THE ORIGIN AND DEVELOPMENT OF MOSAICS TO THE TIME OF AUGUSTUS

In Memory
of my Teacher
Michael Avi-Yonah

In the search for the origin of mosaic art, the close relationship between mosaic and inlay work cannot be ignored since both techniques are based on the same principle, *i.e.* the fitting together, side by side, of small pieces of one or several kinds of materials, of one or more colours. This close relationship has already been noted by Hinks:

> "The connexion between the mosaics proper, composed of terra-cotta cones differing in colour but uniform in shape, and the inlaid work in which pieces of various shapes are fitted together, is worth recording... The columns from Al-'Ubaid, however, seem to stand halfway between the architectural craft of terra-cotta cone-mosaic and the ornamental art of shell and lapis inlay; and to show that in Sumerian times, at all events, the two processes were closely related."[1]

The art of decorating a surface by means of an inlay of coloured stones or other material, was already known in ancient Mesopotamia. The palace at Warka (Uruk, Erech) in Chaldaea, of the 4th millennium B.C.E., contains a decoration of this type. It is carried out in geometric patterns (triangles, lozenges, zigzag lines and bands),[2] composed of small

[1] R.P. HINKS, *Catalogue of the Greek, Etruscan and Roman Paintings and Mosaics in the British Museum,* (London, 1933) p. XLIV.

[2] *v.* W.K. LOFTUS, *Travels and Researches in Chaldaea and Susiana* (New York, 1857) pp. 187ff.; G. PERROT et C. CHIPIEZ, *Histoire de l'Art dans l'Antiquité,* Vol. II (Paris, 1886) pp. 293ff. and figs. 119–120; P. GIRARD, *La Peinture Antique,* (1892) p. 59; J. JORDAN, Erster vorläufiger Bericht über die von der Notgemeinschaft der deutschen Wissenschaft unternommenen Ausgrabungen in Uruk-Warka, *Abhandlungen der Preussischen Akademie der Wissenschaften 1929. Phil. -Hist. Klasse.* 7 (Berlin, 1930) p. 8, Abb. 2 (p. 9); *Idem,*

terra-cotta cones let into a mud wall. Similar cones, apparently used for the same purpose, were found in Ur.[3] In the course of the excavations at Al-'Ubaid in 1919 and 1923-1924 fragmentary columns were found in the temple of Ninkhursag, which were inlaid with banded triangular and rhomboidal patterns, made of mother of pearl, black bituminous stone and red limestone.[4] The inlay technique was also used in the "Ur Standard".[5] The figures are cut out of shell, with pigment-filled incised markings, while the background consists of pieces of lapis-lazuli. Inlay work was highly developed in Egypt and in Crete. In Egypt it was often used on columns and on small art objects.[6] The jewellery of the Middle Kingdom[7] shows that Egyptian craftsmen were masters of this technique.

A stone box containing small cubes of crystal, amethyst, beryl, lapis-lazuli and gold, which were probably intended as inlay material for furniture or gaming-boards, was found in the Palace of Knossos by Evans.[8] Small faience plaques, in the form of housefronts and towers, which were also found in Knossos, were doubtless part of the inlay of a box.[9] Faience plaques used in Egypt in the time of Amenophis

Zweiter... 1930, 4 (Berlin, 1931); *Idem*, Dritter... 1932, 2 (Berlin, 1932); P. GAUCKLER, in Ch. Daremberg et E. Saglio, *Dictionnaire des Antiquités Grecques et Romaines*, Vol. III (Paris, 1900) p. 2090, figs. 5231, 56232; F. von LORENTZ, in PW, RE, Vol. XVI (1935) cols. 329ff. *s.v.* Mosaik. A. BLANCHET, *La Mosaique* (Paris, 1928) p. 26; M. E. BLAKE, The Pavements of the Roman Buildings of the Republic and Early Empire, *Memoirs of the American Academy in Rome*, 8 (1930) p. 68f.

[3] In the excavations which were carried out in the years 1931/2, and *v.*: C.L. WOOLEY, Excavations at Ur, 1931/32, *The Museum Journal* 23, Nr. 3 (Philadelphia, 1933) p. 232, pl. XXXIX; *Idem*, *Excavations at Ur* (London, 1955) p. 39, pl. 3; they were also found in Abu-Shahrein (Eridu) and cf. J.E. TAYLOR, *The Journal of the Royal Asiatic Society* 15 (1853-1855) pp. 404-415 (esp. p. 411).

[4] The excavations were carried out by the British Museum and a joint expedition of the British Museum and the Museum of the University of Pennsylvania, *v.*: H.R. HALL and C.L. WOOLEY, *Ur Excavations*, Vol. I, Al-'Ubaid (Oxford, 1927) pp. 40, 100ff., 115, fig. 3, pls. II, IV, XV(2), XXXIV(3), XXXV(6-7), XXXVIII; cf. also: HALL, *A Season's Work at Ur* (London, 1930) figs. 203, 211, 212, 214, 229, 230.

[5] *v.* WOOLEY, Excavations at Ur, 1927–1928, *The Antiquaries Journal* 8 (1928) p. 432f. and pl. LIX; HALL, *The British Museum Quarterly* 3 (1928/9) p. 66f. and pl. XXXIII.

[6] *v.* GAUCKLER, *op. cit.* pp. 2090f.

[7] *v.* RANSOM-WILLIAMS, Catalogue of Egyptian Antiquities, *New York Historical Society*, Nos. 1–160, (New York, 1924) p. 32f.

[8] *v.* A. EVANS, *The Palace of Minos at Knossos*, Vol. I (London, 1921) pp. 427ff., pl. V; H.TH. BOSSERT, *Altkreta*^{2} (Berlin, 1923) fig. 182.

[9] *v.* EVANS, *op. cit.* pp. 301ff.; BOSSERT, *op. cit.* fig. 84.

(Amenhotep) I (1557—1530 B.C.E.) and Ramesses III (1198—1166 B.C.E.) for applying to walls and doors, were also in use during the 20th and 21st dynasties on wooden coffins.[10] Although mosaic work was not common in Egypt and in Crete, two examples of it are known: the first, plain pebble-pavements of the Neolithic and the Minoan periods discovered in Crete by Evans,[11] the second – a vermiculate mosaic on the cover of the sarcophagus of an Egyptian priest (now in Turin)[12] of the New Kingdom, or perhaps of the Saite period.

Two Assyrian mosaics dated to the 9th century B.C.E. were discovered in northern Mesopotamia, one in Arslan-Tash[13] and the other in Til-Barsib.[14] According to Müller[15] both the mosaic technique and the idea of using alternating colours, were adopted from the mountaineers by the architects who built the palaces in Arslan-Tash and Til-Barsib. Müller goes on to note:

> "It may be that the Persian occupation of Anatolia in 546 furthered the spreading of the mosaic to the west, but this assumption is not necessary, since Hittite motifs came into Greek art earlier by the overland route. This overland route and slow diffusion seems to be most likely also for the mosaic; furthermore, the Greek examples are probably derived from the original Asianic, and not from the Assyrianized ones."

Robinson,[16] on the other hand, holds that the mosaic pavements made of natural pebbles or small stones (not cubes!) of different colours, laid to form geometric patterns or human and animal figures were a Greek invention.

Polychrome pebble-pavements of the 8th century B.C.E. were discovered in the excavations of Gordion, capital city of Phrygia, in

[10] *v.* GAUCKLER, *op. cit.* p. 2091 with ref,; BLANCHET, *op. cit.* p. 26.

[11] *v.* EVANS, *op. cit.* Vol. II, pp. 18, 336; J.D.S. PENDLEBURY, *The Archaeology of Crete* (London, 1939) p. 239.

[12] *v.* GAUCKLER, *op. cit.* p. 2091, fig. 5235, with ref.

[13] The Arslan-Tash mosaic was discovered in the "bâtiment aux ivoires" near the palace. *v.:* F. THUREAU-DANGIN at alii, *Arslan-Tash* (Paris, 1931) pp. 43f., 54, 89.

[14] The mosaic was discovered in the Assyrian palace, *v.:* F. THUREAU-DANGIN and M. DUNAND, *Til-Barsib* (Paris, 1936) pp. 24, 40f., pl. XLII(1).

[15] *v.* V. MÜLLER, The Origin of Mosaic, *JAOS* LIX (1939) pp. 247-250.

[16] *v.* D.M. ROBINSON, *Excavations at Olynthus,* Part XII (Baltimore, 1946) p. 326.

central Asia Minor.[17] These pavements were discovered in a private house consisting of two rooms and a courtyard, and in a very imposing building at the west part of the site, which was called by the excavators "The West Building". The mosaic pavements were arranged in geometric patterns of a fairly primitive design. In one of the pavements, for example, the patterns were scattered in a casual manner, with no planned transition from one pattern to another. The following patterns appear in the Gordion mosaics: A1 (Plain Stripe), A3 (Dentil), G1 (Chequerboard), I6 (Single Lozenges), I16 (Hourglass), I17 (Swastika),[18] interlaced triangles, rosettes, etc. The colours are dark-blue and dark-red on a white background. Most of these patterns can be found in the plastic arts and in painted pottery of the Hittite and Neo-Hittite periods, and also on oriental pottery,[19] thus confirming the assumption that the mosaic motifs at Gordion originate in the region, *i.e.* go back to Hittite and Neo-Hittite art. The other rooms were paved in plain pebble-mosaic without patterns. The type of paving and the geometric and floral patterns (particularly in the megaron of the "West Building") are reminiscent of an oriental carpet, and it is not impossible that the mosaic was meant as a substitute for a woven carpet. These are, therefore, pre-Greek mosaic floors, which were developed by the Phrygians, under Assyrian influence,[20] in the geographical region forming a bridge between East and West.

[17] *v.* R.S. YOUNG, 'King Midas' Kitchen'; and Other New Discoveries in the Phrygian Gordion of the Eighth Century B.C., *Illustrated London News* Nov. 17, 1956 (No. 6128), Vol. 229, pp. 857-859, figs. 10-11; *Idem*, Discoveries at Gordion, *Archaeology* 9 (1956) pp. 263–266, ills. on pp. 263–264; *Idem*, Gordion 1956: Preliminary Report, *AJA* 61 (1957) p. 322, pl. 89 (fig. 7); *Idem*, Gordion: Achaemenian and Phrygian levels, *AJA* 58 (1954) p. 150; *Idem*, Early Mosaics at Gordion, *Expedition* 7, 3 (1965) pp. 4–13.

[18] The definition of these geometric designs and their division into main groups and types are based on the work of the late Professor Michael Avi-Yonah. *v.*: M. AVI-YONAH, Mosaic Pavements in Palestine, *The Quarterly of the Department of Antiquities in Palestine* 2 (1933) pp. 138–141. *v.* also: the recent definition of mosaic patterns in Bulletin de l'Association Internationale pour l'Etude de la Mosaïque Antique (= *AIEMA*), Répertoire graphique du décor géometrique dans la mosaïque antique, 4e Fascicule (Paris, 1973), A1 = *AIEMA* Nos. 137–140, A3 = No. 144, G1 = No. 502, I6 = No. 19, I16 = No. 73, I17 = No. 38.

[19] Cf. similar motifs described in: E. AKURGAL, *The Art of the Hittites* (London, 1962); E. POTTIER, *L'Art Hittite*, I–II, (Paris, 1926; 1931).

[20] Cf. M. AVI-YONAH, *A History of Classical Art* (Jerusalem, 1969) p. 31 (Hebrew).

The earliest mosaic floor discovered in Greece dates to the 6th century B.C.E. It was found in the *naos* of the temple of Athena Pronaia in Delphi[21] and is made of coloured pebbles (black, white, blue and red), but has no design. Only small fragments of this floor have been preserved. Other pebble-floors bearing decorative patterns have been discovered in various parts of Greece, such as Olympia,[22] Olynthus,[23] Athens,[24] Pellene,[25] and Corinth,[26] and elsewhere, as in Assos,[27] Motya,[28] and Gordion. These mosaics are of the late 5th and 4th centuries B.C.E., about one hundred years later than the Delphi mosaic. Other pebble-mosaics, such as those found in Olbia,[29] Assos,

[21] *v.* R. DEMANGEL, *Fouilles de Delphes,* II(3), Le Sanctuaire d'Athèna Pronaia, (Paris, 1923) p. 16, fig. 22; Robinson, *op. cit.* (supra n. 16), p. 326.

[22] *v.* F. ADLER, *Die Baudenkmäler von Olympia, die Ergebnisse* II (Berlin, 1892), Text, pp. 10, 180–181, Tafeln VIII–IX, CV; E.N. GARDINER, *Olympia. Its History and Remains* (Oxford, 1925) pp. 238–239; A. BLOUET, *Expédition Scientifique de la Morée,* Vol. I (Paris, 1831) Pls. 63–64; H.P. L'ORANGE und P.J. NORDHAGEN, *Mosaik von der Antike zum Mittelalter* (München, 1960) p. 40, Tafel V (A, B); A. BAUMEISTER, *Denkmäler des Klassischen Altertums,* Vol. II ((München & Leipzig, 1887) p. 927, Abb. 998–999 *s.v.* Mosaik; W. LEONHARD, Mosaikstudien zur Casa del Fauno, *Neapolis* 2 (1914) pp. 145–147, Tafel 6.

[23] *v.* D.M. ROBINSON, *op. cit.,* Part II, (Baltimore, 1930) pp. 80–95, fig. 205; *Idem, op. cit.,* Part V (Baltimore, 1933), pp. 1–14; *Idem, op. cit.,* Part VIII (Baltimore, 1938), pp. 284–290; *Idem, op. cit.,* Part XII (Baltimore, 1946), pp. 254–258; pl. 221, pp. 323–368, pls. I–II.

[24] *v.* W. DÖRFELD, Die Ausgrabungen am Westabhange der Akropolis I, *Mitteilungen des Deutschen Archäologischen Instituts; Athenische Abteilung, (hereafter cited as MDAI(A)* 19 (1894) pp. 507–508 (no illustrations); BLAKE, *op. cit.* pp. 68–70; C. SMITH, Panathenaic Amphorae, *The Annual of the British School at Athens* 3 (1896–97) pp. 184ff.

[25] *v.* A.K. ORLANDOS, 'Ανασκαφαὶ ἐν Πελλήνῃ, *Praktika* (1931) pp. 77–78, figs. 4–5; E.P. BLEGEN, Archaeological Discussions, 1931 - New Items from Athens, *AJA* 36 (1932) p. 190.

[26] *v.* T.L. SHEAR, Excavations in the Theatre District and Tombs at Corinth in 1929, *AJA* 33 (1929) pp. 526–528, fig. 10.

[27] *v.* J.T. CLARK, F.H. BACON, R. KOLDEWEY, *Investigations at Assos* (Cambridge Mass., 1902, ed. F.H. Bacon) pp. 119, 121, 141, 163–164 (fig. 1).

[28] *v.* J.I.S. WHITAKER. *Motya* (London, 1921) pp. 194–202, fig. 24(A, B); ISABELLA BRANCOLI et alii, Mozia III, Raporto preliminare della campagna di scavi 1966, *Studi Semitici* 24 (Roma, 1967) pp. 88–95, fig.11, Pls. XLV, XLIX, L, LI, LII; K. ZIEGLER, *RE,* Vol. XVI (1935) cols. 402–403, *s.v.* Motya.

[29] *v.* B.W. PARMAKOWKY, Archäologische Funde im Jahre 1903: Funde in Südrussland im Jahre 1903. *Archäologischer Anzeiger* (supplement to *Jahrbuch des Kaiserlich Deutschen Archäologischen Instituts*) 19 (1904) p. 104, fig.3; *Idem,* Archäologische Funde im Jahre 1910: Russland, *ibid.,* Vol. 26 (1911) pp. 206–218, fig. 21; *Idem,* Fouilles d'Olbia en

Argos,[30] Gordion,[30a] Dyrrhachium,[31] Palatitza-Vergina,[32] Pella,[33] etc., are of a still later date –.4th and 3rd centuries B.C.E.

Although Hittite (and in our opinion also Neo-Hittite) motifs penetrated western art earlier by the overland route[34] (see Müller above), the spread of mosaics from the east to the west was furthered by the Persian occupation of Asia Minor (including the Greek Ionic cities) in 546 B.C.E.

There is a consensus of scholarly opinion regarding the idea that mosaics originated in the Orient.[35] Although the mosaics of Warka,

1902–1903, *Bulletin de la Comission Impériale Archéologique* (1906) pp. 32ff., figs. 22–25, Pls. X–XIf.; *Idem ibid,* (1910) pp. 109ff., figs. 7–10; *Idem, Olbia* (1915) p. 11, fig. 23; L.M. SLAVIN, *Drevnii Gorod Olvia* (Kiev, 1951) pp. 24–32, 36–40, 340–344, Pl. opp. p. 26, ills. on pp. 29, 37; E. LEVI and A. KARASSEV, *Antichniye goroda severnogo Prichernomorya* (Ancient Towns of the Northern Littoral of the Black Sea, in Russian) Vol. I (Moskva–Leningrad, 1955) pp. 230, 233–234, figs. 21, 24–25.

[30] *v.* C. WALDSTEIN. *The Argive Heraeum,* Vol. I (Boston–New-York, 1902) pp. 134-135, Pl. XXIX(w).

[30a] *v.* R.S. YOUNG, Progress at Gordion, 1951 and 1952, *Bulletin University Museum* (Philadelphia) 17, No. 4 (1953) pp. 11–14, figs. 6–7; *Idem,* The Campaign of 1955 at Gordion: Preliminary Report, *AJA* LX, No. 3 (1956) p. 250, Pl. 81 (fig. 2).

[31] *v.* C. PRASCHNIKER. Muzakhia und Malakastra: Durazzo, *Jahreshefte des Österreichischen Archäologischen Institutes* Vol. 21-22 (1922–1924) pp. 203-214, figs. 122-123; A. RUMPF, Malerei und Zeichnung, *Handbuch der Archäologie* VI: Part 6, Vol. IV((1) (München, 1953) p. 139, fig. 16; M. BULARD, Peintures Murales et Mosaïque de Délos, *Monuments et Mémoirs publiés par l'Académie des Inscriptions: Fondation Eugène Piot,* 14 (1908) p. 186.

[32] *v.* L. HEUZEY-H. DAUMET, *Mission Archéologique de Macédonie* (Paris, 1876) p. 189; M. ANDRONICOS, Vergina, The Prehistoric Necropolis and the Hellenistic Palace, *Studies in Mediterranean Archaeology* 13 (Lund, 1964); ANDRONICOS et alli, *The Palace at Vergina* (Athens, 1961) pp. 21–22, Pls. XVI–XVII (Greek); K.A. RHOMAIOS, Τὸ 'Ανάκτορον τῆς Παλατίτσας, *Archaiologike Ephemeris* (1953-54) Part I, pp. 141-150; E. VANDERPOOL, News Letter from Greece, *AJA* 61 (1957) pp. 284–285, Pl. 86 (figs. 14–16).

[33] *v.* PH. PETSAS, New Discoveries at Pella – Birthplace and Capital of Alexander, *Archaeology* 11(4) (1958) pp. 246-254; *Idem,* Ten Years at Pella, *ibid.* 17(2) (1964) pp. 74–84; *Idem,* Mosaics from Pella, *La Mosaique Gréco–Romaine* (Paris, 29 Août-3 Septembre 1963) (Paris, 1965) pp. 41-56, figs. 1–21, a-d (with bibliography); *Idem,* Pella, *Studies in Mediterranean Archaeology* 14 (Lund, 1964); CH. J. MAKARONAS, Χρονολογικὰ Ζητήματα τῆς Πέλλης, *Ancient Macedonia* (1st International Symposium, 26th-29th August 1968, Thessaloniki) (1970) pp. 162–167, Pls. XIII–XVIII (Greek).

[34] CF. POTTIER, *op. cit.* (supra n. 19).

[35] DORO LEVI (*Encyclopedia dell' Arte Antica, Classica e Orientale,* Vol. V [Roma, 1963] pp. 209ff., *s. v.* Mosaico) disagrees with this view. He believes that there is no connection, either in technique or in artistic expression, between the various inlay and

Al-'Ubaid and Ur, and the various inlay works, are not mosaics in the true sense of the word,[36] the discoveries at Arslan-Tash and Til-Barsib support the above view concerning the origin of mosaics.[37] The archaeological discoveries at these two sites and at Gordion prove that, contrary to previously accepted opinions, the first true mosaic floors were not Greek.[38] Gordion, situated halfway, both in place and in time, was doubtlessly the bridge between East and West as regards mosaic technique and decorative designs.[39]

Mosaics were long thought to have been invented during the Hellenistic period, but, as we have noted above, the archaeological evidence does not support this view. It is true that the Hellenistic period saw a great development in the art of the mosaic pavement, as can be seen in the mosaics of Delos,[40] Palatitza-Vergina, Pella, Pergamon[41] and others. The Pergamon mosaics are a representative example of this development; they reach a new peak in the use of rich colour gradation, so as to render the play of light and shade. It is here that we also find, for the first time, glass tesserae used to achieve the green and blue effects unobtainable in natural materials. Some of the Pergamon

"mosaic" works of Mesopotamia and Egypt, and the art of the mosaic. He considers that the art of the mosaic developed from pavements made of natural pebbles. Early examples of such pebble-pavements have been found, not only in the East, but also in Greece proper and in Crete in the period preceding the Great Palaces, and during the entire Minoan period.

36 MÜLLER, *op. cit.* (supra n. 15) p. 247.

37 *Idem, loc. cit.*

38 *Idem, loc cit.*

39 This view can be held as long as no additional mosaic pavements are discovered in other geographical regions.

40 *v.* J. CHAMONARD, *Délos – Le Quartier du Théâtre,* Vol. VIII (1, 2, Planches) (Paris, 1922, 192); *Idem, Délos – Les Mosäiques de la Maison des Masques,* Vol. XIV (Paris, 1933); E. LAPALUS, *Délos - L'Agora des Italiens,* Vol XIX (Paris, 1939) pp. 52–53, 57–59, 97–100, figs. 45, 49, Pl. XVII, 1–2 (Niches 10, 37); M. BULARD, *op. cit.* (supra n. 31) 14 (1908) pp. 185–205; E. PERNICE, *Pavimente und Figürliche Mosaiken, Die Hellenistische Kunst in Pompeii* (Berlin, 1938) pp. 22–31, Pl. 6(3).

41 *v.* G. KAWERAU-TH. WIEGAND, *Die Paläste der Hochburg, Altertümer von Pergamon,* V_1 (Berlin–Leipzig, 1930), Text: pp. 53–74, Pls. XXVI–XXXIX; Tafeln: VIII–XIX; A. CONZE, *Die Stadt, Altertümer von Pergamon,* I: *Stadt und Landschaft* 2 (Berlin, 1913), pp. 217–218, 286–290; DÖRPFELD, *AM* (supra n. 24) 32 (1907) pp. 167–189, Pl. XVI(2); PERNICE, *op. cit.,* pp. 31–32, Pl. 6(2); B.R. BROWN, *Ptolemaic Painting and Mosaics and the Alexandrian Style* (Cambridge Mass., 1957) Pls. XXXIX (1,2), XLI (2).

mosaics, with their colours and their interplay of light and shade, approach the art of painting. In Delos we see how widespread was the use of mosaics in private houses during the Hellenistic period; the Pompeii mosaics[42] are evidence of the extent to which this aspect of Hellenistic art had spread to Italy during the Roman period. Besides the mosaics which were discovered in archaeological excavations, we know - from literary sources - of other mosaics which were of high artistic standard: the mosaics in the galley of Hieron II (270—216 B.C.E.), showing scenes from the Iliad,[43] copied apparently from the paintings of Theron of Samos (late 4th century B.C.E.); mosaic work in the galley of Ptolemy IV Philopator (222—205 B.C.E.)[44]; mosaic pavements with floral patterns in the palace of Demetrius of Phaleron (317—307 B.C.E.).[45] In addition, Galenus[46] tells of splendid early or mid-4th century B.C.E. mosaics depicting the gods, which decorated the private house of a rich man who was host to the philosopher Diogenes (ca. 400–325 B.C.E.). All these bear witness to the high level of artistic skill achieved by the mosaic artists of the Hellenistic period.

42 *v.* BLAKE, *op. cit.*, pp. 11–159, Pls. 1–10(2), 11 (1, 3, 4), 13–14, 16–22 (1. 3, 4), 23–24 (1, 3, 4), 25–29 (4), 30–34 (2–4), 36, 38 (3), 39 (1–3), 42, 46 (1, 3, 5–7), 48 (2, 4); PERNICE, *op. cit.*, pp. 33–181, Pls. 7–80.

43 CF. ATHENAEUS V. 207c: ταῦτα δὲ πάντα δάπεδον εἶχεν ἐν ἀβακίσκοις συγκείμενον ἐκ παντοίων λίδων, ἐν οἷς ἦν κατεσκευασμένος πᾶς ὁ περὶ τὴν 'Ιλιάδα μῦδος θαυμασίως.

44 CF. ATHENAEUS, V. 204d, 38–206c; F. CASPARI, Das Nilschiff Ptolemaios IV, *Jahrbuch des Kaiserlich Deutschen Archäologischen Instituts,* 31 (1916) pp. 1–74.

45 CF. ATHENAEUS, XII. 542d: ἄνθινά τε πολλὰ τῶν ἐδαφῶν ἐν τοῖς ἀνδρῶσιν κατεσκευάζετο διαπεποικιλμένα ὑπὸ δημιουργῶν. F. JACOBY, *F.Gr. Hist.*, Vol. II(A) (Bwelin, 1923-1927) p. 140, fr. 10(27): καὶ ταῖς μὲν δαπάναις ταῖς εἰς τὰ δεῖπνα τοὺς Μακεδόνας ὑπερέβαλε, τῇ δὲ καδαρείοτητι Κυηρίους καὶ Φοίνικας. ῥάσματα τε μύρων ἔπιπτεν ἐπὶ τὴν γῆν ἄνθινά τε πολλὰ τῶν ἐδαφῶν ἐν τοῖς ἀνδρῶσιν κατεσκευάζετο διαπεποικιλμένα ὑπὸ δημιουργῶν,... These ἄνθινα mentioned by Athenaeus are reminiscent of the representations of vegetable motifs found in several mosaic pavements: a fragment of the mosaic pavement at Epidamnus (Dyrrhachium); the mosaic pavement in the round building and the border of the stag-hunt at Pella; the magnificent and impressive pavement in the palace hall at Palatitza–Vergina (Macedonia). In these four instances the vegetable motifs, of sophisticated design and excellent workmanship, appear as border and as field decorations.

46 GALENUS, Scripta Minora, Vol. I (Lipsiae, 1884), rec. J. MARQUARDT et alii, Προτρεπτικός ἐπὶ τέχνας, VIII, 18-19 (p. 115): ...τοὺς γαρ τοίχους ἅπαντας ἀζιολόγοις γραφαῖς κεκοσμῆσθαι, τὸ δ' ἔδαφος ἐκ ψήφων πολητελῶν συγκεῖσθαι, θεῶν εἰκόνας ἔχον ἐξ αὐτῶν διατετυπωμένυκς...

Black and white mosaic pavements make their appearance in Italy (Pompeii, Herculaneum, etc.) in the 1st century B.C.E. In these pavements, the polychrome patterns of the Hellenistic period, which are sometimes shown in perspective (i.e. isometric projection), give way to simpler schemes of black lines or flat black surfaces on a white background. The emblema no longer appears and the whole field is taken up by representations of scenes or by endless geometric patterns,[47] which were previously used as border or frame patterns only. Such geometric patterns lend themselves especially well to representation in two colours only. (This period marks the beginning of the development of all-over patterns, used either with the endless patterns mentioned above, or with other representations, such as the ἀσάρωτος οἶκος).[48] These black and white pavements are remarkable for their simplicity and great charm. They appear to have been a reaction against the Hellenistic mosaics with their wealth of patterns and colours. The style, common in Italy from the 1st century B.C.E. to the 2nd century C.E., is new and original though mainly characteristic of the Augustan period. After this period the tesserae become larger and coarser and the level of workmanship deteriorates.

From the 4th century B.C.E. onwards there is a noticeable development in mosaic technique. In the floor of the temple of Zeus in Olympia, cut stones were inserted between the closely-set pebbles, in order to delineate important details. A similar method was used in one of the Assos mosaics to form geometric patterns. Even after cut stones were introduced to achieve a richer, more decorative effect, mosaicists continued to use pebbles for a long time, since that was a much cheaper raw material. Thus in the Roman period we find pebble-pavements in Pompeii. Another way of stressing important features of mosaic figures consisted of inserting lead threads in the pebble and tessera mosaics, as was done in those of Pella, Thmuis,[49] Pergamon, Delos and others. In

[47] For a detailed discussion *v.* Hinks, *op. cit.* pp. LII–LIII.

[48] Cf. Plin., *H.N.* 36, 184.

[49] *v.* E. Breccia, *Le Musée Grèco-Romain au Cours de l'Année 1925–1931* (1932) p. 65, Pls. A, LIII (fig. 194), LIV (fig. 196); M. Rostovtzeff, *Social and Economic History of the Hellenistic World,* Vol. III (Oxford, 1941) pp. 1360 (n. 11), 1412 (n. 178); Vol. I, p. 254, Pl. XXXV; Brown, *op. cit.* pp. 67–79, Pls. XXXVIII, XL, XLI(1), XLII(1).

the course of time tessellated mosaics became the dominant technique. The use of cubes or cut stones (tesserae) of various colours ensures clearer and sharper delineation, as well as a transition, by means of graded shades of colour, from one part of the mosaic to another, thus eliminating the need for lead threads.

One of the problems connected with the development of mosaics in the Hellenistic period that has engaged the attention of scholars, concerns the time, the place and the cause of the transition from pebble to tessera mosaics.

The accepted view[50] is that decorated pebble-mosaics reached their peak in the late 5th and the 4th-3rd centuries B.C.E.,although even after this period they did not disappear completely, and were produced as late as the time of the Republic.[51]

At some time in the 3rd century B.C.E., pebble-mosaics (*Opus Barbaricum*) gave way to tessera-mosaics (*Opus Tessellatum*), such as those of Morgantina.[52] According to Robertson[53] the transition took place in the first half of the 3rd century B.C.E. Blake,[54] too, dates the transition to the early 3rd century. On the latter view, as on that of Robinson,[55] tessera-mosaics reached a high degree of perfection in the mid-2nd century B.C.E., which is borne out by the mosaics of Delos and

[50] Cf. LEONHARD, *op. cit.* (supra n. 22) pp. 141–149; BLAKE, *op. cit.* pp. 68–70; H. FUHRMAN, *Philoxenos von Eretria, Archäologische Untersuchungen über zwei Alexandermosaiks,* (Göttingen, 1931) p. 223; HINKS, *op. cit.*, pp. XLV–XLVI; VON LORENZ, PW, *RE,* Vol. XVI (1935) cols. 333–335 *s.v.* Mosaik; *Idem,* Βαρβάρων ὑφάσματα, *MDAI (R)* 52 (1937) pp. 165–171; ROBINSON, *op. cit.*, (supra n. 23) VIII, p. 287; RUMPF, *op. cit.*, (supra n. 31), p. 165.

[51] Such as the pebble–pavement discovered in a private house on the Palatine hill. *v.:* E. STRONG, *Art in Ancient Rome,* Vol. II (London, 1929), p. 33ff. (Quoted from a report by G. Boni).

[52] *v.:* R. STILLWELL, and E. SJÖQVIST, Excavations at Serra Orlando, Preliminary Report, *AJA* (1957) pp. 156–157, Pl. 58 (figs. 21–23); *idem,* Excavations at Morgantina,(Serra Orlando) 1959; Preliminary Report IV, *AJA* (1960) pp. 131–133, Pl. 27 (figs. 25–26); STILLWELL, Exca. at Morga. 1960: Prelim. Report V, *AJA* (1961) p. 279, Pl. 93 (fig. 7); SJÖQVIST, Exca. at Morga. 1961: Prelim. Report VI, (1962) pp. 139–140; STILLWELL, Exca. at Morga. 1962: Prelim. Report VII, (1963) pp. 167–168, Pl. 35 (fig. 13); *Idem,* Exca. at Morga. 1966: Prelim. Report IX, (1967) pp. 247–248, Pl. 73 (fig. 4).

[53] C.M. ROBERTSON, Greek Mosaics, *JHS* 85 (1965) p. 87.

[54] *V.:* BLAKE, *op. cit.* , p. 70; Doro Levi too holds the same opinion and cf. *op. cit.*

[55] *V.:* ROBINSON, *op. cit.* , p. 84.

Pergamon. At about the same time this technique was introduced into Italy. The discovery of the mosaics of Morgantina has however, shown that this view is wrong. (see below).

According to Kyle M. Phillips,[56] the discovery of tessera-mosaics of the mid-3rd century B.C.E. in the excavation of Morgantina in Sicily, indicates that the transition from pebbles to tesserae took place in the West – in Sicily.[57] The new technique was later conveyed to Alexandria by the luxury galley of Hieron II (270–216 B.C.E.) of Syracuse, which was decorated with rich mosaics and sent as a present to Ptolemy III.[58] From Alexandria the technique spread to the Hellenistic states of the east and to other countries. Phillips' view seems reasonable, since no tessera-mosaics earlier than those of Morgantina have as yet been discovered. No earlier tessera-mosaics have been discovered in the East, to support Robinson's[59] claim that the tessera-technique was introduced into Greece from the East after the conquests of Alexander the Great and the Diadochi. The Morgantina mosaics disprove Brown's theory[60] according to which the Sophilos mosaic in Thmuis is probably the earliest known example of a tessera-mosaic. It is also difficult to accept Robertson's[61] view that the Shatbi[62] pavement, which he dates to the first half of the 3rd century B.C.E., marks the transition from pebbles to tesserae. It would seem, therefore, that the transition from pebble to tesserae-mosaics started in the West-Sicily – and spread from there to other parts of the ancient world.

56 *V.:* K.M. PHILLIPS(Jr.), Subject and Technique in Hellenistic Roman Mosaics: A Ganymede Mosaic from Sicily, *The Art Bulletin* (A Quarterly Published by the College Art Association of America) 42 (1960), pp. 243–262.

57 G. BECATTI and D. LEVI also hold this view, and cf. G. BECATTI, Alcune Caratteristische del Mosaico Bianco–Nero in Italia, *La Mosaique Gréco–Romaine* (Paris, 29 Août–3 Septembre, 1963), (Paris, 1965), p. 16; D. LEVI, *op. cit.*

58 Cf. ROBERTSON, *op.cit.*, p. 87f.; this gallery of Hieron II, which was built under the supervision of Archimedes, is mentioned in literary sources, *v.:* Athenaeus, V. 206d., 40ff.

59 *V.:* ROBINSON, *op. cit.* (supra n. 23), p. 83.

60 *V.:* BROWN, *op. cit.* (supra n. 41), p. 74.

61 *V.:* ROBERTSON, *op. cit.*, p. 87.

62 *V.:* E. BRECCIA, *Guide de la Ville et du Musée d'Alexandrie* (Alexandria, 1907) Room XIX; *Idem, Rapport sur la marche du service du Musée* (Le Muse Gréco–Romain), (1921–1922), p. 3, Pl. II, fig. 1; *Idem,* La Mosaique de Chatby, *Bulletin de la Sociéte Archéologique d'Alexandrie* 19(5) (1923), pp. 158–163, Pl. XXIII; *Idem, Le Musée Gréco–Romain au Cours de l'Année 1925–1931* (1932) Pl. LV (fig. 197; *Idem, Alexandrea ad Aegyptum* (Bergamo, 1914) pp. 274–275; BROWN, *op. cit.* pp. 68–69, 77–79, Pl. XLIV(1).

A number of factors are responsible for the transition: 1) the need to pave large areas; 2) the greater availability of cubes, more appropriate than pebbles; 3) cubes were more easily laid and adapted to the desired design; 4) it was easier to match colours when using cubes.

Summary:

Inlay work and mosaic work were widely used in the East in ancient times, as well as in Mesopotamia, Egypt and Crete. Mosaic technique originated and developed in the East, and in the course of time it spread to other geographic regions, mainly in the West, where new techniques and styles were developed.

New archaeological evidence disproves the previously held view that decorated mosaic pavements were a Greek invention which developed during the 5th and 4th centuries B.C.E. Recent archaeological finds, and in particular those at Gordion, suggest that North Greece (Olynthos, Palatitza-Vergina, Pella, etc.) was influenced by Asia Minor. The strengthening of the bonds between Macedonia and Greek culture, in the late 5th and the 4th centuries B.C.E., furthered the development of decorated mosaic pavements, such as those of Olympia, Athens, Pellene, Assos, Olynthos, Motya, Corinth and others. This practice became very prevalent in the 4th century B.C.E. Until the discovery of the Olynthos mosaics,[63] very few 5th-4th century mosaics were known. The importance of the Olynthos discoveries lies in the new light they shed on mosaic art in Greece, on its dating and development.[64] The date of the Olynthos floors enables us to assign dates (the late 5th and the 4th century B.C.E.) to some of the mosaics found in Athens, Gordion, Sicyon[65] etc., which are similar in style and technique to the Olynthos mosaics.

[63] The Olynthos mosaics, white on a black background, were apparently influenced by vase-paintings. The high artistic level of these mosaics is shown in the delicate representation of the lines, in spite of the coarse nature of the material employed. The town was completely destroyed in 348 B.C.E. by Philip II of Madecon, and was never rebuilt.

[64] The development of mosaics began with the making of mosaic pavements in houses, whose owners could not afford marble pavements.

[65] *V.*: A.K. ORLANDOS, 'Ανασκαφὴ Σικυῶνος, *Praktika* (1935) pp. 82–83, figs. 15–17; *Idem*, (1936) p. 94, figs. 8–9; *Idem, ibid* (1938) pp. 122–123, fig.3; *Idem, ibid* (1941–44), p. 59, fig. 4; ROBERTSON, Archaeology in Greece 1938–1939, *JHS* 59 (1939), p. 198, pl. XIIIc.

The reciprocal influence between East and West were further strengthened by the conquests of Alexander the Great (from 335–334 B.C.E. onwards) and "the unity of the realm", which was an essential part of his conception, although the eastern influences were stronger and more marked than the western. Artists and craftsmen exchanged knowledge and ideas, and many elements of ornamental art, including mosaic pavements, were transmitted or copied. It may well be that some of the decorative patterns appearing in mosaic pavements originated in the East, and found their way later to the arts and crafts of the West.

The spread of decorative patterns from one region to another has already been noted by Bossert:[66]

> "There are certainly few such opportunities as are offered in this work to recognise so easily the transference and spread of certain ornamental designs. Here, for instance, we can trace the following facts: how patterns passed from the Hittites, via Cyprus, to the North African Berbers; how ancient Mediterranean motifs found their way to Africa and East Asia; how the spiral ornament is met with among diverse nations. If, for instance, we observe how ancient Elamit vessel ornamentations are still found on African calabashes, we may be inspired to make new investigations. Thus many problems arise in perusing this book, and hence their solution is promoted".

This is true also where mosaic art is concerned. Blake[67] remarks that practically all the decorative patterns found in the Greek world of the 3rd and 2nd centuries B.C.E. occur in the mosaic floors of Pompeii. In her view there is no sharp line of demarcation between Hellenistic and Roman mosaic art, the Romans having carried on Hellenistic traditions for at least one hundred years prior to this date. An interesting and surprising fact is the stylistic uniformity of the mosaics scattered over different geographical regions of the ancient world, from Olbia (South-Russia) to Sicily. Evidently close links and artistic interdependence must have existed between mosaicists, in spite of the great distances that existed between the various regions. Consequently it is difficult to trace

[66] H. TH. BOSSERT, *Ornament* (London, 1924), p. VIII; cf. also: VON LORENTZ, Βαρβάρων ὑφάσματα, *MDAI(R)* 52 (1937), p. 212.

[67] *V.:* BLAKE, *op. cit.* p. 127.

influences and to determine if there was any one place which served as a focal point for the invention of new decorative patterns.

There is an interesting feature of the development of mosaics that is common to both its early and its later stages. After the artists had mastered the simple basic patterns, they strove to combine these patterns in order to create others, more varied and more intricate. There was little originality in this process, but the results were impressive.

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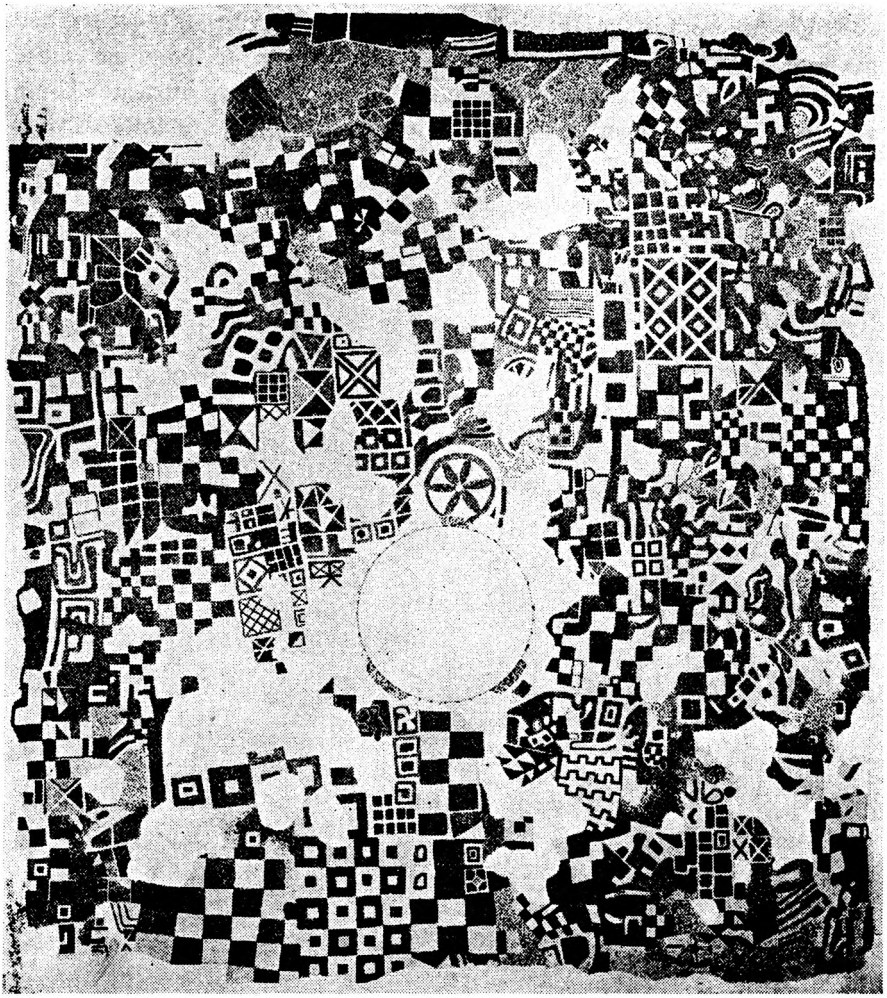
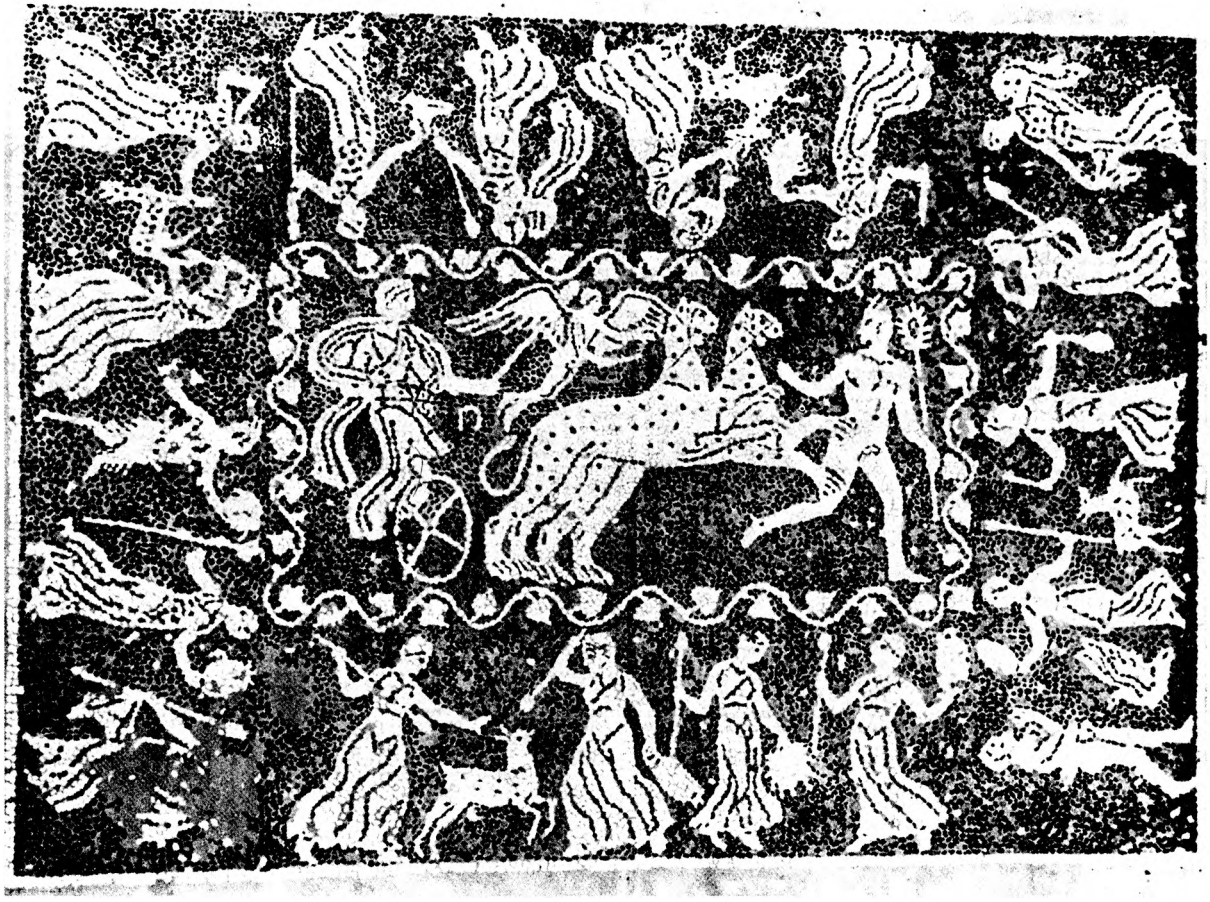


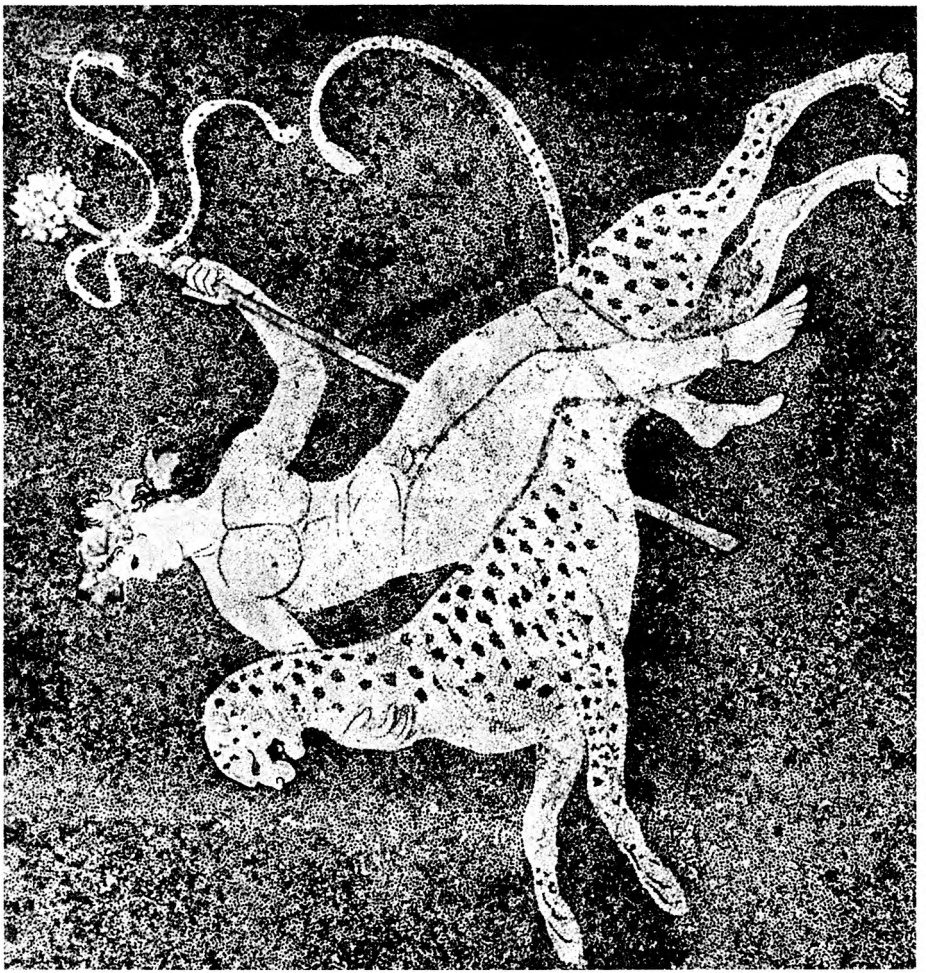
Gordion, Megaron 2 — Pebble-Mosaic with plain geometric motifs; 8th cen. B.C.E.

Olympia, Temple of Zeus — Pebble-Mosaic

with Marine scenes; 4th cen. B.C.E.



Olynthos, Pebble-Mosaic with Dionysias scenes; c. 400 B.C.E.

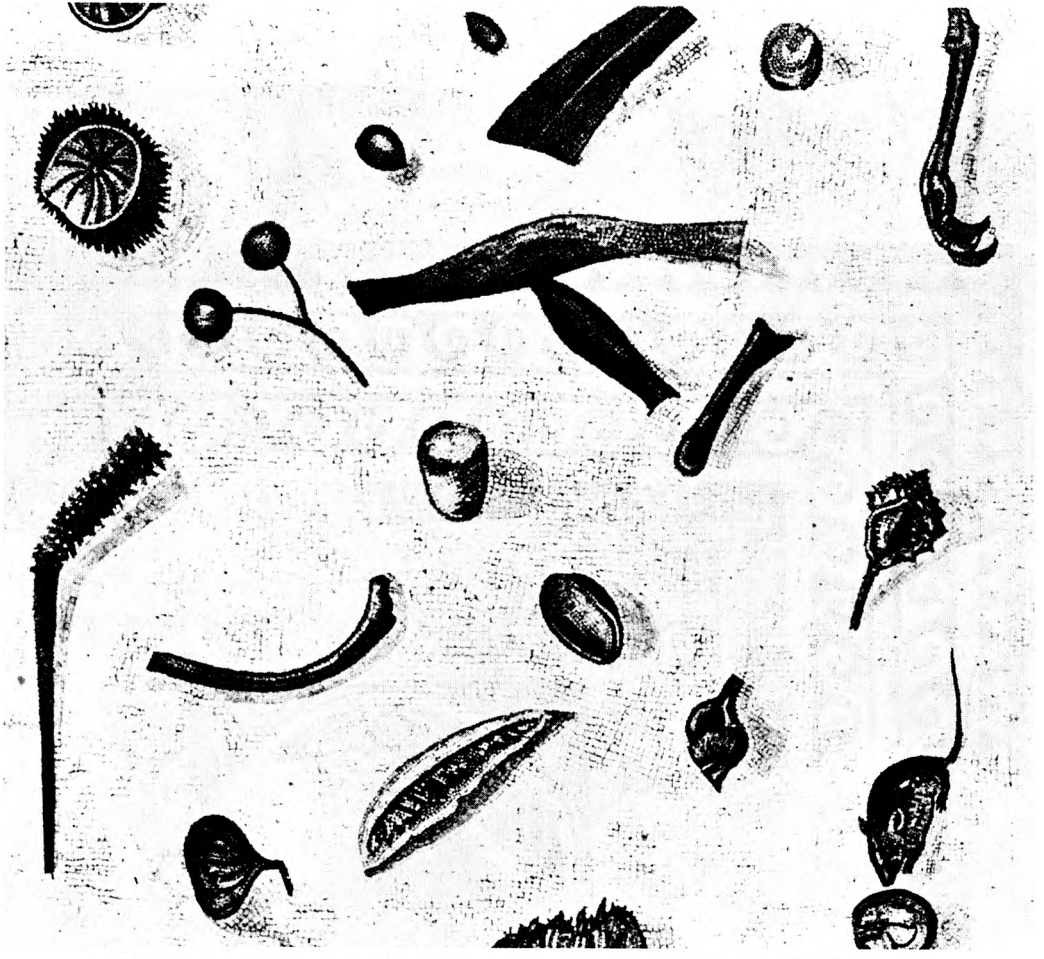


Pella — Pebble-Mosaic; Dionysos on a Panther; c. 300 B.C.E.

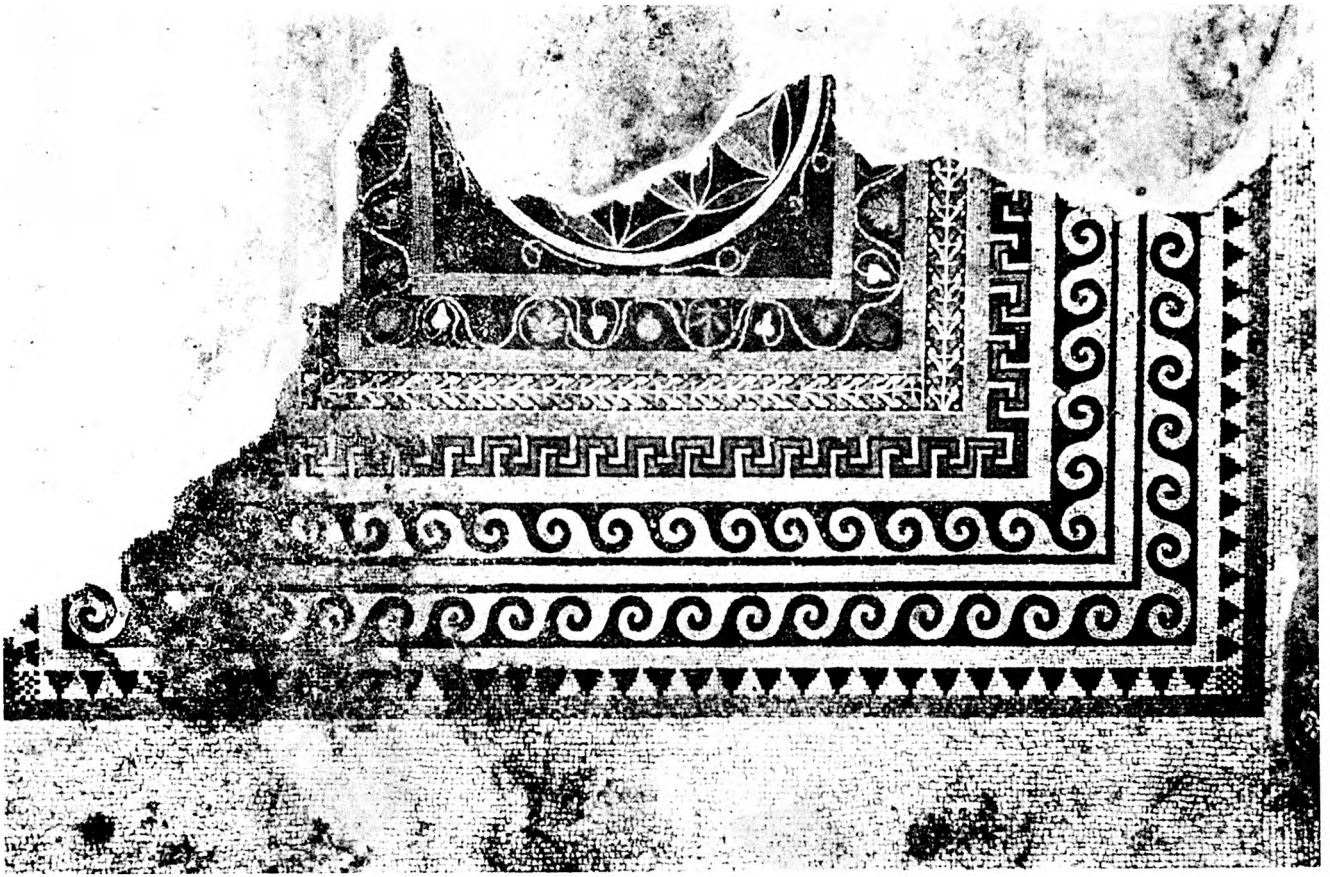
Pella — Pebble-Mosaic by Gnosis: A Stag-Hunt; c. 300 B.C.E.

Delos, House of the Masks — Polychromic tessera — Mœsaic: Dionysos on a Panther; 2nd cen. B.C.E.

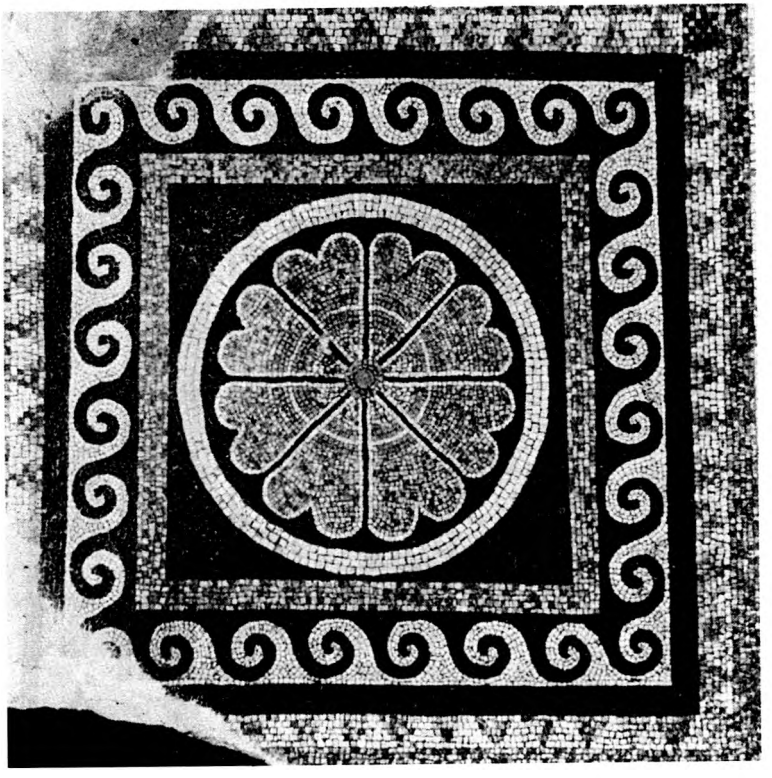
Delos, House of the Trident — Tessera-Mosaic of a Trident, Panathenaic amphora; 2nd cen. B.C.E.



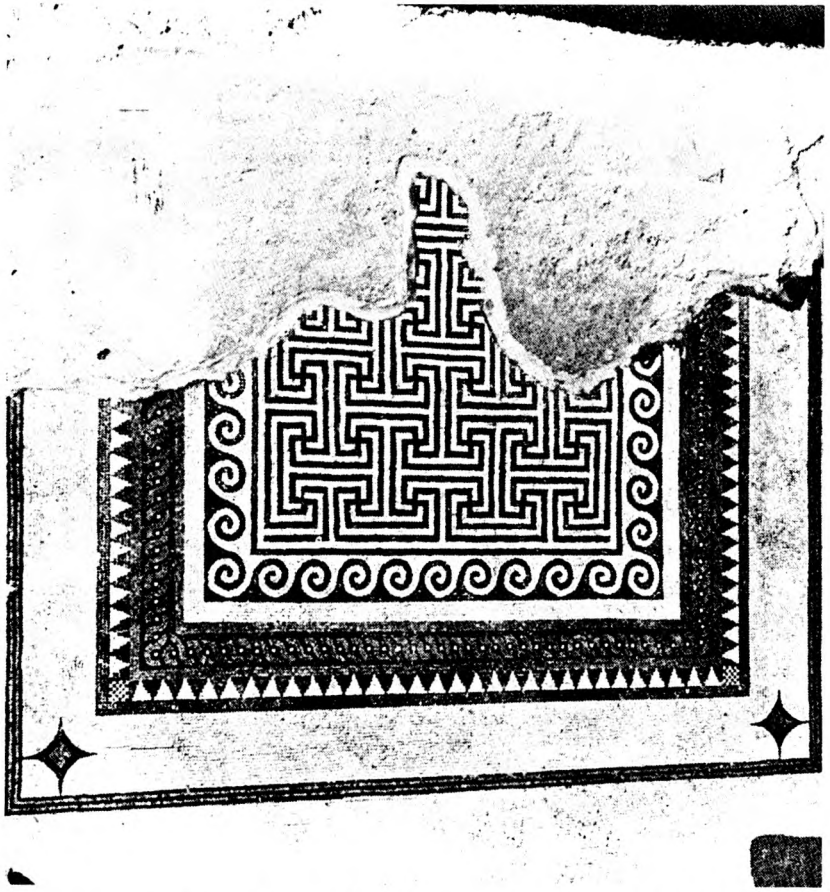
Rome — Tessera-Mosaic after Sosos: "Unswept room"; 2nd cen. C.E. (Roman copy of a Hellenistic work).



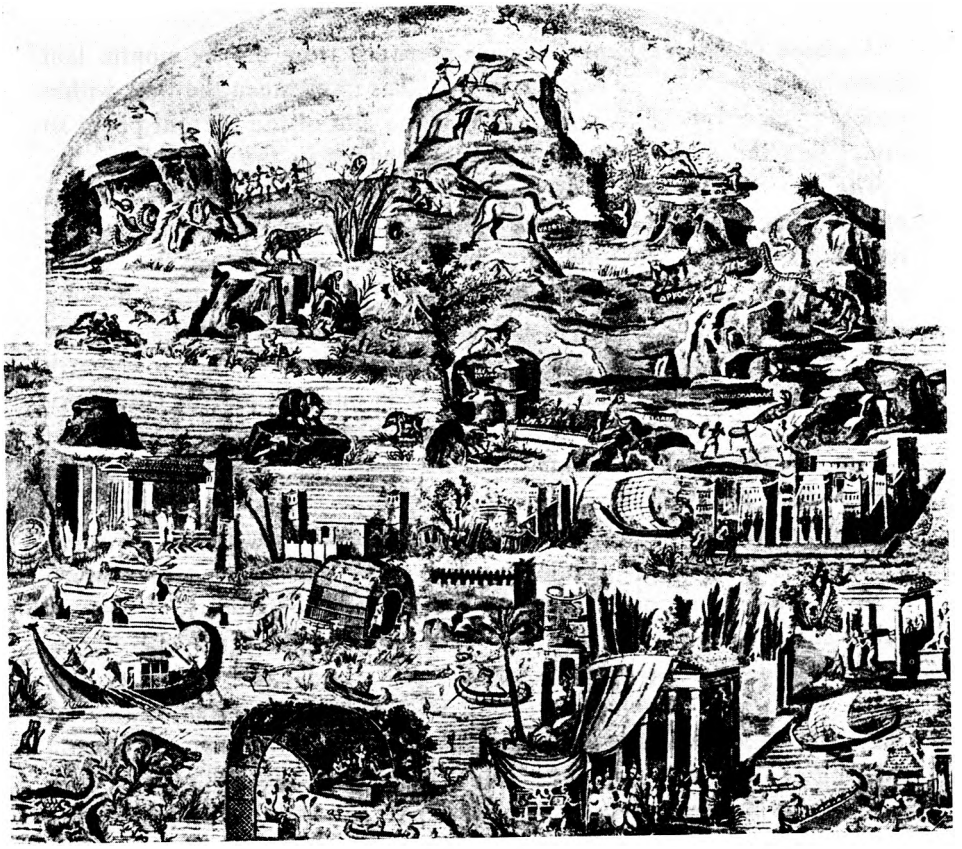
Masada, Western Palace — Tessera-Mosaic of the Herodian period.



Masada, Western Palace — Tessera-Mosaic of the Herodian period.



Jerusalem, Jewish Quarter — Tessera-Mosaic of the Herodian period; second half of the 1st cen. B.C.E.



Praeneste (Palestrina), Temple of Fortuna Primigenia — Tessera-Mosaic of Milotic scenes; 80 B.C.E. or late 1st cen. B.C.E.