929, pp. 117–144; H. W. Catling, “Excavations at the Menelaion, Sparta, 1973–1976,” *AR* 1976–1977 (pp. 24–42), p. 36.
- Bassai*. Antefixes and disk akroteria from the early temple of Apollo. *Ca.* 600 B.C.? K. A. Rhomaios, «'Εκ τοῦ ἀρχαιοτέρου ναοῦ τῆς Φιγαλείας», *Ἀρχ* Ἐφ 1923, pp. 1–25; N. Yalouris, «'Ανασκαφαὶ εἰς τὸν ἐν Βασσαῖς Φιγαλείας ναὸν τοῦ Ἐπικουρίου Ἀπόλλωνος», *ΑΑΑ* 6, 1973, pp. 39–55.
- Olympia*. Tiles from two unidentified buildings. Second half of 7th century. Heiden, pp. 41–46 above.
- Thermon*. Roof I. *Ca.* 640 B.C. Koch, pp. 51–74; Mertens-Horn, 1978, esp. pp. 62–63.
- Kalydon*. Tiles, antefixes, geison revetments, akroteria, and metopes from temple buildings. *Ca.* 630/610 B.C. Dyggve, pp. 135–164; Mertens-Horn, 1978, pp. 53–54.
- Corfu*. Tiles, antefixes, and simas from the Mon Repos temple. End of 7th century. *Korkyra* I, pp. 143–158; Dontas, *NFGH*, pp. 121–133, esp. p. 126.
- Apollonia*. Antefix. End of 7th century? Winter, 1978, p. 30, note 4; Mertens-Horn, 1978, p. 60.
- Taranto*. Antefix. *Ca.* 620 B.C. Winter, 1978, p. 31, with note 6.
- Metaponto*. Tiles from Buildings A1 and C. End of 7th century? D. Adamesteanu, “Santuari Metapontini,” in *NFGH* (pp. 151–166), pp. 162–166.
- Locri Epizefyrri*. Tiles, antefixes, simas, akroteria, and revetment plaques from the Marasà sanctuary. Second half of 7th century. A. De Franciscis, *Il santuario di Marasà in Locri Epizefiri*, I, *Il tempio arcaico* (*Monumenti antichi della Magna Grecia* 3), Naples 1979, pp. 67–71; G. Gullini, *La cultura architettonica a Locri Epizefiri*, Taranto 1980, p. 23.
- Syracuse*. Decorative terracottas from the temples of Athena and Apollo. *Ca.* 600 B.C.? G. Gullini, “Origini dell’architettura greca in Occidente,” *ASAtene* 59, n.s. 43, 1981 (1983; pp. 97–126), p. 116; C. Wikander, 1986, pp. 46–48, nos. 59, 61, and 66.
- Grammichele*. Raking sima. Late 7th century. C. Wikander, 1986, p. 36, no. 18.
- Himera*. Lateral sima from Temple A. *Ca.* 630 B.C.? *Himera*, I, *Campagne di scavo 1963–1965*, A. Adriani *et al.*, edd., Rome 1970, pp. 84–87; C. Wikander, 1986, pp. 36–37, no. 19.
- Satricum*. Tiles from the first sanctuary of Mater Matuta and Building A. Second half of 7th century. G. Colonna, “I templi del Lazio fino al V secolo compreso,” *Archeologia Laziale* 6, 1984

(pp. 396–411), pp. 400–401; *Case e palazzi d'Etruria* (Catalogue of the exhibition at Siena), Milan 1985, pp. 181–183.

*Ficana*. Tiles and antefixes from private buildings. Second half of 7th century. C. Pavolini and A. Rathje, in *Ficana. Una pietra miliare sulla strada per Roma*, Rome 1981, pp. 75–87.

*Gabii*. Tiles from private buildings. End of 7th century. M. Guaitoli, "Gabii," *PP* 36, 1981 (pp. 152–173), p. 159; *idem*, "Le città Latine fino al 338 a.C.—Urbanistica," *Archeologia Laziale* 6, 1984, p. 378.

*San Giovenale*. Tiles from private buildings. 650/625 B.C. Ö. Wikander, "Architectural Terracottas from San Giovenale," *OpRom* 13, 1981, pp. 69–89; I. Pohl, "San Giovenale da villaggio proto-villanoviano a città etrusca," *PP* 35, 1980, pp. 131–142.

*Tarquinia*. Tiles. Late 7th century. M. Bonghi Jovini, in *Gli etruschi di Tarquinia* (Catalogue of the exhibition at Milan), Modena 1986, p. 105.

*Acquarossa*. Tiles, antefixes, simas, akroteria, and revetment plaques from private buildings. Ca. 625 B.C. E. Rystedt, C. Wikander, and Ö. Wikander, in *Architettura etrusca nel Viterbese* (Catalogue of the exhibition at Viterbo), Rome 1986, pp. 60–79, 99–108, and 130–134; C. Wikander, *Acquarossa*, I, ii, *The Painted Architectural Terracottas, Typological and Decorative Analysis* (*Skrifter utgivna av Svenska Institutet i Rom*, 4<sup>o</sup>, 38:1:2), Stockholm 1988, pp. 119–126.

*Poggio Civitate (Murlo)*. Tiles, simas, and akroteria from the Orientalizing Building and the Southeast Building. 650/625 B.C. K. M. Phillips, Jr. *et al.*, in *Case e palazzi d'Etruria* (Catalogue of the exhibition at Siena), Milan 1985, pp. 64–74; E. Nielsen, "Some Preliminary Thoughts on New and Old Terracottas," *OpRom* 16, 1987, pp. 91–119.

The difference in numbers between tiled roofs of the early and late 7th century is obvious, but there is also a typological difference. In the first half of the century, the tiles are rather complicated in construction; considering their shape, I would prefer to describe them as "proto-Laconian" combination tiles. After the middle of the century, we are dealing instead with tiles of more or less classical Corinthian and Laconian types. The changes are considerable, but seldom great enough to obscure their obvious origin in and development from tiles of the "Isthmia type".

Real problems arise when one tries to explain the background of this type of tile. Its sophisticated construction has caused some scholars to look upon the type as the climax of a slow development from Mycenaean forerunners.<sup>4</sup> I was once inclined to do the same, but the complete lack of evidence for 8th-century predecessors is not likely to be fortuitous.<sup>5</sup> However advanced the Isthmia type may appear, it is now my belief that these tiles represent a first stage of a development towards simplification rather than the result of a gradual refinement. If so, they are presumably the invention of one inspired Corinthian potter, using his skill in a completely new field. An analysis of the technical details of the tiles in

<sup>4</sup> Martin, p. 68, note 2; *ATK*, pp. 195 and 261, note 28; Le Roy, 1967, p. 26.

<sup>5</sup> See, for instance, H. Drerup, *Griechische Baukunst in geometrischer Zeit* (*Archeologia Homerica* II, O), Göttingen 1969, pp. 116–121; A. Mallwitz, "Kritisches zur Architektur Griechenlands im 8. und 7. Jahrhundert," *AA* (*JdI* 96) 1981, pp. 599–642; K. Fagerström, *Greek Iron Age Architecture. Developments through Changing Times* (*SIMA* 81), Göteborg 1988, pp. 101–103.

comparison with those of contemporary Corinthian pottery may possibly reveal some common features.

The basic structure of the Isthmia type is a combination of two elements, pan and cover, which can be seen most easily in profile. This combination seems odd if separate pan tiles and cover tiles were not already in use. There may, however, be a different explanation. Besides thatch and tiles, we should reckon with a third possible way of covering a sloping roof: wooden shingles. Such shingles were used in western Mediterranean countries later in antiquity,<sup>6</sup> and they are to be found in various parts of the world well into our own century. They do not normally leave any archaeological trace, and so may well have been used in Late Geometric Greece, too. If that be the case, the shape of the Isthmia type of roof tiles is easily explained as a local potter's transference of the basic structure of overlapping wooden shingles to terracotta and addition of the necessary alterations and refinements.

The complicated shape of the Isthmia tiles, what Mrs. Roebuck has called the "ingenious system of oblique cuttings" (p. 49 above), made them efficient, but it also made their production extremely difficult and time-consuming. A modern estimate suggests that seven workmen may have been occupied for two years with this single roof.<sup>7</sup> It goes without saying that tiles of this type were no real alternative for buildings other than monumental ones, temples in particular.

The question then is: Why did builders change over to tiled roofs at all? Thatched roofs are as good or even better in all respects but one: they present a greater fire hazard.<sup>8</sup> This fact alone makes the early use of roof tiles on the temples of Corinth and Isthmia understandable. Not only were temples particularly costly buildings, they were also exposed more than others to fire because of the large altars in their immediate vicinity.<sup>9</sup> Rapid urbanization increased the risk of fire for private architecture also, and it is no surprise that the second half of the 7th century witnessed a change-over to tiled roofs in a large number of towns.

Urbanization and fire hazard may have been motivation enough for the change, but it could not have been achieved without a drastic reduction in the cost of producing tiles.<sup>10</sup> The contradiction between an urgent need for safer roof covering on the one hand and unacceptable production costs on the other meant a tremendous challenge to local potters. Concurrent with the rapid spread of tiled roofs over the Hellenized world, the late 7th century witnessed dynamic and unhampered experimentation in an effort to simplify tile production and make it more efficient. Some solutions were obvious and were arrived at independently in different places; for instance, the similarities between Mycenaean pan tiles from Berbati and Archaic ones from inland Asia Minor (Pazarli) and Etruria<sup>11</sup> cannot reasonably be explained by

<sup>6</sup> For references, see Ö. Wikander, 1988, p. 206, note 28.

<sup>7</sup> W. Rostoker and E. Gebhard, "The Reproduction of Rooftiles for the Archaic Temple of Poseidon at Isthmia, Greece," *JFA* 8, 1981, pp. 211–227, particularly pp. 224–225.

<sup>8</sup> See Ö. Wikander, 1988, pp. 206–207.

<sup>9</sup> I owe this suggestion to Professor B. Bergquist, Stockholm.

<sup>10</sup> Roof tiles nevertheless remained rather expensive throughout antiquity: Ö. Wikander, 1988, pp. 206–207, with notes 33–35.

<sup>11</sup> Å. Åkerström, "Zur Frage der mykenischen Dacheindeckung," *OpArch* 2, 1941, pp. 164–173; *ATK*, Abb. 49. Cf. also the "Laconian" tiles found at Mycenaean Gla (I. Threpsiadis, «'Ανασκαφὰ Ἀρνηῆς (Γλᾶ) τῆς Κωπαΐδος», *Πρακτικὰ* 1961 [pp. 28–40], p. 38, pl. 14b), and Ö. Wikander, 1988, p. 205, with note 19.

direct contacts. Other solutions were peculiar to particular areas; some of these were destined to spread and survive for a longer period, while some were more local and short-lived.

The ultimate results of this experimentation vary considerably. Generally speaking, the Greek solutions have more in common with the Isthmia type than do the more radical Central Italic ones. This fact may go some way to explain why the final breakthrough of tiled roofs had to wait for so much longer in Greece than in Latium and Etruria: while in the 6th century in Greece, even monumental buildings like large stoas were mostly *not* tiled,<sup>12</sup> almost every private house in Central Italy was covered with roof tiles. We must also consider the fact that the solutions arrived at in Archaic Central Italy were in many respects similar to, or even identical with, those that finally prevailed in the Roman Empire.

The only comparable achievement in the Greek world was the simplified Laconian system, which was finally to prevail in *eastern* Mediterranean countries. We thus have reason to question the view of the pre-eminence of the Corinthian system; in my opinion, it proceeds from the wrong premises. While Corinthian tiles preserved at least parts of the “ingenious system of oblique cuttings”, it was the extremely simplified Italic tiles that made the complete breakthrough of tiled roofs possible; consequently, it is these which represent the true technical advancement, if tiled roofs should be considered an advancement at all.<sup>13</sup>

Finally, I would like to comment upon the geographical distribution of 7th-century roof tiles. As already mentioned, my distribution map can certainly be criticized in many details, but I would be surprised if the general picture were to change. Besides the eastern Greek world, which is represented by only four sites, there are three main areas of diffusion: Mainland Greece, with fourteen sites; Northwest Greece, South Italy, and Sicily, with eight sites; and Central Italy, with seven. These three groups represent the main areas of development of Early Archaic architectural terracottas. Ionia, which was later to become a fourth such area, had barely begun its production by 600 B.C. This fact strikingly confirms a suspicion that has been growing for the last few decades among students of Etruscan terracottas: the long-accepted notion of Ionian terracottas as an *early* inspiration for (or even the origin of) Central Italic ones has no foundation at all.<sup>14</sup>

The local variations among 7th-century roof tiles were numerous; we have just begun to grasp their true extent. But all this experimentation shows the *local* efforts to exploit a *foreign* idea. It has nothing to do with the ultimate origin of the tiled roof as such, which, for the time being, may still with good reason be ascribed to Corinth.

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<sup>12</sup> J. J. Coulton, *The Architectural Development of the Greek Stoa*, Oxford 1976, p. 37.

<sup>13</sup> The firing of roof tiles must have caused grave damage to Mediterranean forests in antiquity. For other disadvantages of tiled roofs, see Ö. Wikander, 1988, pp. 206–207.

<sup>14</sup> See Ö. Wikander, “The Archaic Etruscan Sima,” in *Murlo and the Etruscans*, R. De Puma and J. P. Small, edd., in press.