Argolid: Connection of the Prehistoric Legends with Geoenvironmental and Archaelogical Evidence

Argolid: Tarihöncesi Efsanelerin Coğrafi - Çevresel ve Arkeolojik Verilerle Bağlantıları

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Bu yazı, " 'Inachus' Tufanı" nın destansı özetine ait bir denemedir ve Yunanistan'ın, kuzey Pelapones bölgesindeki Argolid'de meydana gelen bazı paleoklimatik olaylara dayalı şiddetli bir çöküşü anlatmaktadır. Bu çöküşün açıklanması Zangger'in (Zangger 1993) ayrıntılı çalışması sonucu elde edilen paleocoğrafi ve jeoarkeolojik verilere dayanmaktadır.

Argolid'in soy ağacı Inachus, Phoroneus, Io ile başlar ve onların soyundan gelen Epaphus, Libya, Aegyptus, Danaus, Proetus, Acrisius, Perseus v.s. ile devam eder.

Jeoarkeolojik verilere göre İlk Hellas (EH) I ve II evresinde kalın alüvyon birikintileri yaygındı, böylece denizin ilerlemesi / çekilmesi ve kıyı şeridinin değişimi Argiv ovasında çok iyi bir şekilde belgelenmiştir. Bu jeo-çevresel veriler ile birlikte nehir tanrısı Inachus'a ait mitoloji ve onun soyundan gelenlerin bu doğal afetler sonrasında bir 'düzen' getirme çabaları, tüm bu "mitolojik olayların" M.Ö. 3.binin ilk yarısında yer aldığını farz etmemizi sağlamaktadır.

'Optik termolüminesans' adlı yeni bir ölçümleme metodunun ispat ettiği üzere bu zaman Argolid'de iki tane piramitin inşa edildiği devre rastgelmektedir.

Mitolojik olaylara gerçek bir boyut kazandırmak tehlikeli bir cesaret işiyse de bizim amacımız yeni bir veri ve seçenek çareler getirmektir. Bunların her ikisi de bilimler arası araştırmalara ait verilere tatminkar cevaplar bulabileceklerdir. Bu araştırma en azından Argolid'in destansal yazıları için bir deneme yazısı niteliğindedir.

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1. Introduction

1a. About mythological deluges.

Every place has its own intierent "genesis",rooted according to the immediate and direct natural environment.

There are three most important deluges in Greek mythology (I.T. Kakrides, 1986), which, above all, suggest a wider geographical area, Ogygos (Attica -Boeotia), Deucalion (Thessaly) and Dardanus (Macedonia). The Inachos deluge in the area of the Argolid also appears among the variations of the local myths (Table 1).

Phoroneus is the closest descendant of Inachus and he is referred to as the first man and king on earth after the deluge of Inachus. Phoroneus is directly connected with the creation of civilization, who, according to a myth, brought fire to the people and taught them its use. Prometheus performed a similar activity.

A very important piece of evidence in the myth of Phoroneas in the Argolid, is the expulsion of the mythical blacksmiths Telchines and the adoptation of their techniques. The activities of the mythical Telchines were at Limnos, Rhodes, Kea and in other myths (Attica) it was the same with the prehellenic tribes of Kares (ÊÜñùí) or Kires (ÊŞñùí).

It must be noted that the advance of pyrometallurgy is already established in Poliochni, on Limnos from 3100 B.C. to 2600 B.C. As a result of the destruction and abandonment of Poliochni in 2300 to 2200 B.C. the inhabitants emmigrated to many Early Helladic II and Early Cycladic III locations of eastern continental Greece and Islands (C. Doumas, 1994).

The myth of Phoroneus includes not only cultural development, but also social development according to the development of a local patrology. The period before Phoroneas according to mythical genealogy is characterised by harmony and a common language. One finds the same kind of harmonic coexistence and communication among people in the Judaic myths (Genesis 11,9).

The time of Phoroneas comes in contradiction to this world, where a vast development in the population imposed the dispersion of the people into different settlements and which resulted in harmonious communication; and at the same time the development of local dialects (multilingual) began.

The legend of Babel (Genesis 11, 9) is also referred as an indication of "multi - languages" in such an inevitable social-cultural event.

The genealogy and patrology of the Old Testament and Sumerian tradition are based on myths and real facts. The "Deluge" is the cause and the starting-point.

Noah and Inachus are humanity's pro-genitors, as all people imagined this every time. Their descendants - Abraham and Phoroneas respectively - promoted the civilisation and the society of their people.

The event of one or more deluges seems to be "a common evidence" in the traditions of different people. For example, the local experience of a vast destruction in Mesopotamia before 2000 B.C., established the drastic geological/climatic upheavals which are first reported at about 2000 B.C., in the epic poem of "Demiurge" (Creation)- where the main role player in the organization of the universe was Marduk-, in the epic poem of "Gilghamesh" with the relevant babylonian deluge during the 3rd mil. B.C.. In the Old Testament (Genesis 6, 1 - 9, 29) it was the Judaic Noah's Deluge (New Larousse Encyclopedia of Mythology, 1968).

The local climatic and geologic phenomena, accompanied by destruction, are basically the core of theogony and anthropogony of the people. Thus, the deluges in the myths reflect a local geological or climatic event with serious consequences in a wider area.

Having this in mind, «myth», enrolled in a wider environmental reality, does not exclusively servs fantasy. Historical events can perfectly well create a "myth"; and even more so when they are connected with the archaeological data they can help to decode the legends.

According to the Greek interpretation of the myth, with its many local traditions and variations, there is a possibility of locating traces of the historic route of pre-Hellenic tribes (e.g. Pelasgians, Lelegians, Karians, Tyrrinians and others) and proto-Hellenic and Hellenic races (e,g. Dananians, Aeolians, Arkadians, Achaeians, Dorians, Hellenes, Ionians, Macedonians, Myrmidonians, and others), to the places of their final destination (Epirus, Thessaly, Lokris, Phokis, Arkadia). (History of the Greek Nation, 1970).

This paper is an attempt to attribute the mythological deluge of Inachos in the Argolid to an actual climatologic event.

1b. The mythical deluge of the Argolid.

The Argolid origin myth refers to the deluge followed by the creation of the Argolid civilisation and its complicated genealogical tree.

Inachus is considered the pro-genitor of the Argians (citizens of Argos), and the first person who gathered and organised all the scattered people in the Argolid right after the deluge. He is the person who started to drain the stagnant waters from the Argolid plains and to lay out the river's bed.

The people after the deluge (before Inachus) lived up on the high mountains. Inachus appeared to be the son of Oceanus, and husband of one of the Oceanides. His descendants - Phoroneus as a second generation descendant and Danaus as an eleventh generation descendant - are thus connected with the creation and advent of civilisation in the Argolid.

There is similar meaning in the Attic and Boeotic myths : natural disaster, rising out of the water, assembling of the people and cultural beginning from a «charismatic» leader, that establishes Ogygus as the pro-genitor and first king of Attica and Thebes (Boeotia). Also, during his leadership the eponymous legendary deluge is reported to have taken place.

Most of the Greek myths are based on the event of a deluge and the first inhabitants and their pro-genitor are referred to right after this event (I.T. Kakrides, 1986, vol.2, p.56-62).

The area of the Argolid, rich in myths and archaeological findings, provides the opportunity to correlate the mythical reports with certain geological and climatic phenomena.

2. Geoarchaeological Evidence In The Argolid

During the Early Bronze Age (E.B.A), considerable change took place in the Argolid plain, right after a major transgression of the sea. The post Pleistocene level of the sea ceased locally to advance further at the beginning of the Bronze Age, when an area extending up to 4.7 km from today's shoreline was covered with water. A natural coastal barrier and a lake of drinkable water was formed on the western coast of the plain (boundaries between the lake at Lerna - Magoula near the Kephalari - Nea Kios area) (Fig.1).

As a natural consequences, with the first floods and the overflowing of the river Inachus, rich alluvial deposits i.e. river sediments, appeared on the surrounding plains. The EH layer in all the drilling cores (performed by Zangger, 1993) revealed by 1 - 3 meters of alluvial sediment. The radiocarbon dating from coal deposits of the Neolithic / Early Helladic stratum gave the age of 2564 ± 220 years B.C. for the alluvial deposit (E. Zangger, 1993, p.52).

There is another similar phenomenon of sedimentary deposit caused by the floods, in the same Neolithic / Early Helladic period in the area of Attica. It is the Kratilos gravel layer, beginning at from 3200 B.C. and ending at 2600 B.C. (R.R. Paepe, et al., 1984; R.R. Paepe, et.al., 1985). Probably, the sea transgression and the floods were so intense in the areas of Argolid and Attica, that they were 'transmitted' as the Inachus and Ogygus deluges'.

The high deposition of sediments on the eroded Argolid coast, right after the retent of the transgression, was caused by an early regression of the sea. This is mainly located in the area of Tiryns. Since then, the plains remained stable and rich in alluvial deposits. These Early Bronze Age (EBA) deposits made the whole area of the Argolid plain very fertile and proper for settlement, due to the regression of the waters.

The out spreading of the river bed, noticed in Attica embracing the soils 2, 3, and 4, correspond respectivly to the Neolithic era dated between 6300 - 6000 B.C., to EH era dated about 2700 B.C, and to Middle Helladic (MH) era dated 1850 B.C. (R.R. Paepe, et al.,1984). Therefore, it is highly probable that both, the soil No. 3 dated in EH era and the soil in the Argolid dated to about 2564 ± 220 B.C., correspond with the phase that took place during post-deluge time and was referred to in the myths.

More specifically, a piece of coal coming from horizon A of the No. 3 section (Core AP 10: 3,4 m) of the Neolithic / EH layer was dated by radiocarbon method to about 2564 ± 220 B.C.. The Neolithic / Early Helladic horizon was rich in roots and plant residues along with characteristic ceramic sherds of this period. This layer was also rich in phosphatic substances so that the radiocarbon age of the coal provides a post-ante-quem for the alluvial layer deposition and for the highest point of the sea regression, i.e. this layer was deposited about before the 2500 B.C.

A progressive increase in the population is marked during 6000 to 2600 B.C., but mainly during the EBA and EH II when the development in agriculture and a permanent settlement are particularly noticeable. Thus, during the EBA about 206 sites of settlement were located on the mainland of Greece and Euboea against 136 sites during the Neolithic era, and 172 sites in the Peloponesse during the EBA against 81 sites during the Neolithic era (K.T. Syriopoulos, 1994). These sites are mainly located in eastern Greece, the areas where the soil was fertile.

The development of settlements and civilisation in the Argolid is implied by the mythical activity of Inachus. The plains were ready for settlement after his drainage works and cutting in of the river bed. May be it was at this site where a natural regression of the waters and some technical drainage activity was located, exploiting the bed of the river Inachus on the western side of Tiryns. This was a place where during the Late Helladic III B/C era an early regression and hence reappearance of the same phenomenon had occurred (flood, dam and canal). Furthermore, during EBA the above mentioned coastal barrier as well as the lake, ringed by Lerna, Kephalari and Nea Kios, were formed. Later on and up to the present time at the southwest section of the Argive plain, the river

Erasinos is the water supplier originated in the Lerna and Kephalari Springs.

The peoples before Inachus were scattered in the mountains (according to the myth), because during the EBA the argive plain was flooded.

The settlement of Lerna took place in two phases during the Neolithic era; Lerna I and Lerna II: whereas in the later phase there is an interruption in the use of the site until its resettlement during EH II (J.L. Caskey, 1960). The time gap is located at the beginning of the EBA, when the vast floods took place.

The important settlements in this vital space of the plains, included the monumental BG building, the "House of Tiles" at Lerna III, the round construction (Rundbau) of Tiryns, or the completely new settlements which start to appear about the middle of the third millennium (K.T. Syriopoulos 1994, Neolithic era, sites 397 - 407, Early Helladic era, sites 467 - 489).

The legendary concentration of the population during Inachus' reign, may reasonably be ascribed to this phase when the Argive plain was exploitable, that is, after the floods (at about 2564 ± 220 B.C.). Here, we could place Inachus in this early phase while his descendants Phoroneus to Danaus placed during the following phases but within a time span of about 360 years (eleven generations x 33 years on average per generation). This implies that this legendary period could be dated to the time spars of 450 years (2800 - 2350 B.C.), marked by the marginal error span of the dating method for the respective sedimentary layer.

It seems that Lerna was built and fortified with the aim of exploiting and controlling the rich agricultural production, as is evidenced by the number of storage pots and clay sealing marks. Tiryns is also located in an especially fertile area; and may be the peculiarly built EH II round building - Rundbau - was used as a silo, if not for something else, such as the EH II silos at Orchomenus (?), the Cyclades, or even Egypt (E. Vermeule, 1972). The "storage" character of the above installations and the instance of a common Argive workshop of seals (sealing marks from Lerna, Tiryns and Zygouries in the Argolid; see, E. Vermeule, 1972; D. Konsola, 1984; O. Dickinson, 1994) mark the organisational needs imposed by the extensive activities of the inhabitants.

The myth of Inachus basically refers to the creation of the first organised settlements around a river or lake which determines their activities and everyday life. It forms the typical "model" of the creation of a civilisation, similar to the ones in Mesopotamia and Egypt which were also based on local geological or climatic phenomena.

Such environmental phenomena imply e.g. drastic floods (wet climate), drought periods, or submersions due to severe seismic activities. In such unstable periods, any burning social 'movement' provides appropriate ground for disorder, contributing to a subversive revolution, and vice versa.

However, such phenomena follow a kind of snake-like (zigzag) curve of an increasing trend. They have an average duration of active-quite periods of wet-dry climate, of 80-120, 200-250, 500-700 and about 1000 years, but longer too.

Such climatic cycles have been detected in geoarchaeological research in the Argolid (and elsewhere), as well as in such proxy climatic indices, as e.g. the tree-ring width variation, carbon-14 in the atmosphere, the stratified mud thickness in lake sediments, the geomagnetic field recorded in ancient ceramics and sediments, the solar activity influencing the sun-climate relationship (I. Liritzis, 1982; I. Liritzis et al., 1995; I. Liritzis and Gallo-

way, 1995; I. Liritzis and Kosmatos, 1995; J. Xanthakis and Liritzis, 1991; D.J. Schove, 1983). These repeated climatic 'cycles' are superimposed one upon the other and form a network of periodic time spans giving the impression of a unpredictable "chaotic" variation.

Nevertheless, a careful analysis of climatic, geological and solar parameters shows the presence of such climatic cycles these, according to our opinion, were the basic cause (social-economic reasons included, but not necessarily exclusively) of the non-linear ups-and-down (flourish-decline) of the ancient civilisations, according to the pattern: destruction- emergence- re-establishment- cultural realisation- gradual/sudden decline (destruction), and so on, in a variable temporal evolution.

Considering the Argolid case and its climatic cycles (but other places -examples of cultural change- as well) it appears that the trend of the "cultural curve" seems to follow the rules of predictability mixed with the remains of disorder. Thus, it could be possible to interpret the smoothly or anomalously shifted cultural attraction poles (or cultural evolution centres), as "strange attractors" in the theory of chaos. That is, in some particular restricted areas or points, through which a moving system passes as it travels in time, each cycle completes an orbital movement. Otherwise, the sudden transition from order to chaos is a common phenomenon in nature (J.S. Nicolis, 1990; A.M. Killian, 1989; W.I. Ditto and L.M. Pecora, 1993).

3. "Argos The Anhydrous" (Polidipsion Argos)

The local Argolid cosmogony which is connected with the "wet (water) element" is represented in the myth of Inachus. The meaning of deluge includes evidence of local disasters, and also incorporates the primitive underground (_èüíéïò) worship that is relevant to sowing, the start of a new year, the annual work circle. Typical example is the deluge of Deucalion and Pyrrha which refers to another race-cradle: Thessaly.

The developments of the Argolid myth is in steb with the development of the climatic changes and geological differentiations in the plains. According to the myth, during Inachus reign and after the drainage works he exploited in the Argolid plain, he was called to act as a judge in the argument between Poseidon and Hera about the leadership in Argos. Inachus voted in favour for Hera and Poseidon punished him. In the course of the myth Inachus was transformed into a river deity giving his name to the local river, and in the form of a river, it had water only in the winter. Since that time Inachus has been in the form of a torrent.

The drought of this time period is retained in the oldest tradition (Homer, Hesiod) which characterises Argos, or rather the wider area, as anhydrous, that is not having any water, having drought problems. Danaus and his daughters (Danaids) who were the descendants of Inachus, had to face this problem.

As the myth in particular says: In order let Danaus face the dryness in Argos, he sends his daughter Amymoni to find water. According to a first variation of the myth, Amymoni discovers a spring, but as soon as she came close to it, the spring disappeared beneath the ground. According to another version, as the girl was searching for water in the woods. She was attacked by a satyr. Then she asked Poseidon's help, who run after the satyr. He failed to hit him with his trident but instead hits a rock. From that rock a spring emerged. Finally, a third version of the myth says that the god himself guided Amymoni in order to find Lerna's spring (I.T. Kakrides, 1986).

It is worth noting that the spring, in all three variations of the myth, seems to gush up from underground small well-springs and is immediately connected with the geological substratum. Poseidon's presence supports this possibility, as this god is the deification of the geological and tectonic phenomena that are also connected with the behaviour of the waters.

4. Geography and the hydrogeology of the Argolid.

After the regression of the sea and the high deposits, the inland of the plains remained basically stable, whereas the coast line showed constant changes. The high percentage of the alluvial deposits in the middle of the third millennium, leads to the conclusion that a river but not a torrent existed at this site. The surrounding area, due to the high percentage of floods, did not face any phenomena of drought - desertation.

Also, similar phenomena of floods are noticed in Attica (R.R. Paepe, et al.,1984), as we have mentioned earlier in this study (see section 3). The vast floods correspond to the Kratilos gravel sediments - starting from 3200 B.C and ending at about 1600 B.C. (similar phenomena with floods are repeated at about 700 B.C. and 300 AD).

It must be noted that the severe floods were accompanied by rapid deposits with river gravel layers (alluvial deposits), and the very thick layer of the developed deposits overcovered the settlements. The formation of soil-beds is a very natural phenomenon after such alternating soils and sediments.

However, as long as the situation in the Argive plain was stabilised, the climate of the Argolid continued to have repeated cycles of drought- humidity for 900 - 1000 years; these were located in Attica, with which there is a connection. The next horizon in the drought cycle in Attica and therefore in Argolid, is at the lowest Middle Helladic layer at about 1900 B.C. - a period of cultural decline, as emerges from archaeological excavations (E. Vermeule, 1972; K.T. Syriopoulos, 1994; O. Dickinson, 1994).

Between 3000 B.C. and 700 B.C. there are four soils (sub-boreal, temperate/dry, warm/ wet to dry/ wet) that suggest climatic changes. Perhaps, these geological transitional phases set the boundaries in the corresponding archaeological cultural phases. Some of the most destructive ones are registered in the tradition of the Argolid as the "Inachus' Deluge".

The geophysical condition and climate of the Argolid were very favourable to the creation of torrents (Fig. 2). The climate is mediterranean with warm summers and relatively low percentage of precipitation (about 500 mm yearly). The area of the Argive plain suffers from drought because the mountains surrounding it retains the humidity of the wind. Argolid has no rivers, Inachus and its tributary river Charadros or Xerias are rapid torrents. Both the river and the tributary river become dry because their small amount of water is absorbed by the soil in the northern section of the thirsty plains (Kouvaris, 1964).

Therefore, the Argolid was in this state at about the end of the EBA, and any flooding problems are retained in the myths. Since the 1960's the area has had an urgent need for a water supply. The solution to this problem seems to lie in the western part of the plain which is rich in water supplies, where the River Erasinos, Kefalari Springs, and the Springs of Myloi or Lerna exist. The Spring of Kefalari is of artesian type with high rising jets of water and supplies the river Erasinos. Kefalari and Lerna Springs come from the near by arcadian plateau from which they escape by

underground ducts that are beneath the Argolid - arcadian mountains. The Erasinos and Lerna water supplies were studied in 1964 so that they could be distributed in the Plain for the enrichment of the water carrying layers.

The site study of the water supply made in 1964 is not far away from that of the mythical effort of Danaus to exploit the Lerna or Kefalari springs. Danaus exploited one spring the waters of which possibly gushed up from underground ducts, as is implied by the plot of the myth. So, during Danaus time period, a) Inachus was a torrent with not enough water to cover the plains needs, b) Lerna and Kefalari were two Springs and not a lake that existed until the beginning of the EBA (see section 3) and c) there were reclamation activities. The above evidence place the Danaus era at the later part of the EBA and according to section 3, to the time period between 2850 to 2300 B.C.

Inachus and Io, then should be attributed to the protohelladic I/II period (2900-2800 B.C.). There follow in reasonable order with dates of the other descendants - Epaphus and Libya- who must have lived around 2800-2700 B.C. In contrast, others attribute Io to the 18th c. B.C., associating her presence with relevant tribal shifts at that time, as well as taking into account some reports of the historian Herodotus (II.3, VI.53-54).(H. Karnazis, 1986). We should note that there are several mythical versions about Io.(Table 1)

5. Lerna and Tiryns

The neolithic settlement of Lerna is discontinued until the time of resettlement during the EH II era (J.L. Caskey, 1960). This interruption coincides with a) the transgression of the sea, and b) the deposition of very thick (1-3 m) alluvial deposits that naturally made the surrounding area inappropriate for settlement.

Lerna, during the EH II era, had a fortification system and monumental constructions, and was located beyond the southern borderline of the large lake that was formed at the western part of the plain. The settlement, during the whole EH II era was prosperous. The cause of this development lies in the agricultural surplus. The settlement was violently destroyed at the end of EH II period. Later, the new Lerna of EH III was not rebuilt on the constructions of the previous phase, but followed the typical developmental course of a MH settlement. Maybe a new shaping of the coastal line helped this change which altered the environment of the nearby lake and converted it progressively to a marsh. Probably, the Myloi Spring, as well as Kefalari in the northern part, both of which survived this change, supplied the plains with water.

The EH II settlement of Tiryns was coastal with a coast having a steep slope that, being an environment of sediment deposition, was constantly changing during the EH period (Fig.3). The development of the settlement did not seem to have any successor in the succeeding periods (see section 5) until the Late Helladic III, when the first fortifications appeared. The architectural remains of the EH II were very important, when the area surrounding Tiryns was especially fertile. There were no considerable changes from the end of EBA till the LH III period when, Manesis torrent caused a destructive flood (E. Zangger, 1993).

The myth of Danaus may be explained by the irrigation needs of the plains and the endless efforts of the people to cover these needs. After the turbulent and conservative MH period, the transition from the MH to the LH period provides greater chances for cultural and social development. Probably along these conditions the reactivation of the Argolid plain by the inhabitants is reflected, since wealth begins once again to gat-

her in the hands of the people during the period of the shaft tombs and first tholoi (E. Vermeule, 1972).

6. Conclusions

From the above analysis we may draw with caution the following observations:

1) The mythical deluges refer to geological and climatic phenomena.

2) In the local myth of the Argolid, the deluge of Inachos refers to an important destructive flood that is dated at the beginning of EBA. It must be noted that the name Inachus -ºíá÷ïò- includes the element -á÷- that is encountered in many names of rivers (Acheloous -Á÷åë_ïò-, Achamas -Á÷Üiáò-, Achatis -Á÷Üôçò-, Achelis - Á÷_ëçò etc.), It is attributed to the Indo-European origin -akw- "water". Progressively, the prehellenic Indo-European race transformed -kw- to -ê- and at least one language or dialect of the same racial background transformed -ê- to -÷-. (History of the Greek Nation, pp. 360 - 361). The mythical hero Inachus has an immediate connection with the water element as, a) his father is Oceanus, b) his wife is the Oceanid Melia, and c) in the course of the myth he becomes a river deity.

3) The mythical reports about Inachus (pro-genitor, river deity), Danaus, and Amymoni refer to certain climatic and geological phenomena.

4) Taking into account the mythical geneaology that Danaus is an eleventh generation descendant of Inachus - one generation is taken to be on average nearly 33 years - his activities are dated to about 2500 B.C. (always referring to the lower age margin of the radiocarbon dated protohelladic II layer in the Argolid).

5) According to the above analysis and with every reservation, it follows that in the mythical genealogy the 4th generation descendants of Danaus, Proetus and Acrisius, are dated to about 2400 B.C. Proetus and Acrisius were brothers and according to Pausanias (2, 25, 7-10), after a bloody fight between them, when wooden shields were used for the first time in a fight by kings and soldiers, they erected a «pyramid» as a common tomb to honour the dead, and this pyramid was decorated with their shields. Two pyramidal buildings, at Helleniko near Kefalari in Argos and at Ligourio, were recently dated with the new nuclear dating method "optical thermoluminescence" (I. Liritzis, 1994a,b; I. Liritzis, et al., 1997). This provided revised ages of the same period, that is, about 2500 B.C.

6) Possibly, behind the early Greek genealogies we can trace the real "patrology", based always on the geoarchaeological data and, up to a point, on the historical mythology. The survival, recording and the critical assessments of the myths never cease to provide knowledge, which the word 'history' (in Greek) really means.

During the evolutionary course of humanity's spirit and social structure, people created categories of fundamental myths, such as the myths of cities, hunting, cultivation and fertility, war, ritual or religious, management of the world, of knowledge that leads to religion, and the myth for the occultism of knowledge. The interpretation of myths, the distinctive quality of transition from "knowledge" to "rational expression", from the "fairy tale" to the "real event", is a matter of many efforts, that may provide some kind of deciphering of at least parts of myths.

The above conclusions may provide the basis of formulating some reasonable assumptions that aim to decipherthe evolutionary course of the Greek race, as recorded in Greek mythology and prehistory.

REFERENCES

CASKEY, J.L., 1960
"The EH period in the Argolid", *Hesperia*, 29,285

DICKINSON, O., 1994
The Aegean Bronze age,

DITTO, W.I -PECORA, L.M., 1993
"Mastering chaos", *Scientific American*, 269, 2, 62-68.

DOUMAS, C., 1994
"Meligunis Lipara, Vol. VI, L.B. Brea - M. Cavalier", *Archaeology and Arts Greek magazine*, 50, 102 - 104.

GRIMAL, P., 1970
Dictionary of Greek and Roman Mythology, Paris, University Press of France

History of the Greek Nation., 1970
Prehistory and Protohistory,Vol. A, Athens,Publ. Ekdotiki Athinon,

KAKRIDES, I.T., 1986
Greek Mythology, Vol. 2 and 3, Athens, Ekdotiki Athinon Publisher

KARNAZIS, H., 1986
The Myth. Origin and Evolution. Contribution to the interpretation of Myths. Athens (in Greek with English Summary)

KILLIAN, A.M., 1989
"Playing dice with the solar system", *Sky & Telescope*, 136-141.

KONSOLA, D., 1984
The Early urbanization in EH settlements, Athens.

KOUVARIS, N., 1964
New Geography, Atlas of Greece, Athens

LIRITZIS, I., 1982
"200-years cycling of the earth's archaeomagnetic field intensity and in related solar-terrestrial phenomena", *Proc. Academy of Athens*, 57, 380-390.

LIRITZIS, I., 1994a
"A new dating method by Thermoluminescence of carved megalithic stone building", *C.R. Academie des Sciences*, Paris, t.319, serie II, 603 - 610.

LIRITZIS, I., 1994b
"Archaeometry: Dating the past", *Ekistics*, 368/369, 361-366.

LIRITZIS, I., P.S. THEOCARIS, R.B.GALLOWAY, 1997
"Dating of two Hellenic pyramids by a novel application of thermoluminescence", *Journal of Archaeological Science*, 24, 399 - 405.

LIRITZIS, I, J. XANTHAKIS, C. POULAKOS, 1995
"Solar-climatic cycles in the 4190-year lake Saki mud layer thickness record" *Journal of Coastal Research*, 17, Chapter 12, 79-86.

LIRITZIS, I.,KOSMATOS, D., 1995
"Solar-climatic cycles in a tree ring record from Parthenon", *Journal of Coastal Research*, 17, Chapter 11, 73-78.

LIRITZIS, I., GALLOWAY, R.B., 1995
"Solar-climatic effects on lake/marine sediment radioactivity variations" *Journal of Coastal Research*, 17, Chapter 10, 63-71.

New Larousse Encyclopedia of Mythology, 1968
New edition, Hamlyn Publ. New York, Group Ltd,

NICOLIS, J.S., 1990
Chaos and Information Precessing, Singapore,World Scientific Publishers,

PAEPE, R.R. E. Van OVERLOOP, M. E. HATZIOTIS, J.THOREZ, 1984
"Desertification cycles in historical Greece", *Progress in Biometeorology*, Vol. 3, 55 - 64.

PAEPE, R, M.E. HATZIOTIS, E. Van OVERLOOP., 1995
"Twenty cyclic pulses of drought and humidity during the Holocene", *Journal of Coastal Research*, Special Issue No 17:

PAEPE, R, M.E. HATZIOTIS, E. Van OVERLOOP., 1995
"Holocene Cycles: Climate, Sea Levels and Sedimentation", 55 - 61.

SHOVE, D.J., 1983
Sunspot cycles, Hutchinson Ross, Stroudsburg, 379

SYRIOPULOS, K.T.,1994
The prehistoric Settlements in Greece and the Genesis of the Greek Nation, Vol. A, Athens.

VERMEULE, E., 1972
Greece in the Bronze age, 5th ed., Chicago, The University of Chicago Press.

XANTHAKIS, J, LIRITZIS, I., 1991
Geomagnetic field variation as inferred from archaeomagnetism in Greece and palaeomagnetism in British lake sediments since 7000 B.C., Athens, Academy of Athens, Publ. Dept., vol.53, pp.222.

ZANGGER, E., 1993
Argolis II. The geoarchaeology of the Argolid, Deutsches Archaologisches Institut Athen, Berlin, Gebr. Mann Verlag.

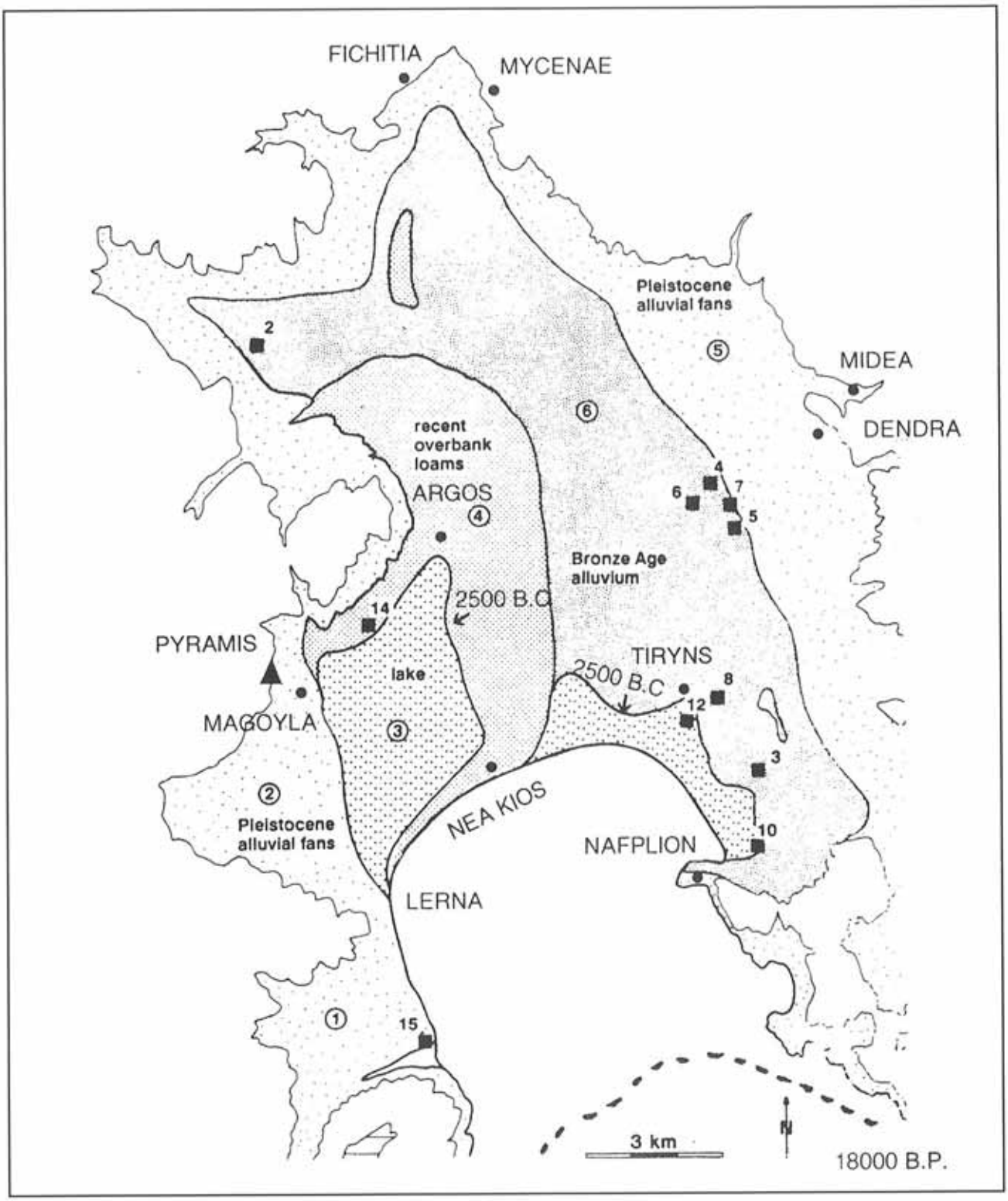

Figure 1: Map showing the surface deposits in the Argive plain, based on outcrops, boreholes and surface inspection, as well as the main sites. The numbers in circles indicate areas of a certain geology, and those in squares correspond to soil beds profiles. The plain is surrounded by pleistocene alluvial fans (1, 2, 5). The major part of the plain consists of soil beds developed during the Bronge age (6). Only the coast (3) and along riverside of Inachus (4) consists of recent sedimentary deposits. The border lines marked with arrows define the lake boundary as well as the marine transgression during the protohelladic II (c.2500 B.C.). Tiryns' walls at that time were at the coast. The dashed line implies the coastal line 18,000years before present. River Erasinos passes through the plain that was the lake of the EH II period, and Inachos traverses the part of the plain in (4), both estuaries are around present coastal village of Nea Kios. (based on E. Zangger, 1993, with kind permission of the author).