

The Late Miocene Mammal Faunas of the Mytilinii Basin, Samos Island, Greece: New Collection

1. History of the Samos Fossil Mammals

by

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KOUFOS, G.D., 2009. The Late Miocene Mammal Faunas of the Mytilinii Basin, Samos Island, Greece: New Collection. 1. History of the Samos Fossil Mammals. — Beitr. Paläont., 31:1–12, Wien.

Abstract

The late Miocene fossiliferous mammal sites of Samos (Aegean Sea, Greece) have been known since the end of the 19th century. Several mammal collections from there are housed at various museums and institutes. All this material from Samos was collected by various scientists or fossil collectors over a long period of time up to the present. The history of these excavations, as well as some information about the fossils, are given in this article. This is an introduction to the study of the new collection of mammal fossils from Samos done by a team of scientists from the University of Thessaloniki, since 1993.

Keywords: Late Miocene, Samos, Greece, Mammalia, Excavations, History.

Zusammenfassung

Die obermiozänen Fossilfundstellen von Samos (Ägäis, Griechenland) sind seit dem 19. Jahrhundert bekannt. Die Sammlungen sind auf diverse Museen und Institute verteilt. Das gesamte Material stammt von zahlreichen Aufsammlungen diverser Wissenschaftler und Sammler. Die Geschichte dieser Ausgrabungen sowie Informationen über die Fossilien sind in dieser Arbeit zusammengefasst. Es ist weiters eine Einleitung in die Untersuchung der neuen Säugetierfunde aus Samos, durchgeführt von dem Wissenschaftlern der Universität Thessaloniki seit 1993.

Schlüsselworte: Obermiozän, Samos, Griechenland, Säugetiere, Ausgrabungen, Geschichte.

1. Geography and History of Samos

Samos is one of the large islands of the Eastern Aegean Sea, with a size of 477 km² and a population of ~33.000 (Fig. 1). During summer the population increases remarkably, as it is a well-known tourist destination for holidays. The maximal length of the island is 44 km and the maximal breadth 19 km, while its seashores measure 140 km. One of the main products of Samos is the world famous wine, known since historical times. The name Samos is of Phoenician origin and according to the old geographer Stravon means “rise by the shore”. However, the island is also known as Parthenia, a name given by the tribe of Pelasgi, when they inhabited the island, and it derives from the worship of the goddess “Parthena (= virgin) Hera”. The island is also referred to by several other names such as Anthemis, Dryoussa, Doryssa, Kyparissia, Imvrasia and Melamfylos.

Several tribes inhabited Samos, such as the Kares, Leleges, Pelasgi, but the first settlers were the Hisiis and Astipaleans. The founder of the town of Samos is Angeos an Argonaut who introduced the worship of Hera and the viticulture to the island. After the Trojan War the Ionians colonized Samos. Archaeological evidence found near the town of Pythagorion, suggests that Samos was inhabited as early as the Neolithic period. A settlement was discovered near the ancient temple of Hereon, which dates back to 4th millennium B.C. and is considered the capital of the island. Samos reached its maximum development during the period of the tyrant Polycrates (546–522 B.C.), who organized a great army and made Samos a naval power of the area. This gave the inhabitants the opportunity to develop trade, as the position of the island between East and West was geographically favorable. During this period the Samians founded their own colonies. Simultaneously, Polycrates advanced the development of the sciences and arts. Aristarchus, put forward the theory of the heliocentric system, Pythagoras developed mathematics, while several philosophers and artists, such as Agatharchus, Theodore, Aesop (the famous fable-writer), Damo, Callistatus, Eupalinus etc. promoted the sciences, architecture and sculpture. It is worth mentioning here that the names

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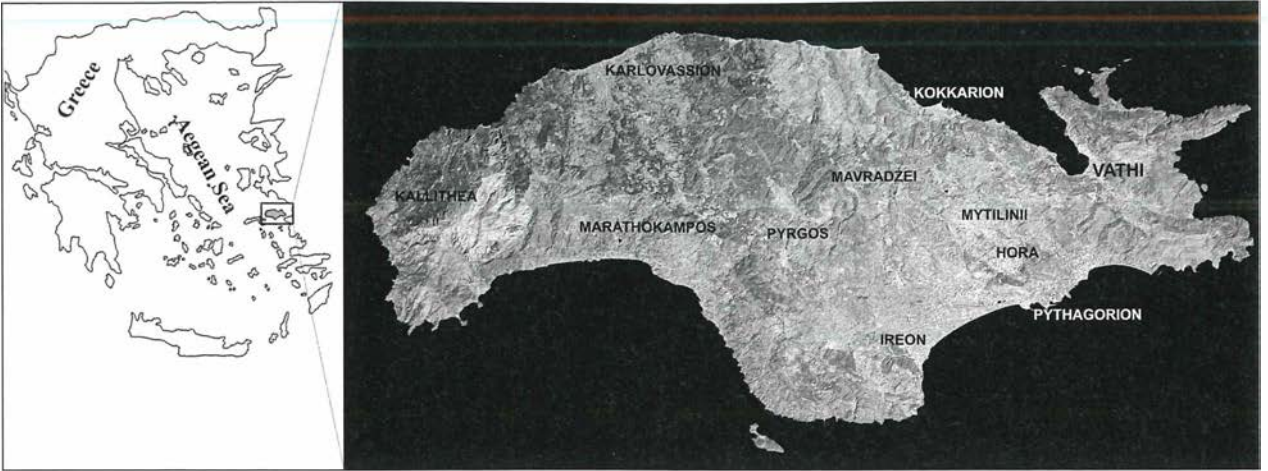


Figure 1: Aerial map of Samos indicating the Mytilinii basin.

Pythagoras, Polycrates and Aristarchus still exist in the local population of Samos.

This great development of Samos was cut short by the Persian Wars, when the island lost its freedom and became an equal member of the Athenian alliance after the end of the war. Samos was conquered by the Romans in 129 B.C. who brought all the island's treasures to Rome. Later on, it became part of the Byzantine Empire during the 4th century A.D. and remained so until the disruption of the empire in 1204 A.D. The island was attacked by pirates, Arabs, Venetians, Turks and other invaders but it kept its Hellenic features. During 1475–1565 most of the inhabitants left the island because of the Turkish oppression and went to other islands, as well as to the coasts of Asia Minor. This period is known as the “devastation” of Samos. By the middle of the 16th century Samos was colonized by Greek populations and most of the modern villages were founded. In 1835 Samos was freed from the Ottoman Empire but it did not unite with the Hellenic State and remained as an independent hegemony until 1912, when it became part of Greece.

During the Samian hegemony most of the fossiliferous sites were found and excavated by various people.

2. History of the Samos mammal fossils

The late Miocene fossiliferous sites of Samos are well known and have yielded a great amount of fossils. SOLOUNIAS (1981) refers to the fact that more than 30.000 specimens are dispersed in various museums and institutes of Europe and the United States. Fossil mammal collections (small or large) from Samos are housed in almost the whole of Europe, in London, Paris, Padova, Budapest, Vienna, Lausanne, Basel, Geneva, Bern, Frankfurt, Hamburg, Munich, Darmstadt, Münster, Stuttgart, Berlin. In Greece there is a collection at the University of Athens and at the Aegean Museum of Natural History, Samos. Significant collections also exist in the U.S.A.; the largest is that of the American Museum of Natural History (AMNH) in New York, but smaller collections are also housed at New Haven, Cambridge, Berkeley, Washington and Chicago.

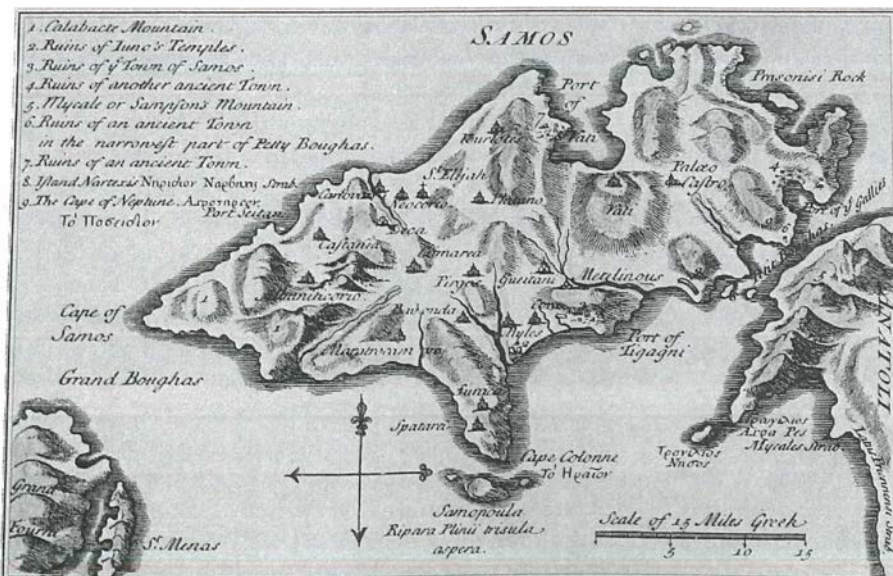


Figure 2: Map of Samos Island (TOURNEFORT, 1717).

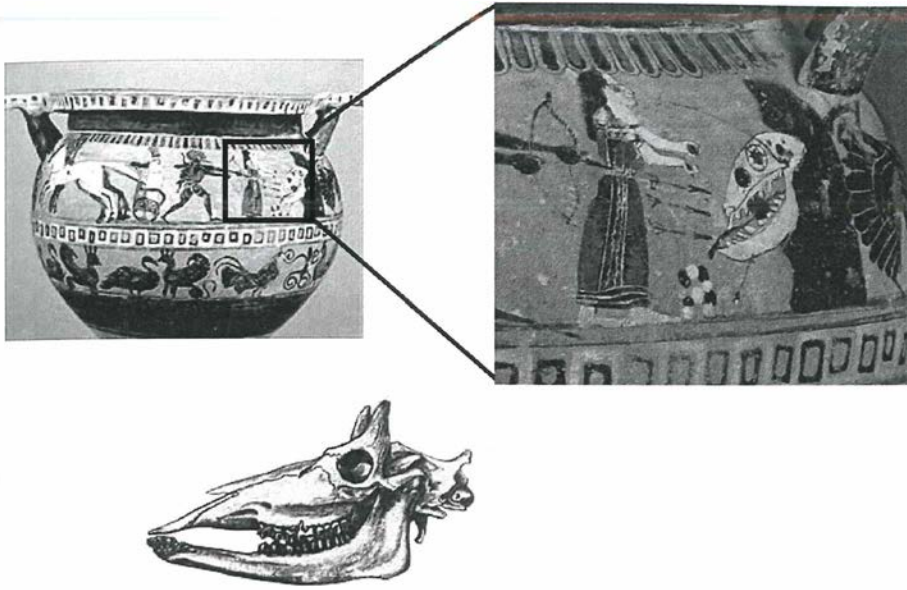


Figure 3: The Trojan Monster as it is depicted on an ancient Greek vase, housed at the Museum of Boston and the skull of *Samotherium*. The Trojan monster could correspond to the skull of *Samotherium*. The picture of the vase is taken from MAYOR (2000) and the drawing of *Samotherium* from LYDEKKEK(1883).

The mammal fossils of Samos have been known since historical times, as two ancient Greek myths indicate their presence. The men found big bones of animals, which were exposed on the island of Samos, and based on that they tried to explain their presence.

The first legend is mentioned by Euphorion, a Greek geographer of ~200 B.C. According to Aelianus (3rd century A.D.) Euphorion says that Samos became a desert during ancient times, which was due to the presence of the Neades (very large monsters) which brought several trials to the island. Their roaring was so strong that it split the earth. Their bones are exposed on the surface for anyone to see. The correlation of earthquakes with the Neades, as well as that of the fossils with their bones, is quite clear.

The other legend about the Samos fossils is narrated by Plutarchus (~100 A.D.) and it refers to the battle of Dionyssos with the Amazons. Dionyssos was the god of wine and the Amazons were a purely female tribe, who were great warriors and lived near the Black Sea. Plutarchus gives the following information in ancient Greek (FORSYTH MAJOR, 1894):

“Από τινος Πάναιμα τόπος εν τη Σαμίον νήσω καλείται. Η ότι φεύγουσαι Διόνυσσον αί Αμαζόνες έκ Εφεσίον χώρας εις Σάμον διέπεσαν, ο δε ποιησάμενος πλοία, και διαβάς, μάχην συνήψε και πολλές αυτών απέκτεινε περί τον τόπον τούτον, ον δια το πλήθος του ρέοντος αίματος, οι θεώμενοι Πάναιμα θαυμάζοντες εκάλουν. Των δε φ *** αποθανείν τινες λέγονται περί τον Φλοιόν, και τα οστά δείκνυται αυτών; τινές δε λέγουσι και το Φλοιόν απ’ εκείνων ραγήναι, φθεγγομένων μέγα τι και διάτορον.”

A free translation of this text says:

“Since ancient times a place, named Panema (an area where there is blood everywhere), has been known on Samos. The Amazons trying to escape from Dionyssos arrived on Samos from Ephesos (an ancient city on the coast of Asia Minor, opposite to Samos). Dionyssos constructed ships, sailed across and fought them (the Amazons) in that place (Panema). Those, who had seen the battle, named the area Panema, because of the huge

amount of blood (of the killed Amazons). From those (Amazons) who were injured some died in Phlios, where their bones were exposed. It is said, that because of this Phlios was shattered by their strong and shrill voices.”

This legend also tries to explain the presence of large fossil mammal bones, connecting them with the skeletal remains of the Amazons and their fight against the God Dionyssos. MAYOR (2000) published several myths about giants and monsters related to the presence of fossils. One of them is known as the Trojan Monster, and she considers that it is a *Samotherium* skull based on the drawings on an ancient vase, from Corinth, housed at the Museum of Boston. *Samotherium* is a large giraffid found on Samos. The depicted Trojan Monster is a skull with the mandible of a large animal which could be a giraffe (Fig. 3). The Plutarchus reference about the battle of Dionyssos with the Amazons was the incentive for Forsyth Major to prospect for fossils on Samos.

3. History of the Excavations

19th Century

The first mammal fossils from Samos were collected by villagers and were given (or sold) to Italian travelers. These fossils arrived at the University of Padova between 1852 and 1866 and they are still housed there (PICCOLI et al., 1975).

Although the villagers knew of the presence of the mammal fossils, the German SPRAT (1847) and the Frenchman GUERIN (1856) who studied the geology of the island did not mention the presence of fossil bones.



Figure 4: Charles Immanuel Forsyth Major (1843-1923).



Figure 5: Achilles Stefanidis.



Figure 6: Eberhard Fraas (1862-1915).



Figure 7: Prof. Theodore Skoufos (1864-1938), Photo: S. Roussiakis.

The expatriate Englishman C.J. FORSYTH MAJOR (Fig. 4) was on Samos from 1885-87 compiling a collection of plants. During that time, knowing of the above mentioned legends, he decided to search for fossil mammals on the island. Thus, he found the fossiliferous levels of the Mytilinii Basin (FORSYTH MAJOR, 1894). He later came back to Samos in 1887 and 1889; he excavated and collected several fossils which are now housed in various museums in Switzerland and in London. The reason that they are in Swiss museums is that Forsyth Major's expeditions were funded by a Swiss family. However, it is clear that before Forsyth Major, some villagers of Mytilinii (a large village near the fossiliferous sites) recognized and collected fossils. One of them was the doctor Achilles Stefanides (Fig. 5). The General Secretary of the Samian Parliament, Thrassyvoulos Mallis, writes in one article entitled "Samos

as a lake and the Aegean Sea as land", that A. Stefanides collected some bones in 1879 and sent them to Prof. Hercules Mitzopoulos at the University of Athens, but he did not get an answer. He continued to collect fossils and when Forsyth Major came to Samos in 1887, he gave him his collection (FORSYTH MAJOR, 1888; 1894).

Forsyth Major excavated at Andrianos ravine, Potamies ravine and Stefana. All collected fossils were sent to Switzerland and today they are housed at the museums of Lausanne, Geneva and Basel (FORSYTH MAJOR, 1894). Although the localities where Forsyth Major collected fossils are known, the material from the various sites was mixed and is difficult to correlate with the stratigraphy. Forsyth Major's collection of 1889 was sold to the Natural History Museum of London (LYDEKKEK, 1890) but there is no information from which locality it was collected. SOLOU-

ΕΘΝΙΚΟΝ ΠΑΝΕΠΙΣΤΗΜΙΟΝ

Γ Α

ΚΑΤΑ ΤΗΝ ΠΡΥΤΑΝΕΙΑΝ

ΝΕΟΚΛΕΟΥΣ ΚΑΖΑΖΗ

ΤΑΚΤΙΚΟΝ ΚΑΘΗΜΕΡΙΟΝ ΤΗΣ ΦΙΛΟΣΟΦΙΑΣ ΚΑΙ ΕΠΙΣΤΗΜΟΛΟΓΙΑΣ
ΤΟΥ ΒΙΒΛΙΟΥ ΚΑΙ ΤΗΣ ΠΟΛΙΤΙΚΗΣ ΟΙΚΟΝΟΜΙΑΣ

ΠΡΥΤΑΝΕΥΣΑΝΤΟΣ

ΚΑΤΑ ΤΟ ΑΚΑΔΗΜΑΪΚΟΝ ΕΤΟΣ

1902-1903

ΕΝ ΑΘΗΝΑΙΣ

ΕΚ ΤΟΥ ΤΥΠΟΓΡΑΦΕΙΟΥ Π. Δ. ΣΑΚΕΛΛΑΡΙΟΥ
1904

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περί διορισμού του τελειοφόρου Β. Χαϊμαντζά ως βοηθού του Μουσείου
ἀντί του διδάκτορος Ν. Πάτσα, διορισθέντος ὑποτρόφου ἐν Ἑσπερίᾳ
πρὸς εὐρύτεραν σπουδᾶν

Ὁ δὲ Ἐπιμελητὴς τοῦ Μουσείου Θ. Σκουφὸς συνεπεῖχεν τοῦ ὕ-
π. ἀριθμ. 12,306 ἔγγραφου τοῦ ἐπὶ τῆς Παιδείας Ὑπουργείου μετέβη
10,814

εἰς Σάμον, ἐνθα ἐνεργήσας παλαιοντολογικὰς ἀνασκαφὰς παρὰ τὰς
θέσεις Ἀδριανῶν, Κατοκούμενα, Μπαρτζίκου, καὶ Μπαλιντάκι τῆς
κομποπόλεως Μυτιληνῶν, ἔφερον εἰς φῶς τρεῖς συγκεκριμέναις ἀπολιθω-
ματοφόρους διαστρώσεις. Τὸ πάχος τῶν ἐν τῷ μεταξύ τῶν ἀπολιθωμα-
τοφόρων τούτων διαστρώσεων στρωμάτων ὑπερβαίνει κατὰ τινὰς δεκά-
δας μέτρων τὰ ἀντίστοιχα τοῦ Πικερμίου καὶ ἀποτελοῦνται οὐχὶ ἐκ
πλαστικῆς ἐροβρίας γὰρ μετὰ ἐπαλλοσσόντων φακιοειδῶν κροκαλοπηγῶν
διαστρώσεων, ἀλλ' ἐκ τόσφου τραχειοειδοῦς ποῦ μὲν ἀργιλομιγῆς, ποῦ
δὲ ἀσβεστολιθικοῦ ἢ ἀργιλομιγῆς ζῆμα καὶ ἀσβεστολιθικοῦ, ἐν πηλο-
παγεῖ, ψαμμιτικῇ ἢ καὶ κροκαλοπηγῇ καταστάσει.

Αἱ διαστρώσεις αὗται ἔχουσι διεύθυνσιν κατὰ μέσον ἕρην ἐκ Β.
πρὸς Ν. μὲ κλίσιν 30-70° ποῦ μὲν πρὸς ἀνατολὰς ποῦ δὲ πρὸς δυσμὰς,
οὕτως ὥστε νὰ σχηματίζωσι σάγματα καὶ λεκάναι, πρὸς ἀλλήλους διακυ-
πτόμεναι ὑπὸ τεκτονικῶν ρυγμάτων

Τὰ ἀνευρεθέντα ζῆμα εἶνε ἀκριβήματα· ἐξ αὐτῶν τὰ σπουδαιότερα
εἶνε τὰ ἑξῆς: Ἐκ τῶν σαρκωσάντων ὁ Μαχαίριδον, ἡ Λυκοκίνα, ἡ
Ἰγναξ καὶ τὸ Ἰατιθῆριον, ἐκ τῶν μηριακτικῶν ὁ Πρωτόρυξ, ὁ Προ-
σφιφίκερος, ὁ Πικλοκέρως, τὸ Κροσθῆριον, ὁ Παλαιότροχος, τὸ Σα-
μοθῆριον, τὸ Ἑλλοδθῆριον, ἡ Καμυλοπόδαλις κτλ. ἐκ τῶν παμφά-
γων ὁ Ἐρμάνθιος γυρῶν, ἐκ τῶν ὑπληρόρων τὸ Ἰππῆριον, ἐκ τῶν πα-
χυδέρμων ὁ Ρινόκερος, ὁ Μαστόδον, τὸ Δεινοθῆριον, ἐκ τῶν ἀγκυλο-
πόδων τὸ γυλοθῆριον, ἐκ τῶν κωδῶν ὁ Ὀρυκτερόπους, ἐκ τῶν τρα-
κτικῶν ἡ Ἰστρίξ, ἐκ τῶν ἐρπετῶν ἡ Χελώνη, ἐκ τῶν πτηνῶν διάφορα
τμήματα ὁσῶν καὶ διὰ πρώτην φορὰν ὡς ἀπολιθωμένα (Palaeo-
vum).

Ἡ δὲ ἐν τῷ φροντιστηρίῳ διεξαχθεῖσα ἐργασία ἔχει ὡς ἑξῆς: ἐν
μὲν ταῖς πρῶταις ἀναλήσειν συμμετέσχον 117 φοιτηταὶ τοῦ Φυσικοῦ
καὶ Μεθαρματικῶν τμημάτων τῆς Φιλοσοφικῆς σχολῆς καὶ τοῦ Φαρμα-

Figure 8: The proceedings of the rectorate of Athens University, in which the Skoufos report about the excavations in Samos is mentioned (black frame). Courtesy: S. Roussiakis.

ΤΑ ΠΑΛΑΙΟΝΤΟΛΟΓΙΚΑ ΕΥΡΗΜΑΤΑ ΕΝ ΣΑΜΩ Η ΣΠΟΥΔΑΙΟΤΗΣ ΤΩΝ ΣΥΝΕΤΕΥΞΙΣ ΜΕ ΤΟΝ Χ. ΣΚΟΥΦΟΝ

Η ΕΠΙΤΥΧΙΑ ΤΩΝ ΑΝΑΣΚΑΦΩΝ

Πρὸ ἡμερῶν εἶχον ἀναγράψαι δι' ἐπα-
νηλθεν ἐκ Σάμου ὁ κ. Σκουφός ὅπου εἶχεν
ἐνεργήσει παλαιοντολογικὰ ἀνασκαφὰς, ἀ-
νευρῶν πλείστα πολυτίμητα παλαιοντολογικὰ
ἀντικείμενα.

Χθὲς τὸ ἑσπέρας ἐπεσκέφθην τὸν κ.
Σκουφόν ἐν τῇ οἰκίᾳ του ἵνα μῆς παράσχη
τάς λεπτομερεῖας τῶν παλαιοντολογικῶν
αὐτοῦ ἀνασκαφῶν ἐν Σάμῳ.

Ὁ κ. Σκουφός μὲ τὴν χαρακτηρίζουσαν
αὐτὸν προσήθειαν μῆς ἀδέχθη εἰς τὴ γρα-
φεῖόν του.

— Παλαιοντολογικὰς ἀνασκαφὰς ἐτήρησα
ἐν Σάμῳ, μῆς εἶπεν ὁ κ. Σκουφός, εἰς τρεῖς
διαφόρους θέσεις, εἰς Ἀδριανὸν, Κατοικί-
μενα καὶ Τσαρούχι.

Αἱ τρεῖς αὗται θέσεις ἀντιπροσωπεύουσι
ἀκριβῶς καὶ τοὺς τρεῖς γεωλογικοὺς ὀρίζον-
τας τῶν ἀπολιθώματόφρων στρωμάτων, οἱ
ὅποιοι ὀρίζοντες μῆς παρουσιάζθησαν καὶ
εἰς τὸ Πικέριον. Ἡ μόνη διαφορά μεταξὺ
αὐτῶν εἶνε τὸ πάχος τῶν στρωμάτων, τὸ ὅ-
ποιον ἐν Σάμῳ εἶνε 100 περίπου μέτρων.

Τὰ ὑδατογενῆ στρώματα τὰ φέροντα τὰ
ἀπολιθώματα διευθύνονται κατὰ μέσον ἔρον
ἐκ Βορρᾶ πρὸς Νότον καὶ κλίνουσι ὑπὸ
γωνίαν 30—70 μοιρῶν πρὸς ἀνα-
τολάς, πρὸ δὲ πρὸς δυσμάς.

Τὰ εὐρήματα τῆς Σάμου

Κατόπιν ὁ κ. Σκουφός ἔφερε τὸν λόγον
ἐπὶ τῶν εὐρεθέντων ζώων:

— Τὰ ἀνευρεθέντα ζῶα ἐπὶ τῆς νήσου
Σάμου, μῆς εἶπεν, ἴκων εἰς ἐποχὴν (ἀνω
μεσώκενος διάπλασις) κατὰ τὴν ὁποίαν ἡ
Μεσογείος Θάλασσα ἀπετέλει γῆρον δια-
κοπτομένην ὑπὸ πολλῶν ἡμάντων, ἐκ τῶν
ὁποίων μία ἦτο καὶ ἡ νήσος Σάμος. Κατὰ
τὴν ἐποχὴν ταύτην ἡ Σάμος συνείχετο ἀ-
μεσώτατα μετὰ τῶν νήσων τοῦ Αἰγαίου Πε-
λάγους, τῆς Ἑλλάδος, τῆς Ἀσίας καὶ Ἀ-
φρικῆς.

Κατὰ μέγα μέρος τὰ ὑδατογενῆ ταῦτα
στρώματα τῆς Σάμου ὀφείλουσι τὴν ὑπαρ-
ξίν τινα, τὸ μὲν εἰς ἀποδοὺ ἡράσιαιων τὸ
δὲ εἰς πρόϊοντα τῆς ἀποσπάρσεως τῶν πυ-
ριγενῶν πετρωμάτων, ἅτινα προήρχοντο ἐκ
τῶν ἡρσιαιῶν τὰ ὅποια ἦσαν ἐν ἐνεργείᾳ
κατὰ τὴν αὐτὴν ἀνω μεσώκενον περιόδον
παρὰ τὰς ἀκτὰς τῆς Μικρᾶς Ἀσίας καὶ μάλ-
ιστα τῆς Σμύρνης.

Τὰ στρώματα ταῦτα μὲγάλως σήμερον
συντελοῦσιν εἰς τὴν ἀνάπτυξιν τῆς γηπέδου
εἰς τὴν γῆσον Σάμου καὶ εἰς τὴν γονιμότητα
τοῦ ἰσθμοῦ τῆς.

— Ἀνευρέθησαν πολλὰ ζῶα κατὰ τὰς ἀ-
νασκαφὰς ταύτας.

— Αἱ ἐν Σάμῳ ἀνασκαφαί, ἐξηκολούθη-
σεν ὁ κ. Σκουφός, καὶ λόγῳ τοῦ ἀριθμοῦ
καὶ τῆς ὀρίστης διατηρήσεως τῶν εὐρημά-
των, δύναται νὰ παραβληθῶσι πρὸς τὰς τοῦ
Πικερίου.

Τὰ ζῶα

Τὰ ἀνευρέθητα ζῶα εἶνε ἀναριθμητά, ἐξ
αὐτῶν δὲ τὰ σπουδαιότερα εἶνε τὰ ἑξῆς:
Ἐκ μὲν τῶν σαρκοφάγων ὁ Μαχαίροδους, ἡ
Δύκαινα, ἡ Ταῖνα καὶ τὸ Ἴκτιθῆριον, ἐκ
τῶν μηρίστικων εἶνε ὁ Πρωτόρρηξ, ὁ
Πρότραφίκερος, ὁ Παλαιόραξ, τὸ Κριο-
θήριον, ὁ Παλαιότραγος, τὸ Σαμοθήριον, τὸ
Ἐλαροθήριον κλπ., ἐκ τῶν παμφάγων εἶνε
ὁ Βρωμίανθιος Κάπρος, ἐκ τῶν ὀπληθῶρων
τὸ Ἴκπεριον, ἐκ τῶν καχυδέρμων ὁ Ρινό-
κερως, ὁ Μαστόδους, τὸ Δαινοθήριον, ἐκ
τῶν γωθῶν ὁ Οὐρκατέρκους, ἐκ τῶν τρω-
κτικῶν ἡ Λεπίς, ἐκ τῶν ἑρπετικῶν ἡ Χε-
λώνη, καὶ διὰ πρώτην φοράν εἰς τὸν ἀπίστη-
μονικὸν κόσμον ὡς ἀπολιθωμένα ἐπικληθέντα
Παλαιῶν (Palaeonum).

Κατόπιν τοῦ ἀτελειότητος τούτου ἀριθμοῦ
τῶν ζώων, τὰ ὅποια μῆς ἀπρίβησαν ὁ κ.
Σκουφός, τὸν ἠρωτήσαμεν ἵαν ἔμεινεν εὐχα-
ριστημένος ἐκ τῶν ἀνασκαφῶν αὐτῶν.

Ἡ ἐπιτυχία τῶν ἀνασκαφῶν

— Αἱ ἀνασκαφαί τὰς οποίας ἐτήρησα
εἰς τὴν Σάμον, μῆς εἶπεν, ἐπέτυχαν ὑπὸ
μεγίστης ἐπιτυχίας, διότι ἐν ᾧ εἰς πρὸ ἡμῶν
ἀνασκάψαντες εὐρίσθησαν ἀνεύρονα θραύματα
ἢ μέρη σκελετῶν, ἡμεῖς τούναγχιον ἀνεύρο-
μεν ὀλοκλήρους σκελετοὺς καὶ διαφόρους
αὐτοτελεῖς κεφαλὰς ὡς π. χ. 14 κεφαλαί-
ρινασκέριον, 5 τοῦ σαμοθηρίου, 7 τοῦ Ἴκ-
περίου, 1 τοῦ οὐρκατέρκους, 1 τῆς Λεπίδος,
4 τῆς Γαλέλας, 3 χελώνας κλπ.

Διὰ τῶν ἀνασκαφῶν τῆς Σάμου, ἐξηκο-
λοῦθησεν ὁ κ. Σκουφός, καταδειχθῆναι τὸ σύγ-
χρονον τοῦ παλαιολιθίου κόσμου τῆς Σά-
μου, Σμύρνης, Σμύρνης, Ἀρηνκίου τῆς Μι-
κρᾶς Ἀσίας, Πικερίου τῆς Ἀττικῆς, Ἀ-
γίας Τριάδος, Ἀγιάς ἀγῆς καὶ Κεχρῶν
τῆς Εὐβοίας.

Τὰ εὐρήματα εἰς τὸ τελωνεῖον

— Καὶ τὰ εὐρήματα τῶν ἀνασκαφῶν κ.
Σκουφός τὰ ἔφερε ἐδῶ:

— Μάλιστα εὐρίσκονται εἰς τὸ τελωνεῖον
τοῦ Παιραιῶς, αὐριον δὲ μάλιστα θὰ τὰ
μεταφέρω εἰς τὰ ὑπόγεια τῆς Ἀκαδημίας.

— Εἶνε πολλὰ.

— Μὲ διὰ νὰ λαβῆτε μικρὰν εἴνα ἰδεῶν
τὰ εὐρήματα περιέχονται ἐντὸς 48 τεραι-
στίων κιβωτίων.

Τὰ τελευταῖα εὐρήματα.

Κατόπιν ὁ κ. Σκουφός μῆς ἐπέδειξε καὶ
μικρὰ παλαιοντολογικὰ εὐρήματα, τὰ ὅποια
εὐρετέλαιας θτε ἀνευρέθη ἐκ Σάμου
Πλὴν ἀγιδῶν καὶ ἄλλων θαλασσιῶν
ζώων, μὲ ἐπέδειξε καὶ μίαν ἀπολιθωμένην
σιάγωνα ἱππερίου ἐπὶ τῆς ὁποίας σώζοντα
ἀκέραιοι οἱ ὀδόντες καὶ μὲ τὸ φυσικόν τους
χρῶμα.

— Εἰς τὸν ἀνευρεθέντα σκελετὸν τοῦ
ἱππερίου, μῆς εἶπεν ὁ κ. Σκουφός, παρατη-
ρήσαμεν τὸ ἕξως περιεργότερον πρῶγμα θτε
οἱ πόδες του ἀποτελοῦνται ἀπὸ τρεῖς ὀπλά
ἐπὶ τῶν ὁποίων ἰσχυρίζετο.

Τέλος ὁ κ. Σκουφός ἐπιδεικνύων εἰς ἡ

μῆς καὶ μικροὺς ἐγκεφάλους ἀπολιθωμένους,
μῆς διηγήθη τὴν Ὀδύσειαν τὴν ὁποίαν ὕ-
πισθη ἡ Τουρκία ἕνεκα αὐτῶν.

— Ὅτε ἀπεβιάσθη εἰς τὴν Νίαν Ἐ-
ρεσον, αἱ τουρκικαὶ Ἀρχαὶ ἠρώτησαν τὸ
μπασιλό μου καὶ ἀνεύρο τὰ ἀπολιθώματα
αὐτὰ, μῆς εἶπεν, Ἀμέσως τὰ κατέσγόν ὡς
ἀρχαιολογικὰ ἀντικείμενα, μὲ ἐπράτησαν δὲ
καὶ δύο ὥρας εἰς τὸ Διοικητήριον.

Ἐξέστη δὲ νὰ μεταβῶ εἰς Σμύρνην, γὰρ
παρουσιασθῶ εἰς τὸν πρῶτον κ. Ἀντωνίου
πούλων καὶ κατόπιν πολλῶν διατυπώσεων
κατέρωθον νὰ τὰ λάβω πάλιν ἀπὸ τὸν Βα-
λὴν Σμύρνης. Πρὸς μεγαλητέραν δὲ ἐπι-
σημοποιήσιν τὰ ἰδιώτῳ, καθὼς βλέπετε,
ἐντὸς τουρκικῶν ἐφημερίδων.

Ο. Ἡλ...

Figure 9: Interview of Prof. Theodore Skoufos in the Greek newspaper EMPROS about the Samos excavations, published on 20-10-1903. Courtesy: S. Roussiakis.

NIAS (1981) mentions that an old villager told him that the “Englishmen” excavated in a place, named Vryssoula. But, as he says, it would have been impossible for Forsyth Major, being in Samos, not to visit Adrianos ravine which is the richest fossiliferous area and not to collect fossils from there. The fossil collections of Forsyth Major made Samos known to scientists and dealers of that time and they soon began to arrive on the island and to collect fossils. At the end of the 19th century, T. Stutzel excavated on Samos and the collected fossils were given to the University of Munich (SCHLOSSER, 1904; ANDRÉE, 1926).

20th Century

During the first quarter of the 20th century several scientists and fossil dealers excavated at the Samos fossiliferous sites which yielded a great number of fossils. According to SCHLOSSER (1904) the known fossil dealer, B. Sturtz was asked by K. von Borne to stay in Samos from 1889-1900 and to excavate. The collected fossils were sold to various museums (Vienna, Stuttgart, Frankfurt, London), but it is unknown from which fossiliferous site or sites they were collected. Another problem is that the various museums bought fossils from various dealers and mixed them, giving them a single indication, Samos. Also, the collectors were not scientists, so they did not collect them carefully without mixing the material. Moreover, as they had profit in mind, it is quite possible that they mixed attractive material (skulls, mandibles) from one site with less important material (postcranials) from another site in order to sell their whole collection. During the beginning of the 20th century, A. Hentschel excavated on Samos in 1901 and 1902 and all the material was brought to Munich. A significant number of these fossils was destroyed during the Second World War, when the Museum was bombed. The remains were packed in boxes, but nobody opened these boxes up to now and thus we don't know, what exactly was destroyed (SOLOUNIAS, 1981). E. Fraas (Fig. 6) also excavated on Samos in 1901 and enriched the collections of the museums of Munich and Stuttgart. One of the biggest collections from Samos is that of K. Acker, which

was sold to various museums. K. Acker was Consul of Germany on Samos and simultaneously a wine trader, sending wines to Germany and Austria. Moreover, his father was an antiques dealer. He had a nice house with private port in an area named Malagari, about 1 km far from Vathi, the capital of Samos. Thus, he sent the fossils together with the wines to Germany and then he sold them to various museums (Vienna, Hamburg, Stuttgart, Bern, Basel, Tübingen). Acker had good relations with the local people, paying them money in order to excavate in their fields. This method of excavating is the worst for scientists, as they never sell fossils in order to raise money to pay the local population. Unfortunately, some old villagers ask for money up to now, causing difficulties with research; even today, when most of the fields are not cultivated and have become forests. However, it is worth mentioning here that several inhabitants of Mytilinii village allow us or even called us to go on their fields to prospect and excavate.

One of Acker's collaborators was D. Psilovikos, who also worked with B. Brown, as well as alone, compiling a large collection of bones. This collection was later sold to B. BROWN (SOLOUNIAS, 1981). Before Samos united with Greece, Theodore Skoufos, Professor at the University of Athens (Fig. 7), went to Samos. He excavated and collected several fossils which are now stored at the Museum of Geology and Palaeontology of Athens University. According to the proceedings of the rectorate for the years 1902-1903 (Fig. 8), T. Skoufos excavated at Samos in 1903 and, more precisely, at the sites Adrianos, Katikoumena, Bartzikos and Bailntaki. It is also noted that the deposits are mainly alternated beds of trachitic tuffs which are either clayey or calcitic and appear as either clay or sandstone or conglomerate. The fossil collection includes several mammalian taxa such as *Machairodus*, *Lycyaena*, *Adrocuta*, *Ictitherium*, *Protoryx*, *Prostrepsiceros*, *Palaeoreas*, *Criotherium*, *Palaeotragus*, *Samotherium* *Helladotherium*, *Hip-*

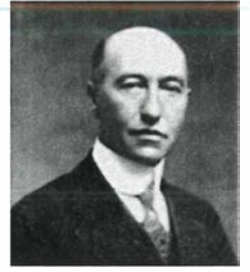


Figure 10: Barnum Brown (1873-1963).

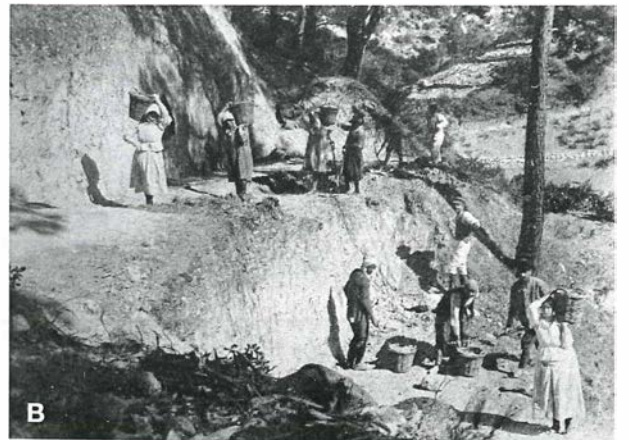


Figure 11: a) The Q1 of B. Brown at Adrianos ravine, b) Greek refugees excavating in Q1 (photos reproduced from BROWN, 1924).

parion, *Mastodon*, *Deinotherium*, *Orycteropus* and *Hystrix* (Fig. 9). The last big excavation at Samos was conducted by Barnum Brown (Fig. 10) from 1921-1924. B. Brown was curator at the American Museum of Natural History (AMNH) and he collected fossils from several fossiliferous sites. According to the Annual Reports of Paleontological Expeditions of AMNH (<http://paleo.amnh.org/reports/index.html>) in 1921, B. Brown was engaged in a preliminary reconnaissance work in Greece, Asia Minor and India. In a report from 1922 it is mentioned that B. Brown worked in the Siwaliks (Pakistan) and compiled a splendid collection of fossil mammals. In 1923 he began a collection on Samos and he investigated several areas of Greece and Asia Minor. In the report from 1924 it is mentioned that “*Barnum Brown continued work in the fossil quarries of Samos and secured a large and valuable collection*”. From all these reports it is clear that the main excavations at Samos were carried out in 1924. During the earlier years B. Brown mainly discussed all the details of the excavations, asked for permissions from the authorities and also investigated the area.

The permission to excavate on Samos was given to B. Brown after an agreement with Prof. T. Skoufos. When Skoufos realized the amount of fossils (~5.000 specimens) unearthed by Brown, he refused their export to New York. After some negotiations and probably after putting some pressure on Skoufos, the government gave the permission to export the fossils (SOLOUNIAS, 1981).

BROWN (1924) in his article “Samos – Romantic Isle of the Aegean” in the first paragraph mentioned:

“Be it enacted that the Greek Government permits any part or all of the fossils collected in Samos by Barnum Brown to be shipped to America as an expression of thanks to the American people for the many benefits given.”

“This order of the Greek Ministry issued in September 1924 become a law when published in the official journal and permitted the American Museum to secure the first collection of fossils ever sent out of Greece intact”.

As Brown says he excavated mainly in the Adrianos ravine and more precisely in the field that was the property of Aristarchus Sophoulis. This site is ~4 m above the site Mytilinii-1A (MTLA) (KOSTOPOULOS et al., this vol-

ume). During our excavations in this area we found the debris of Brown’s excavations, which include several fragments of bones and even complete bones. Brown collaborated with D. Psilovikos and J. Zacharis, and used Greek refugees from Turkey (after the war of 1922) as workers. He says that he employed both men and women and he gave them 35 drachmas (0.70 dollars) and 20 drachmas (0.40 dollars) per day respectively, for 10 hours of work. They lived in tents (Fig. 11) near Adrianos ravine (BROWN, 1924). Brown named his excavation sites “Quarries” and he excavated in seven sites (Q_x, Q₁-6). Although he separated the fossils from the different quarries, and the AMNH collection is the only one with locality indications, we are not sure about these. The reasons are:

- The fossils were collected and packed by non scientists and thus mixing is highly possible.
- Brown bought about 500 fossils from D. Psilovikos which were mixed with the other material. Their origin is quite doubtful.
- It is quite possible that Brown took or bought fossils from other villagers and their origin is also questionable.

Despite these problems, Brown’s collection is the richest with the most certain stratigraphic indications and it is used by us in the following chapters.

In 1963 Prof. John K. Melentis (Fig. 12) went to Samos and he excavated in Adrianos ravine (MELENTIS, 1969). Prof. Melentis worked three weeks in the area and he compiled a small collection. The exact fossiliferous site where he excavated, is Mytilinii-1A (MTLA), as Prof. Melentis told and showed me, when we went to Samos together in 1977. Then later, we went there again in 1985 and he explained to me, where he dug the trench at the bottom of the Adrianos ravine (Fig. 13). All the material collected by Prof. Melentis, as well as some material transferred from Athens, was used for a small exhibition which was shown in a room of the town hall of Mytilinii. Simultaneously, Prof. Melentis and the mayor of the village founded the



Figure 12: John K. Melentis (1922-2001).



Figure 13: Excavation at Adrianos ravine (MTLA) in 1963 (photo reproduced from MELENTIS, 1968).



Figure 14: Excavations at Adrianos ravine (MTLA) in 1985; from left Constantinos Stefanis, Constantinos Triantaphyllou, John Sophoulis and Prof. J.K. Melentis, Photo: G.D. Koufos.

Palaeontological Museum of Mytilinii, Samos. The specimens (118) belonging to this collection are mentioned in the articles of this volume with the prefix PMMS in front of their code number. It is not mixed with the new collection because it is mixed with some material of unknown origin, transferred from Athens; probably, these specimens are from Prof. Skoufo's collection. It is also quite possible that during all these years some specimens were given to the museum by the villagers and mixed with the others. Thus, it is better to study the PMMS collection separately. In 1994 all the material of the Palaeontological Museum of Mytilinii was transferred to the Aegean Museum of Natural History and it is exhibited there.

In 1985 Prof. Melentis and the author went to Samos and excavated for two weeks in Adrianos ravine (Fig. 14). The material was collected from the site MTLA and remained unprepared for many years. It was prepared by us at the end of the 1990's and is included to the new material collected from MTLA because its origin is certain.

4. The New Campaign of Excavations

In 1993 the "K. and M. Zimalis Foundation" and the Aegean Museum of Natural History invited the author to Samos to excavate in order to compile a new collection, enriching the old one and the exhibition of the museum.

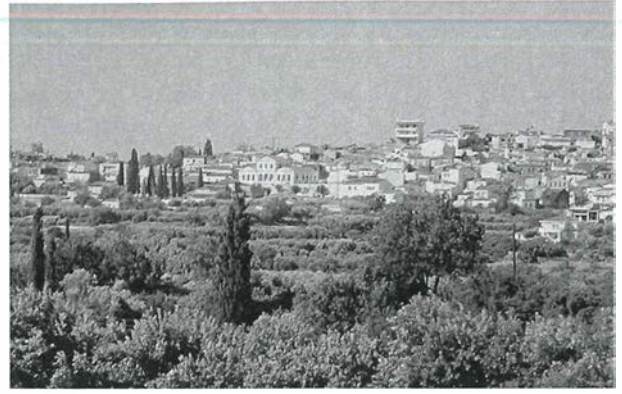


Figure 15: Recent view of the Mytilinii basin.

In fact, the author and Dr. D. Kostopoulos went to Samos and stayed there for one week, prospecting the Mytilinii Basin and trying to relocate the fossiliferous sites. The fossiliferous area is situated to the north-west of the village of Mytilinii (KOSTOPOULOS, et al., this volume). Mytilinii is a large village situated at the center of East Samos (Fig. 15). The villagers know the fossils and the fossiliferous sites very well and their informations were very useful. Most of the fossiliferous sites are located at the Potamies and Adrianos ravine (Fig. 16), as well as at one site, which is in the northern part of the ravine, near the village of Kokkarion (Fig. 1). Although there are short

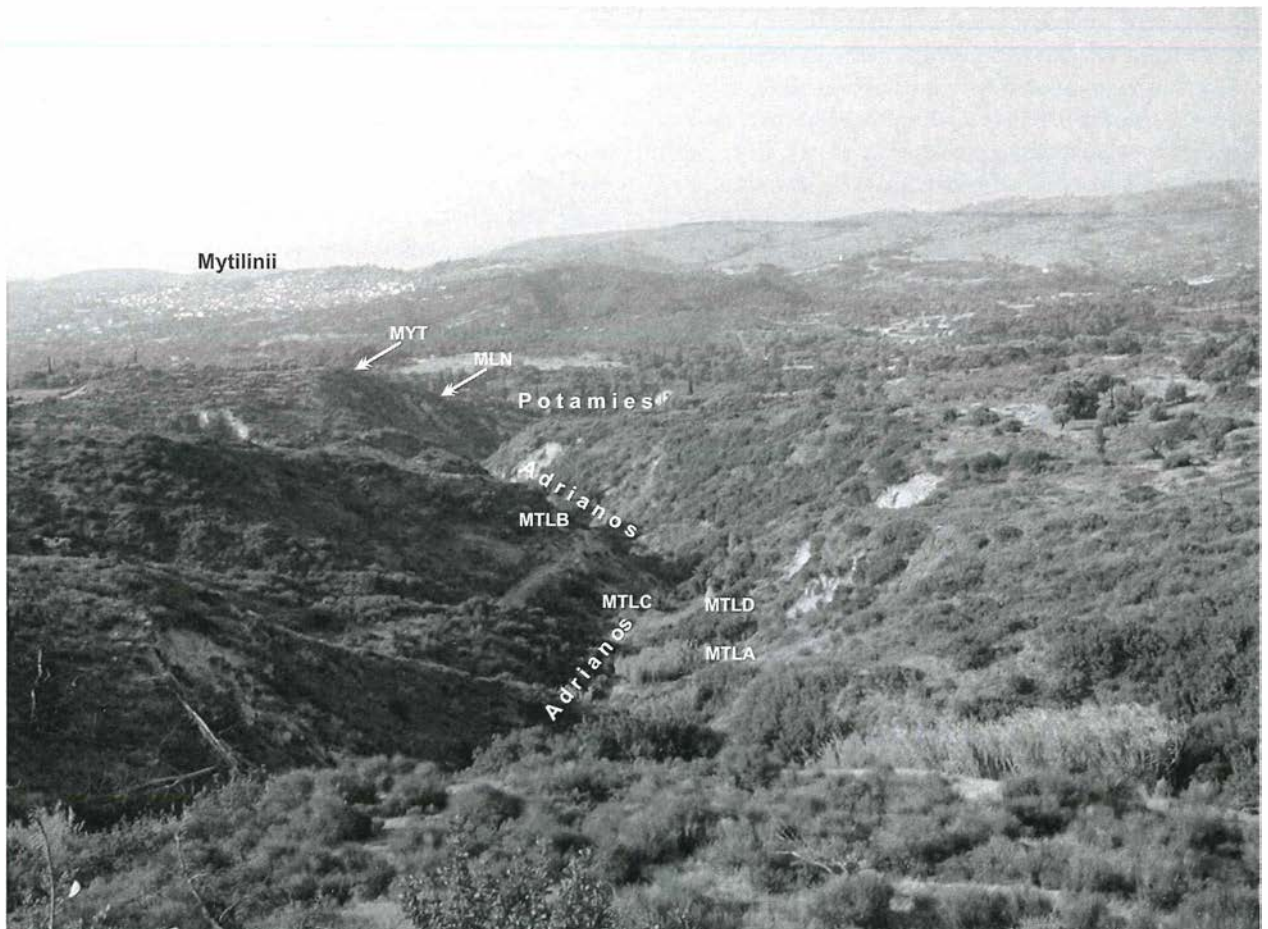


Figure 16: General view of the Adrianos ravine with the position of the excavated fossiliferous sites.

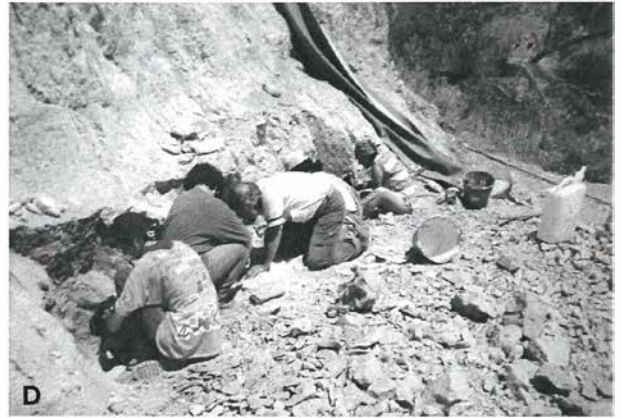
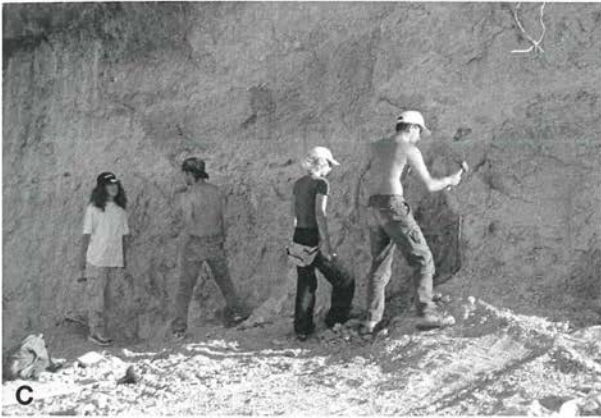
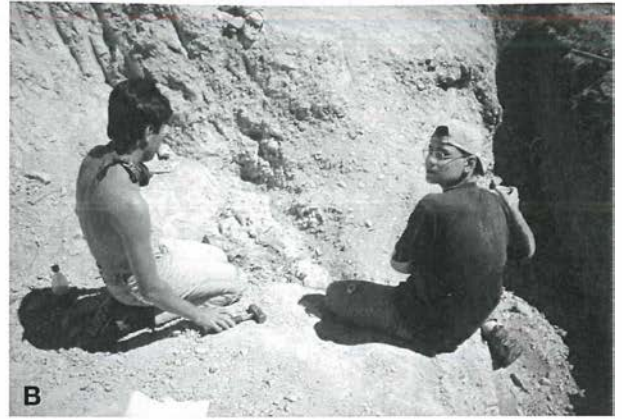


Figure 17: Recent excavations in Mytilinii Basin. a) Fossiliferous site MTLA, 1997 (from left to right V. Karagiannakis, T. Vlachou and G.D. Koufos); b) Fossiliferous site MTLA, 1998 (from left to right D.S. Kostopoulos, D.G. Koufos); c) Fossiliferous site MTLB, 2001 (from left to right T. Vlachou, D.S. Kostopoulos, E. Telloglou and J. Elmatzidis); d) Fossiliferous site MTLA, 1997 (from left to right E. Tsompachidou, E. Vasileiadou, G.D. Koufos and I.A. Sylvestrou).

breaks, the excavations on Samos still continue and a great amount of fossils has been unearthed. They mainly yielded mammals, some reptiles (turtles, varanes) as well as some continental mollusks. Our efforts to find small mammals were not successful, as we washed several sacks of sediments from various places but the results were very poor (VASSILEIADOU & SYLVESTROU, this volume).

One of the main aims of the new excavations was to compile a collection of clear and certain stratigraphic origin. Thus, after the relocation of the fossiliferous levels new names were given to the sites and we tried to correlate the old and new sites. The main stratigraphic search concerned placing the fossiliferous sites in a stratigraphic order. For this reason several sections of the basin have been studied, sometimes with high accuracy (1 meter). This allows finding the relationships of the beds, to correlate them and to put all localities (old and new) in a stratigraphic order (KOSTOPOULOS et al., 2003; KOSTOPOULOS et al., this volume). The result was a detailed stratigraphy with the certain position of the new fossiliferous sites. The old fossiliferous sites were also put in a stratigraphic order, using all the available information, which was referred to in the bibliography, as well as the oral history gathered from the villagers.

Several colleagues, graduate and postgraduate students have worked in the field for the excavations (Fig. 17), as

well as in the laboratory for the preparation of the fossils. Some of them continued and are palaeontologists today. As minimal recognition and respect of their work and enthusiasm, their names and the years in which they worked are listed below. They are mentioned with their recent title, except the author who is responsible for the project:

- George E. Syrides, Assistant Professor (1996-1998)
- Kalliopi K. Koliadimou, Dr., palaeontologist (1994)
- Dimitrios S. Kostopoulos, Dr., palaeontologist (1993-94, 1997-today)
- Ioanna A. Sylvestrou, Dr., geologist (1996-2002, 2007)
- Ekaterini Vasileiadou, Dr., palaeontologist (1997-98)
- John Grigoriadis, Msc., geologist (1999)
- George E. Konidaris, Msc., palaeontologist (2006)
- George C. Seitaniadis, Msc., geologist (1994, 1996)
- Elisabeth Tsompachidou, Msc., geologist (1997-98)
- Theodora D. Vlachou, Msc., palaeontologist (1996-to-day)
- John Elmatzidis, geologist (2001, 2002)
- Vassiliki Karagiannakis, geologist (1996)
- Dimitrios G. Koufos, civil engineer (1997, 1998)
- John Sarris, geologist (2002)
- Eleftheria Telloglou, geologist (2001, 2002)

The whole period of work on Samos covers a continuous time span of approximately eight months. The collected

material consists of more than 1.200 specimens and includes several complete skulls and mandibles, as well as a large number of postcranials. Some preliminary data of the new campaign of excavations are given earlier (KOUFOS et al., 1997, 2004; ΚΟΣΤΟΠΟΥΛΟΣ et al., 2003). The new collection as well as that of Prof. J. Melentis was studied by a group of palaeontologists organized by the author and is included in this volume.

5. The Aegean Museum of Natural History

As mentioned above, a museum, with the name “Palaeontological Museum of Mytilinii, Samos” (PMMS), was founded in 1967. The foundation of the museum was based on the collection of Prof. Melentis exhibited in a small room of the town hall of Mytilinii. Since the beginning of the 1990’s, several efforts were made for a new building housing the fossils. As usual economic reasons stopped the effort and everyone was waiting for better conditions. In the meantime several visitors, especially during summer, visited the fossil exhibition housed at the town hall. The necessity for a new museum was predominant and one of the inhabit-

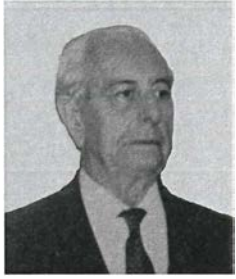


Figure 18: Konstantinos Zimalis (1908-1996).

ants of the village, Konstantinos Zimalis (Fig. 18), decided to take action. Thus, the “Konstantinos and Maria Zimalis Foundation”, financed the construction of a nice building in a large field which was founded as the Aegean Museum of Natural History (Fig. 19). The main aim of the museum is to save and protect the natural monuments of Samos, as well as to show the palaeontological, geological and zoological heritage of the island. The museum has two big halls and two smaller ones. The first big one, named “Prof. J. Melentis-Hall” (Fig. 20a-c), includes the mammal fossil collection from Samos. In this hall the mammal fossils from Samos are exhibited, including specimens from the old and new collection and from all animals found. The other large hall, named “J. Stefanis-Hall” includes an exhibition of various indigenous animals including birds, living at the island of Samos. Of the two small halls, one includes a nice collection of minerals in general (Fig. 20d), as well as a collection of rocks and minerals from Samos. In the other hall a collection of shells and fishes is exhibited. In the sub-basement there are several rooms used as laboratories for the preparation of fossils as well as for their storage. The establishment of the Aegean Museum of Natural History in Samos was a strong incentive for new excavations and the collection of new material. In fact the new excavations enriched the exhibition and also made available remarkable data for solving several chronological and palaeoecological problems concerning mammal faunas of Samos (see KOUFOS et al., this volume-a, b).



Figure 19: The Aegean Museum of Natural History, Mytilinii, Samos, Greece.



Figure 20: Exhibitions at the Aegean Museum of Natural History. a, b, c) palaeontological exhibition in the “J.K. Melentis-Hall”; d) the mineralogical exhibition of the museum, Photo: D.S. Kostopoulos.

6. Acknowledgements

Several services and persons helped with the various expeditions in Samos. The excavations had the financial support of the “Konstantinos and Maria Zimalis Foundation” and the Prefecture of Samos. Special thanks are due to the former prefects of Samos, Pythagoras Vardikos and Thalassinos Thalassinos, who financially supported the project. I also thank the president of the “K. & M. Zimalis Foundation”, Mr. Evangelos Zimalis, for the financial support, as well as for providing us with all the available space in the museum for improving our work. The former Major of the Mytilinii village, Polykrates Konstantinidis, is hereby also thanked for providing us with cars and other equipment. Many thanks are also due to Nikolaos Zimalis and Nikolaos Chatzispiridou, for their help during all these years. I also wish to thank Christos and Eftichia Seitaniadis for their great hospitality during all these years, letting their house and providing us with help. I wish to thank all the inhabitants of Mytilinii village for their useful information, help and hospitality. Thanks are due to Dr. S. Roussiakis (University of Athens) for providing me with the photo of Prof. T. Skoufos and the newspapers depicted in figs. 8, 9. A great thank you is also due to all participants in the project up to now, excavating and preparing the fossils; without their help all this material would not have come to light. All the colleagues who participated in the study of

the material and the preparation of this volume with their contributions are greatly thanked for their excellent work, as well as for their effort to finish it in time.

Many thanks are due to the Editorial Board of „Beiträge zur Paläontologie“ for accepting to publish this volume and especially to Prof. D. Nagel, for her great help and her valuable remarks on the original manuscript.

Finally I wish to thank my family too, especially my wife Roula, who came to Samos with me for several times and supported the whole team, organizing accommodation and life in Samos.

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