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THE RISE AND FALL OF OLIVE CULTIVATION IN NORTHWESTERN SYRIA —PALAEOECOLOGICAL STUDY OF TELL MASTUMA—

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Northwestern Syria has been a center of olive cultivation since the Early Bronze Age. This report offers an explanation of the rise and fall of olive cultivation based mainly on the palaeoecological studies of Tell Mastuma site in Idrib Prefecture. Mass production of olives started in the latter half of the Early Bronze Age at Tell Mastuma. Olive cultivation brought the economic and political apogee of Tell Mastuma. However, the prosperity of Tell Mastuma was suddenly destroyed in the Late Bronze Age and the site was abandoned for more than 700 years. This catastrophic break was induced by a drought. The drought was the main factor in the weakening of the political and economical power and the subsequent cultural hiatus at Tell Mastuma. In the beginning of the Early Iron Age, the climate became wetter. People came back to Northwestern Syria and Tell Mastuma was reoccupied. Olive cultivation once again brought prosperity to Tell Mastuma during the Roman Period.

Key Words: OLIVE CULTIVATION, SYRIA, TELL MASTUMA, CLIMATIC CHANGE, POLLEN ANALYSIS

INTRODUCTION

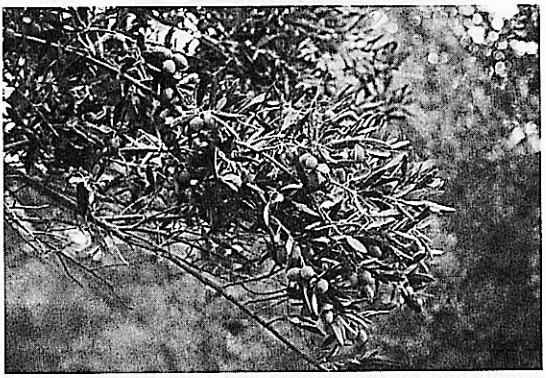


Fig. 1. Olive tree and fruits.

Olive cultivation was the most important factor in the development of the Mediterranean civilizations. In general, olive trees (Fig. 1) grow at between 0-600 m in altitude in the Mediterranean area where the mean annual temperature is above +3C° during the coldest months and the average rainfall is 300-500 mm. Today, olive cultivation is now concentrated around the Mediterranean (Fig. 2). Renfrew(1973) concluded that the cultivated olive *(Olea europapea)* was probably derived from wild *O. chrysophylla* which is found widely over Asia and Africa. He pointed out that wild olive trees *(O. europaea var. oleaster),* which are found widely around the Mediterranean today, are escapees from the cultivated land. On the other hand, Zohary and Spiegel-Roy (1975) concluded that the domesticated olive *O. europaea* derived from this wild *O. europaea var. oleaster* (Fig. 2). They also concluded that the eastern Mediterranean district (the Levant) was probably the first place to bring the olive into cultivation. Zeist and Bakker-Heers (1986) found olive stones from the Neolithic site of Ras Sharma which is located in the Levant.

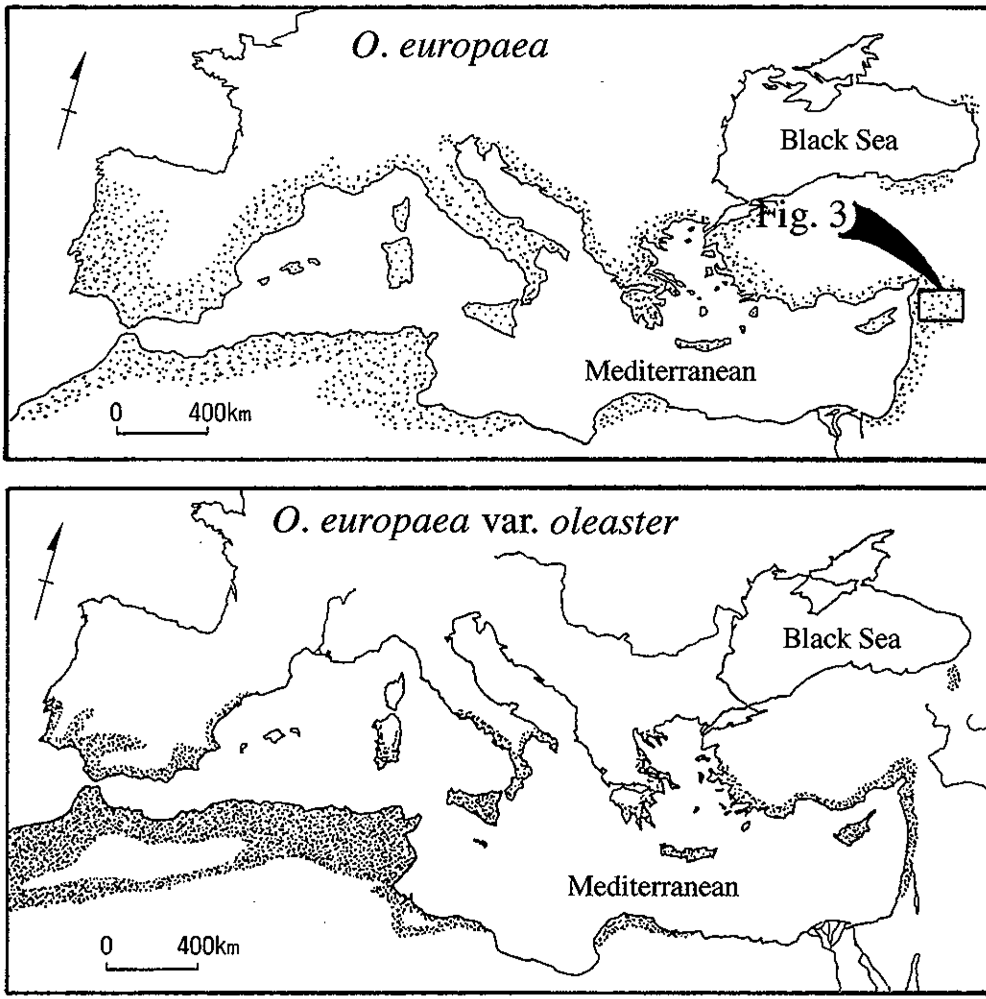


Fig. 2. Distribution maps of the *Olea europaea* (upper, after Refrew, 1973) and *O.europaea* var. *oleaster* (lower, Zohary and Speigel-Roy, 1975).

They concluded that these olive stones were collected from wild olive trees. Zohary and Spiegel-Roy (1975) found well-preserved carbonized olive stones from the Chalcolithic site of Teleilat Ghassul to the north of the Dead Sea, and they suggested that olive cultivation was well established by the Middle and Late Bronze Age. Neef (1990) concluded that olive cultivation started at the beginning of the second half of the 5th millennium BC in the north of Palestine and in adjacent southern Syria by the analysis of olive stones from archaeological sites in Jordan. In this report, the author will discuss olive cultivation in northwestern Syria in relation to the rise and fall of the Syrian civilization based mainly on the paleoecological study of the Tell Mastuma site.

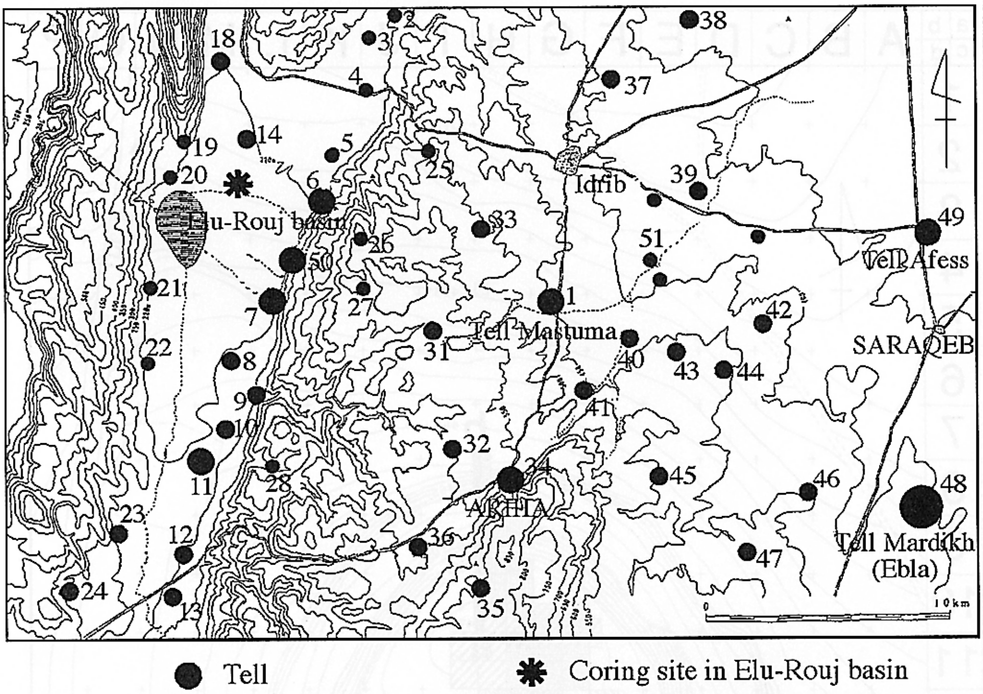


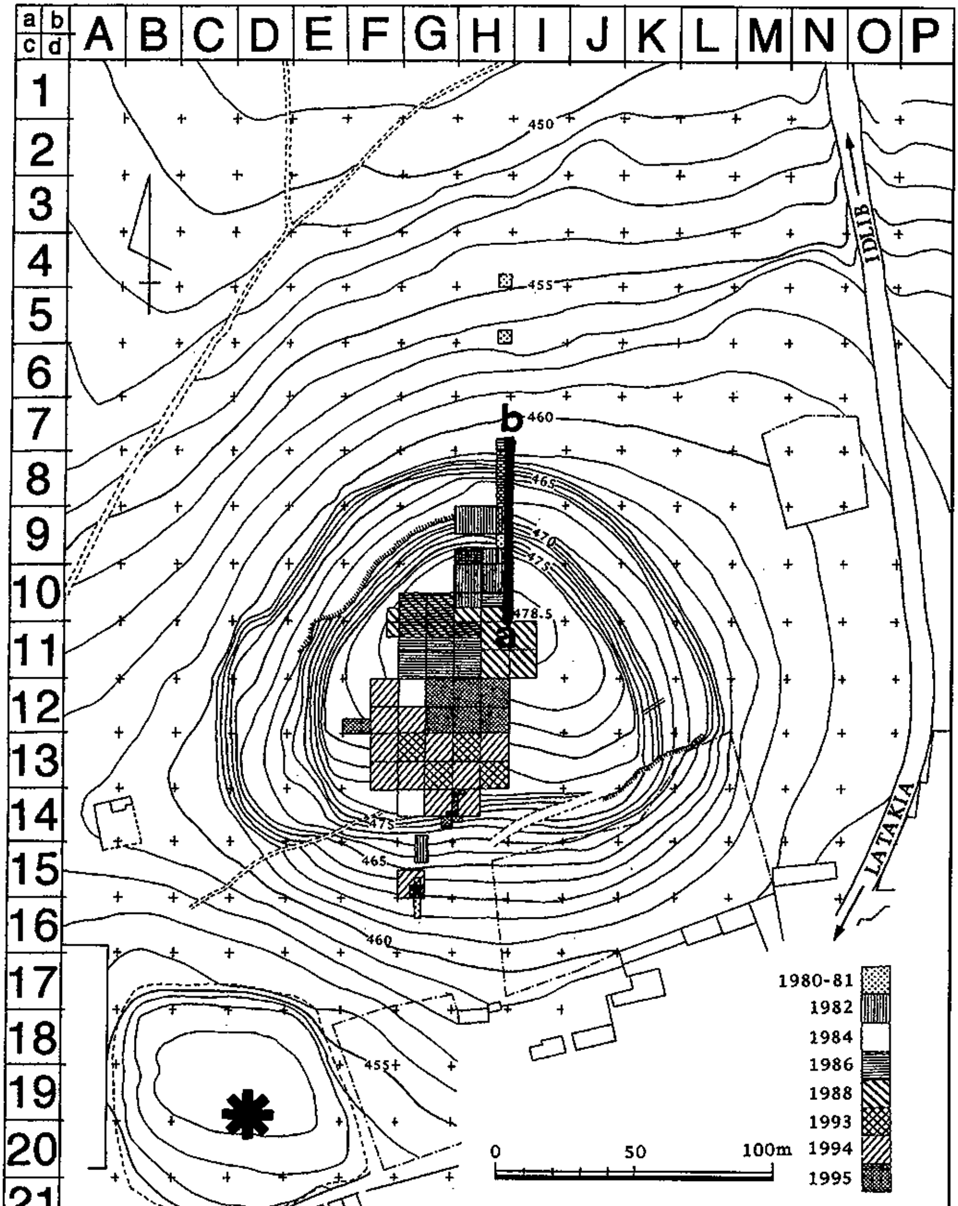
Fig. 3. Distribution map of the Tells in northwest Syria and the coring site in Elu-Rouj basin (after Wakita, 1995). No. 15, 16, 17, 29 and 30 are located out of this map. The name of the Tell see Fig. 10.

ENIGMAS OF TELL MASTUMA

Fig. 4. Well cultivated Olive garden.

The site of Tell Mastuma is located 10 km west of the city of Idrib, Idrib Prefecture, 50km southwest of Aleppo (Fig. 3). The mean annual precipitation of the Idrib city is 429 mm, and the annual temperature is 17.9 °C. The climate of this area is characterized by dry summers, as in the rest of the Mediterranean region. Olive trees are planted on the limestone hill slopes. Even today, Idrib Prefecture is one of the main producing centers of olives in Syria. Viewed from the top of Tell Mastuma, the surrounding limestone hill slopes are covered with olive trees as far as one can see (Fig. 4).

Tell Mastuma is 200 m in diameter, 18 m in height, and is located at 460 m in altitude (Fig. 5). A small pond, 50 m in diameter and 1.5 m as its maximum depth, is situated in the southwestern part of this site (Fig. 6). A team of archaeologists from the Ancient Orient Museum in Tokyo, directed by Dr. EGAMI Namio, started archaeological work there in 1980 (Egami, 1988, Wakita, et al., 1994, 1995). The excavation of a test trench (5m × 45m) in the northern slope has given a



✱ Coring site of the pond in front of the Tell Mastuma.

a — b The location of the cross section of Fig. 7.

Fig. 5. Tell Mastuma site (after Wakita, 1995).

Fig. 6. Coring by the machine drill sampler in the pond. Behind hill is the Tell Mastuma.

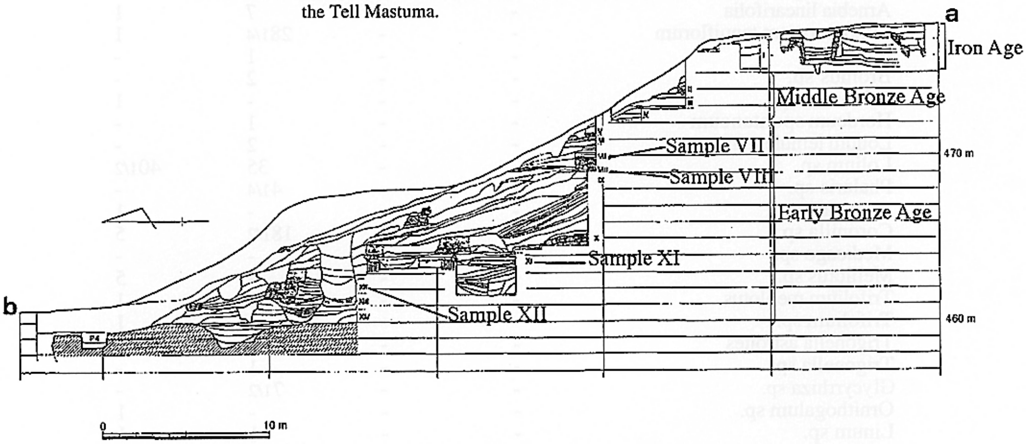


Fig. 7. Cross section of the Tell Mastuma and sampling points for fossil seeds and fruits.

fairly good picture of the site.

Fig. 7 shows a cross section of the trench in the northern slope. The archaeologists found I-XIV cultural layers from the top to the bottom of trench. Cultural layer I, about 3 m in thickness, belongs to the Early Iron Age dated from 900 BC to 720 BC. Cultural layers II-V, about 5 m in thickness, are layers of the Middle Bronze Age dated from 2000 BC to 1600 BC. Cultural layers VI-XIV are the Early Bronze Age layers from 2400 BC to 2000 BC. The total thickness of the cultural layers from VI to XIV is more than 10 m. Consequently, it can be said that most of Tell Mastuma was constructed during the Early Bronze Age, the prosperous period of the site. What kind of productive and economical backgrounds supported the prosperity of the Early Bronze Age?

After the prosperity of the Early Bronze Age, a sudden break took place at Tell Mastuma. At 1600 BC, Tell Mastuma was suddenly abandoned. After this event at the end of the Middle Bronze Age, the site was not occupied until 900 BC in the Early Iron Age. Why was Tell Mastuma suddenly abandoned in 1600 BC?

This report offers possible answers to those questions, by using the results of palaeoecological

Table 1. Numbers of seeds and fruits in samples.

Sample number	VII	VIII	XI	XII
Hordeum vulgare	4	12 1/2	81 3/4	33
Hordeum sp.	-	-	2 3/4	-
Triticum dicoccum	1	1	8	6
Triticum aestivum	-	-	5 1/4	2
Triticum sp.	1	1	14 1/2	5
Lens culinaris	-	2	2 1/4	2
Cicer arietinum	1	-	-	1
Vicia ervilia	-	1	-	-
Olea sp.	148 1/4	111 1/2	7 3/4	7 1/4
Vitis sp.	1	-	-	-
Alkanna sp.	-	-	2	-
Arnebia linearifolia	-	-	7	1
Lithospermum tenuiflorum	-	-	28 1/4	1
Silene sp.	-	-	1	-
Bromus sp.	-	-	2	-
Echinacea sp.	-	-	-	1
Hordeum spontaneum	-	-	1	-
Lolium temulentum	-	-	2	-
Lolium sp.	-	-	35	40 1/2
Phalaris sp.	-	-	4 1/4	-
Astragalus sp.	-	-	-	1
Coronilla sp.	-	-	18 1/2	5
Medicago sp.	-	2	-	-
Melilotus sp.	-	-	-	5
Trifolium melilotus	-	-	8	1
Trifolium sp.	-	-	-	1
Trigonella astroites	-	-	-	1
Trigonella sp.	-	-	1	-
Glycyrrhiza sp.	-	-	7 1/2	-
Ornithogalum sp.	-	-	-	1
Linum sp.	-	-	1	1
Malva sp.	-	-	1	-
Adonis sp.	-	-	5 3/4	3
Crucianella sp.	-	-	-	1
Galium sp.	1	1	41 1/2	12
Thymelaea	-	-	1	1
Ammi majus	-	-	-	1
Valerianella sp.	-	-	4	2
Hippocrepis sp.	-	-	3	-
Papilionaceae	-	-	1	-
Helianthemum sp.	-	-	-	2
Ziziphora sp.	-	-	1	1
Unidentified	2	-	150 1/4	118
Total	160 1/4	131 3/4	448 1/4	256 3/4

studies of Tell Mastuma.

SAMPLING, ANALYTICAL METHODS AND THE RESULTS

Samples for macro fossil analysis were collected by water separation method (flotation), and were taken from the cross section of cultural layers VII, VIII, XI and XII of the Early Bronze Age. The seeds, fruits and charcoal remains were identified using a binocular microscope and SEM. The results of the identification of the seeds and fruits are shown in Table 1. A diagram of the main taxa by percentages of the total number of seeds and fruits is shown in Figure 8. Pictures of the main fossil seeds and fruits are shown in Plate 2-9.

Palynological studies were conducted on the samples collected from two localities: the bottom of the pond in front of Tell Mastuma (Fig. 6) and the bottom of the El-Rouj basin, 15 km west of Tell Mastuma (Fig. 3). The pollen analytical procedure is as follows: HCL treatment - KOH treatment - wash - dense media separation with 70% $ZnCl_2$ - dehydration-acetlysis treatment - wash - mount with 50% glycerin. More than 500 pollen grains were identified so far in each sample. The pollen diagram was constructed based on the proportion of each taxon to the total pollen. Results of the pollen analysis are shown in Figure 11 and Figure 13.

Two radiocarbon dates from the cross section of the pond in Tell Mastuma and four other dates from the cross section of the El-Rouj basin were obtained from the laboratory of Radiocarbon Dating at the University of Groningen. The results of radiocarbon dating are shown in Table 2.

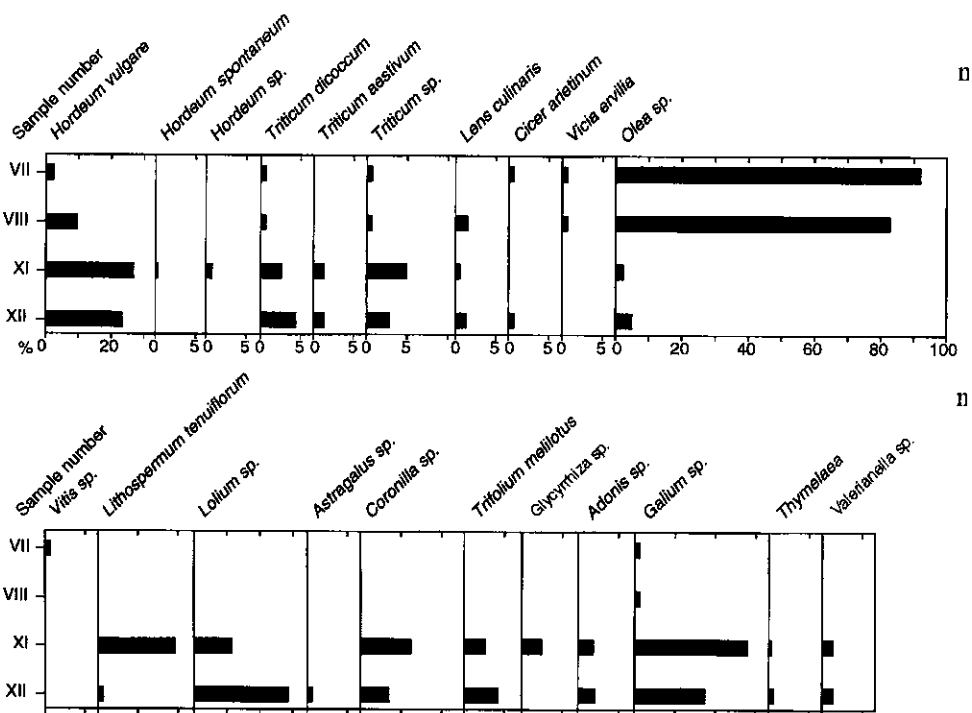


Fig. 8. Frequencies of the main seeds and fruits. Percentages explained in terms of total numbers of seeds and fruits.

Table 2. Results of radiocarbon dating.

Assassin number	Sample	Conventional Radiocarbon age
GrN-16351	Tell Mastuma TMT 60-70	720± 60 BP
GrN-16352	Tell Mastuma TMT 140-160	1830±170 BP
GrN-16353	Elu-Rouj A 40-50	515± 30 BP
GrN-16354	Elu-Rouj A 90-100	1740± 60 BP
GrN-16355	Elu-Rouj A 140-150	3150± 40 BP
GrN-16356	Elu-Rouj A 190-200	3610± 60 BP

ECONOMICAL BACKGROUND FOR THE PROSPERITY OF TELL MASTUMA IN THE EARLY BRONZE AGE

Results of the analysis of the fossil seeds and fruits from Tell Mastuma are shown in Table 1 and Figure 8. Remarkable differences are found in the compositions of assemblages fossil seeds and fruits between cultural layers XII-XI of the first half of the Early Bronze Age and VIII-VII of the latter half of the Early Bronze Age. The composition of the cultural layers XII and XI are characterized by a high frequency of *Hordeum vulgare* and *Triticum dicoccum, T. aestivum* with grass seeds such as *Lithospermum tenuiflorum, Lolium, Coronilla, Trifolium melilotus* and *Galium.*

According to the assemblages of fossil seeds, it can be said that the development of the site during the first half of the Early Bronze Age had its economic basis on cultivation of wheat and barley. It is concluded that fertile agricultural fields and grasslands surrounded Tell Mastuma.

The assemblages of fossil seeds and fruits suddenly changed in the cultural layers of VIII and VII. The number of olive stones increased dramatically and account to more than 80% of the total seeds and fruits. Seeds of *Vicia ervilla* make a appearcence. On the other hand, seeds of wheat and barley decreased, as did seeds of other wild grasses. These dramatic changes in the composition of fossil seed's and fruit's assemblages indicate that large scale olive cultivation had started in Tell Mastuma. Olive replaced wheat and barley as the main crop. The agricultural field surrounding Tell Mastuma was changed into an olive grove in the latter half of the Early Bronze Age.

More than 30,000 tablets belonging to the Bronze Age were found from Tell Mardikh (Ebla), which is located 20 km southeast of Tell Mastuma (Fig. 3). Tell Mardikh (Ebla) (Fig. 9) was a kingdom which controlled the area in northwestern Syria. It was also an important trade center between the Mediterranean and Mesopotamia, and was involved in the trade of timber, copper, and silver from Mt. Lebanon, Mt. Ansarie and Mt. Amanus. Ebla was widely known in southern Mesopotamia. During the latter half of the Early Bronze Age, Ebla attained its economic and

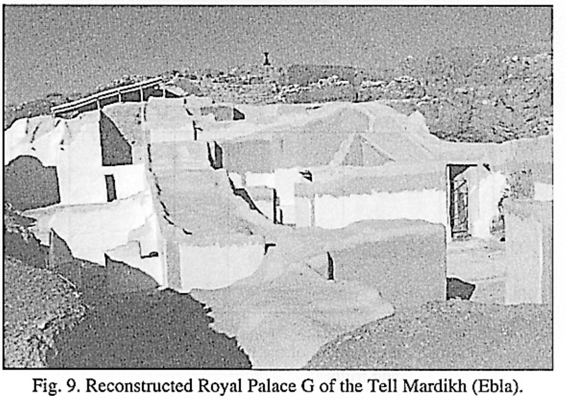


Fig. 9. Reconstructed Royal Palace G of the Tell Mardikh (Ebla).

political apogee. Since Tell Mastuma was ruled by the kingdom of Ebla, it also reached its apogee at the same time.

Many accounts of olive trees and olive oil were found on the tablets found from Ebla. The word for olive tree was *gis-i* and olive oil was *gis-i-gis* (Gomi, 1988). One tablet (A.Archi e M.G. Biga, ARET 3, 194) says that an area of 1500 *ganakesda* was used for olive garden. Another tablet (TM.75.G.1767) says that the land of 1100 *ganakesda* and 500 olive trees were managed by Zubalum. Yet another tablet (ARET 3 430: I) mentions that olive oil was dedicated at the temple of Kura. The inscriptions on the tablets from Ebla suggest that olives were widely planted throughout the land ruled by Ebla in the Early Bronze Age and that olive oil was an important product for export to southern Mesopotamia.

It can be said that the prosperity of Tell Mastuma during the Early Bronze Age was supported by olive cultivation. Exports of olives and olive oil to southern Mesopotamia and other countries brought wealth and prosperity to Tell Mastuma. As mentioned above, Idrib Prefecture is one of the centers of olive cultivation in Syria even today. Therefore, it is not unreasonable to imagine that the area of Tell Mastuma was also one of the centers of olive cultivation in the Early Bronze Age.

ENIGMA OF THE SUDDEN EXTINCTION AT 1600 BC

The prosperity of Tell Mastuma, based on olive cultivation, experienced a sudden decline in the Late Bronze Age. Tell Mastuma was abandoned and the people disappeared. The desertion of towns and villages in the Late Bronze Age can be observed not only at Tell Mastuma, but also at other sites in northwestern Syria. Tell Mardihk was undoubtedly also abandoned of 1600 BC. Figure 10 shows the periods of occupation and the date of abandonment of each tell in northwestern Syria. The occupation of most tell sites surrounding Tell Mastuma ceased at 1600 BC in the Late Bronze Age. After this collapse at 1600 BC, the area was not reoccupied until 900 BC in the Early Iron Age. For more than 700 years, northwestern Syria turned into a no-man's land. Why did the prosperity decline? What factor caused this cultural break? Where did the people go? This is one of the greatest enigmas in the ancient history of northwestern Syria.

Previous hypotheses sought the explanation for this catastrophic cultural break by the conquests by Hattushili I and Mursil I, kings of the Hittite Empire in Anatolia (present Turkey). However, the author intends to present a new hypothesis based mainly on the palaeoecological studies.

Figure 11 shows a pollen diagram from the El-Rouj basin. The pollen diagram is subdivided into three local pollen zones: from lower to upper zones I, II and III.

Local pollen zone I: This zone is characterized by a high proportion of Compositae such as *Centaurea,* Tubuliflorae and Liguliflorae.The high proportion of Compositae, especially the dominance of *Centaurea,* indicates the development of barren land and dry climate. Radiocarbon data shows that zone I covers the Late Bronze Age. The climate during the Late Bronze Age in northwestern Syria was very dry, and barren and dry land, where *Centaurea* widely grow, expanded in the El-Rouj basin.

Local pollen zone II: This zone began with the decrease of *Centaurea* and Tubuliflorae and the sudden increase of water plants such as Cyperaceae, Gramineae, *Typha* and *Isoetes. Isoetes,* which grows in fresh water ponds with a maximum water depth of 8 m, rapidly increases in zone

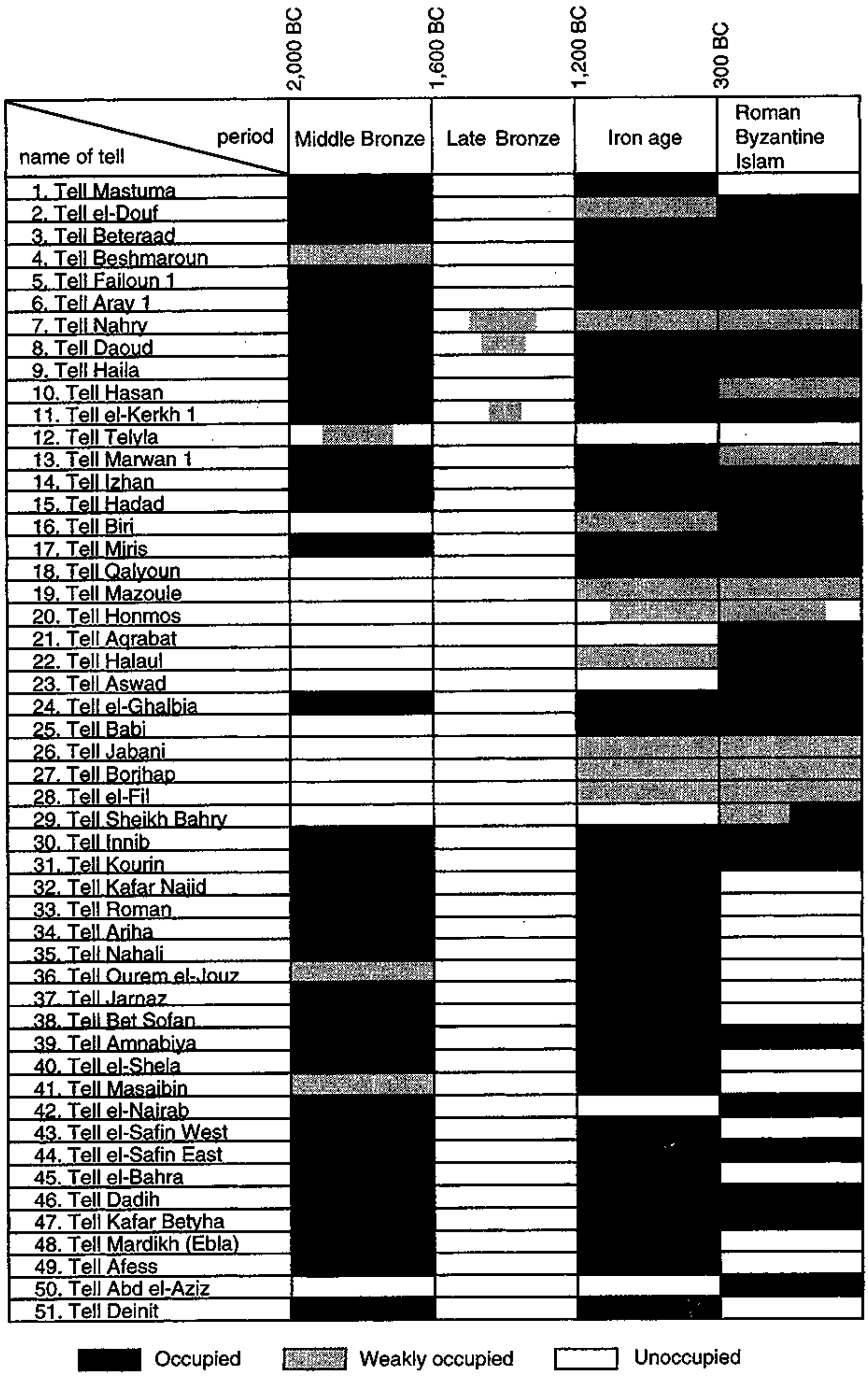


Fig. 10. The occupied and abandoned periods of each Tell in northwest Syria.

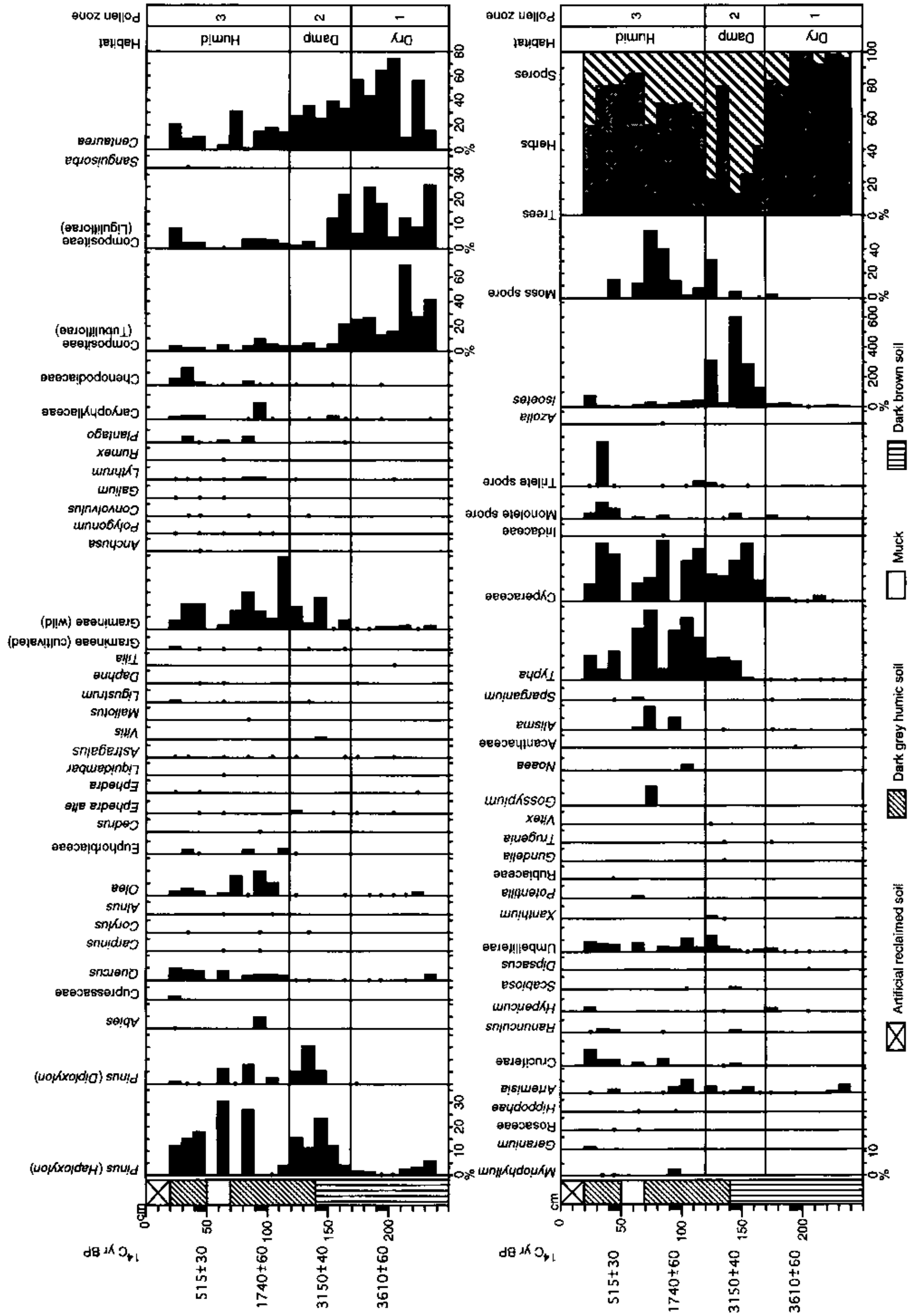


Fig. 11. Pollen diagram from the Elu-Rouj basin. Percentages are explained in terms of total pollen sum.
· < 1%

II, and amounts to more than 80% of the total pollen and spore sum. According to the radiocarbon dating, zone II is contemporary with the Early Iron Age. The increase of water plants indicates that a damper climate changed the Late Bronze Age dry-barren land into wet-marshy land.

Local pollen zone III: Water plants such as *Typha,* Cyperaceae still show high proportions, while *Isoetes* decreases, indicating lowering of the water level. Graminea increases in this zone, suggesting the beginning of cultivation by people of the Iron Age.

The results of pollen analysis from the El-Rouj basin show that the climate and land conditions in the Late Bronze Age were very dry, and barren land expanded in the El-Rouj basin. Based on this fact, it is possible to say that the decline in the Late Bronze Age in northwestern Syria might have been caused by drought. The climate became dry after 1800 BC in northwestern Syria. This dry climate caused a drought and reduced the production of olives, wheat, and barley. The economical and political power of the kingdom of Ebla also declined as a result of this drought. Kings of the Hittite Empire invaded northwestern Syria under such conditions.

People in northwestern Syria abandoned their habitation sites at 1600 BC in the Late Bronze Age because of the development of a dry climate, and barren land, and later because of the conquest by the Hittites. The drought was a main factor in the decline of Tell Mastuma. It was also a main cause for the weakening of the political and economical power of the kingdom of Ebla. If the invasion by the Hittites was the primary impetus for the abandonment of tells in northwestern Syria, people would have returned after the retreat of the Hittites. However, people did not come back until 900BC. For more than 700 years, northwestern Syria was a no-man's land.

Later, there was a sudden shift toward wetter conditions in the land and the climate in the Early Iron Age. The beginning of the Early Iron Age corresponds to the beginning of the wet climate and the development of marshy land. This change of climate from dry to wet brought a suitable land moisture conditions, favorable for agriculture in northwestern Syria. People came back to the region and reoccupied many tells during this period.

PROSPERITY OF OLIVE CULTIVATION AFTER THE ROMAN PERIOD

After the reoccupation of tells during the Early Iron Age, new towns and villages developed in northwestern Syria. Especially during the Roman Period, several new sites (for instance N.21 Tell Aqrabat, No. 23 Tell Aswad, No. 29 Tell Sheokh Bahry, No. 50 Tell Abd el-Aziz in Fig. 3 and 10) appeared in the mountainous area. Huge trade centers such as Apamea (Fig. 12), located 50 km southwest from Idrib, also emerged. The number of sites in northwestern Syria is at its highest in this period (Fig. 10). The development of olive, wheat and barley cultivation brought this prosperity during the

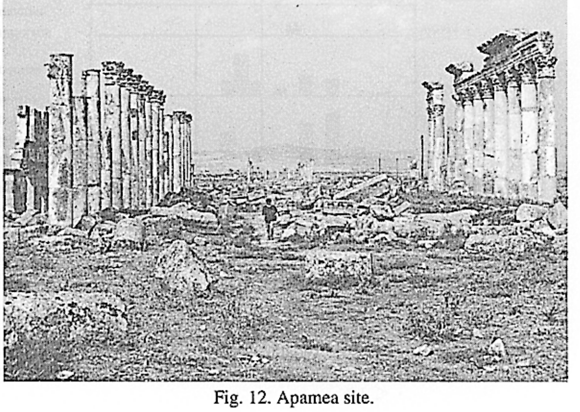


Fig. 12. Apamea site.

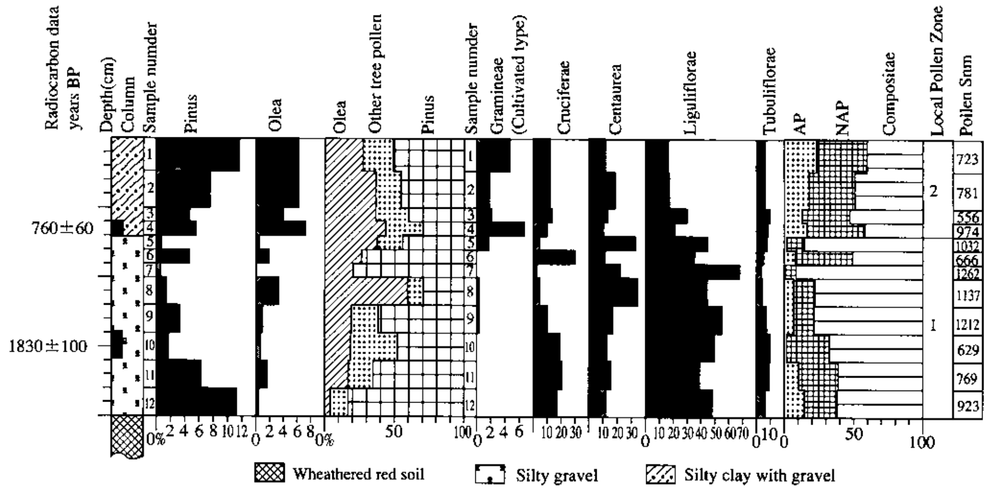


Fig. 13. Pollen diagram from the pond in front of Tell Mastuma. Percentages explained in terms of total pollen sum.

Roman Period. There was a great demand for olive oil in the Roman Empire, and the northwestern Syria became a colony of the Empire as well as a center for olive cultivation.

Figure 13 shows a pollen diagram from the pond in front of Tell Mastuma. The pollen diagram was subdivided into I and II local pollen zones. The local pollen zone I shows very high values of Compositae such as *Centaure* a and Liguliflorae. During the Roman and Byzantine periods, forests surrounding Tell Mastuma almost disappeared except for small patches of pine and olive trees. *Olea* pollen starts to increase after 1900 BP during the Roman era and amount to more than 60% of the total tree pollen. The high frequency of *Olea* pollen indicates that olive groves developed in the vicinity of Tell Mastuma under the control by the Roman Empire. The local pollen zone II began at 700 BP and, while Compositae decrease, tree pollen such as *Olea* and *Pinus* increase in this zone. It can be concluded that the present landscape which is rich in olive trees appeared after 700 BP.

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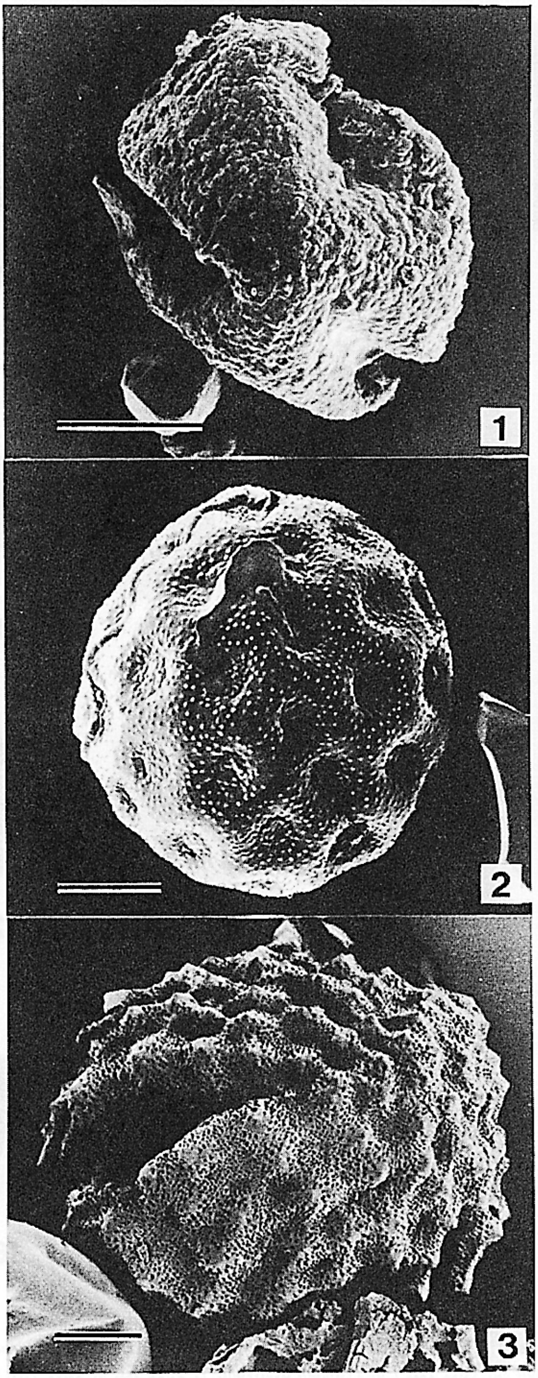

Plate 1. Scanning electron microscope photographs of fossil pollens.
1: *Quercus* (deciduous); 2: Chenopodiaceae; 3: Compositae (Tubuliflorae). Bar=5 μm.

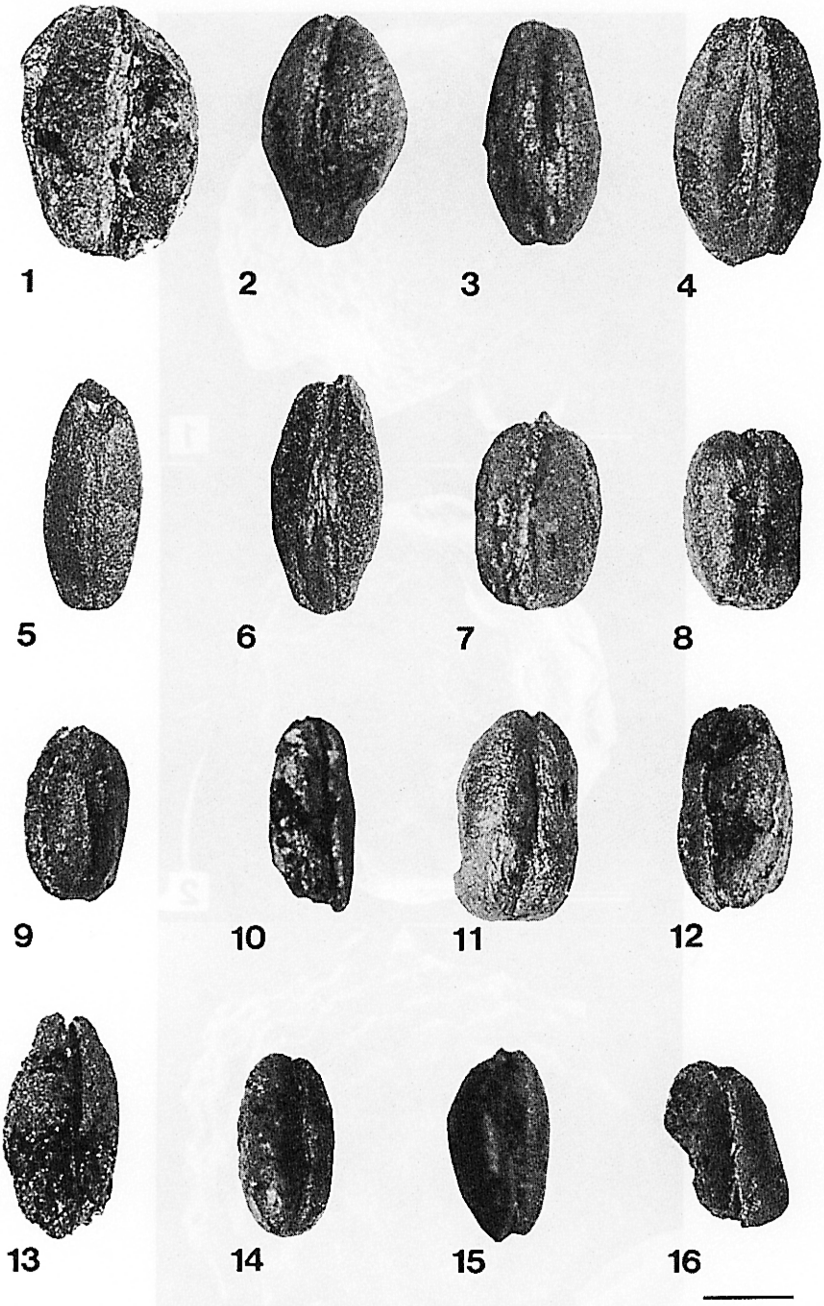

Plate 2. Dissecting microscope photographs of seed remains.
1-4: *Hordeum vulgare;* 1: TMT VII; 2: TMT VIII; 3: TMT XI; 4: TMT XII; 5: *Hordeum spontaneum.* TMT XI; 6: *Hordeum* sp. TMT XI; 7-8: *Triticum aestivum;* 7: TMT XI; 8: TMT XII; 9-12: *Triticum dicoccum;* 9: TMT VII; 10: TMT VIII; 11: TMT XI; 12: TMT XII; 13-16: *Triticum* sp.; 13: TMT VII; 14: TMT VIII: 15: TMT XI; 16: TMT XII.
Bar=4 mm except 5. Bar=2.5 mm in 5.

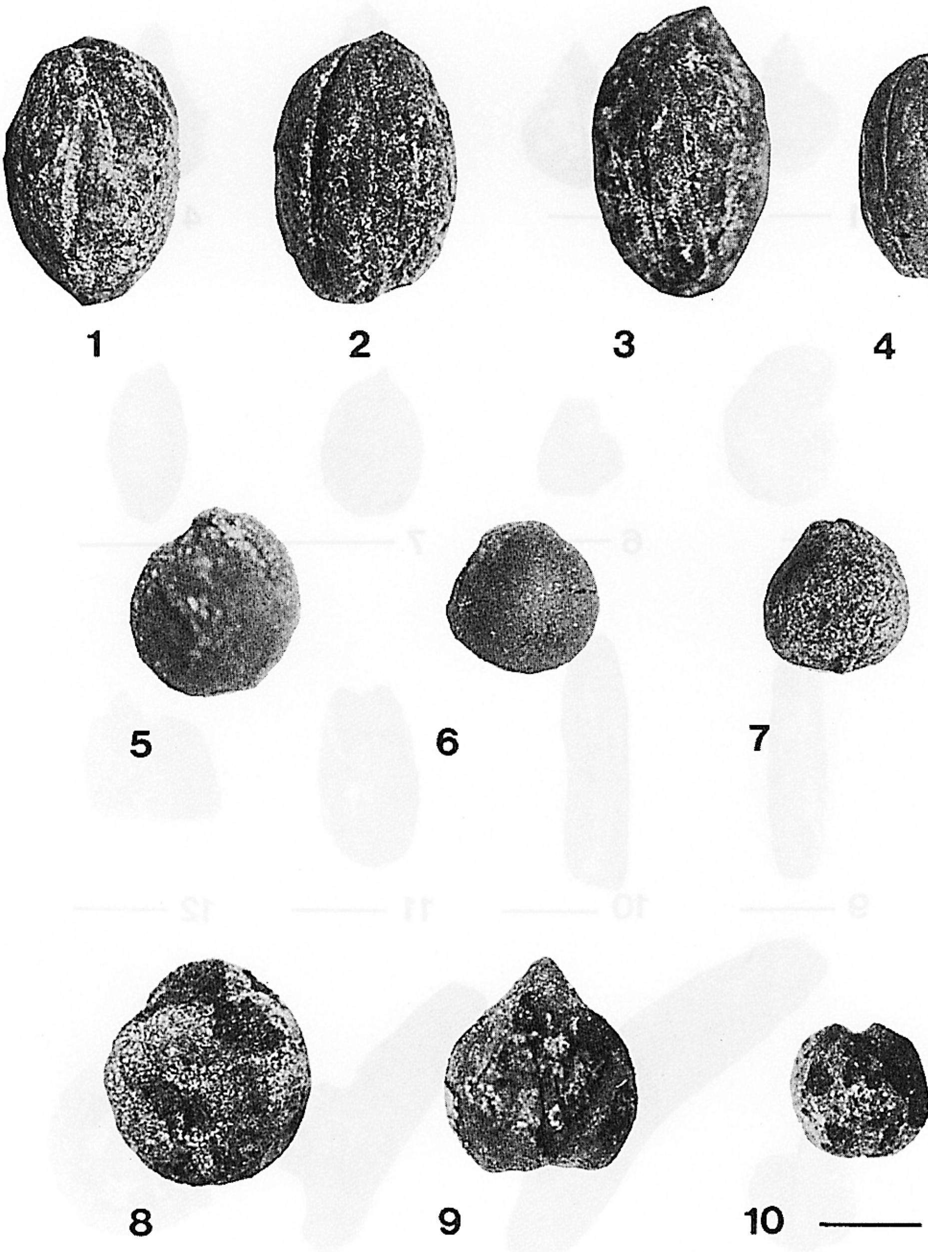

Plate 3. Dissecting microscope photographs of seed remains.
1-4: *Olea* sp.; 1: TMT VII; 2: TMT VIII; 3: TMT XI; 4: TMT XII; 5-7: *Lens culinaris*; 5: TMT VIII; 6: TMT XI; 7: TMT XII; 8-9: *Cicer arietunum;* 8: TMT VII; 9: TMT XII; 10: *Vicia ervilia.* TMT VIII. Bar=1.3 mm in 1-4. Bar=2 mm in 5-10.

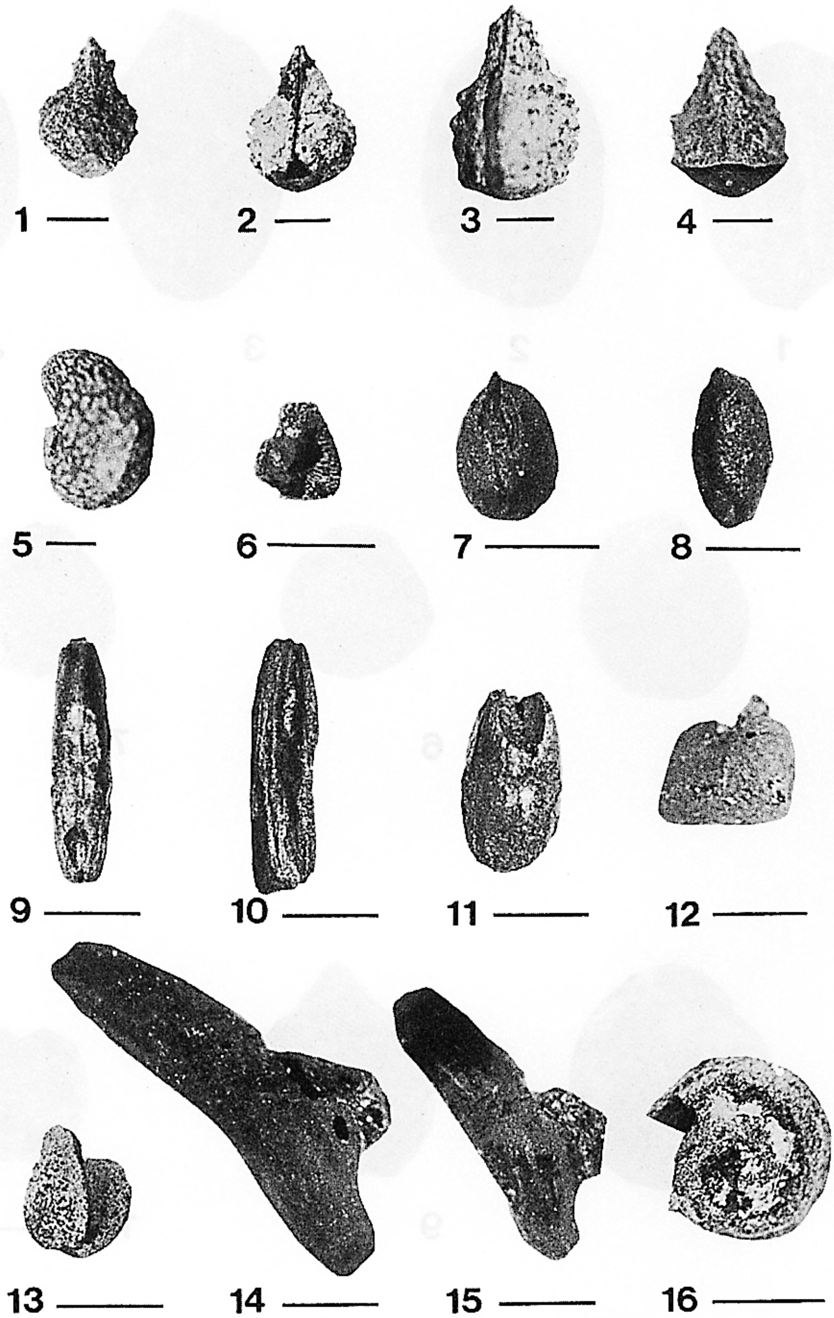

Plate 4. Dissecting microscope photographs of seed remains.

1-2: *Lithospermum tenuiflorum;* 1: TMT XI; 2: TMT XII; 3-4: *Arnebia linearifolia;* 3: TMT XI; 4: TMT XII; 5: *Alkanna* sp. TMT XI; 6: *Silene* sp. TMT XI; 7: *Echinacea* sp. TMT XII; 8: *Astragalus* sp. TMT XII; 9-10: *Lolium temulentum;* 9: TMT XI; 10: TMT XII; 11: *Lolium* sp. TMT XI; 12: *Phalaris* sp. TMT XI; 13: Papilionaceae. TMT XI; 14-15: *Coronilla* sp.; 14: TMT XI; 15: TMT XII; 16: *Medicargo* sp. TMT VIII.

Bap=l mm except 8, 14 and 15. Bar=0.5 mm in 8, 14 and 15.

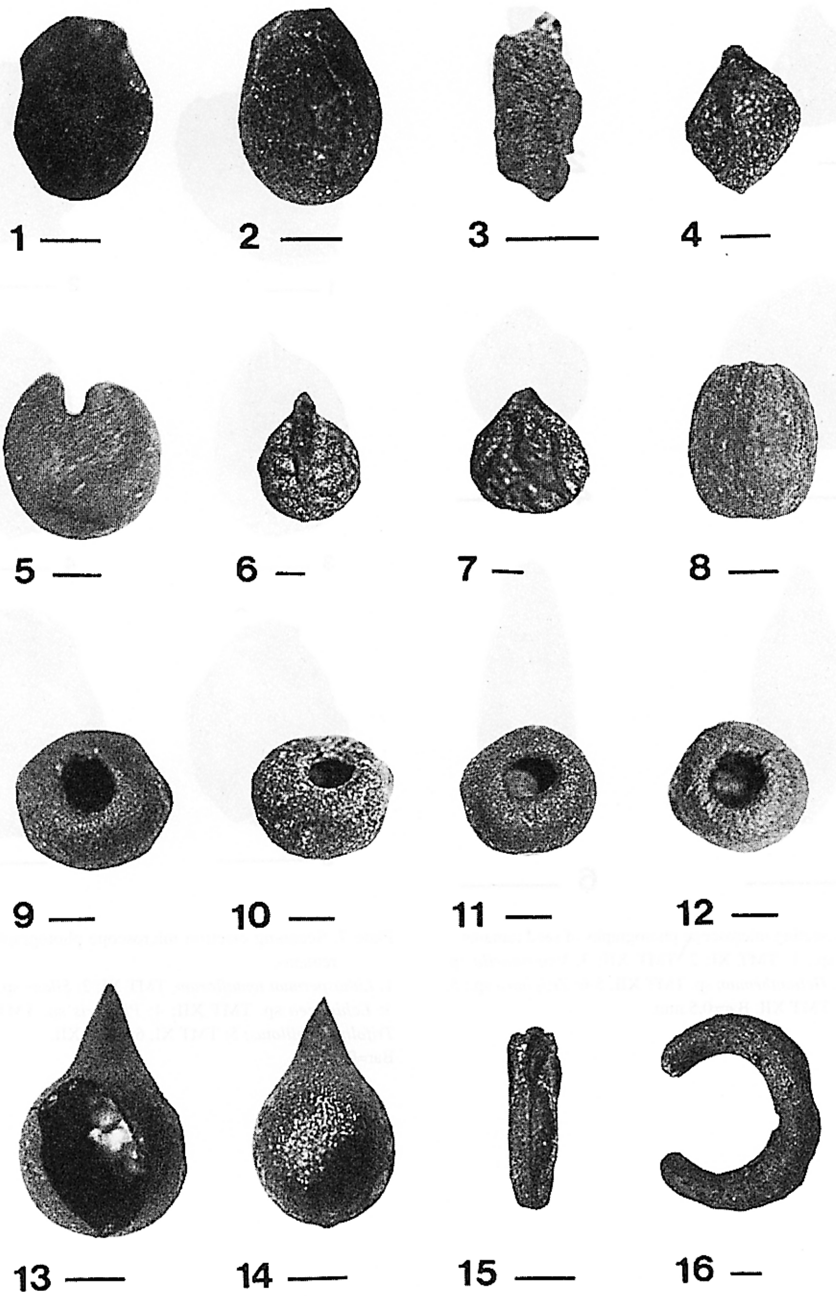

Plate 5. Dissecting microscope photographs of seed remams.
1-2: *Trifolium melilotus;* 1: TMT XI; 2: TMT XII; 3: *Trigonella astroites.* TMT XII; 4: *Ornithogalum* sp.; 5: *Malva* sp. TMT XI; TMT XII; 6-7: *Adonis* sp.; 6: TMT XI; 7: TMT XII; 8: *Crucianella* sp. TMT XII; 9-12: *Galium* sp.; 9: TMT VII; 10: TMT VIII; 11: TMT XI; 12: TMT XII; 13-14: *Tymelaea* sp; 13: TMT XI; 14: TMT XII; 15: *Ammi majus.* TMT XII; 16: *Hippocrepis* sp. TMT XI. Bar=0.5 mm.

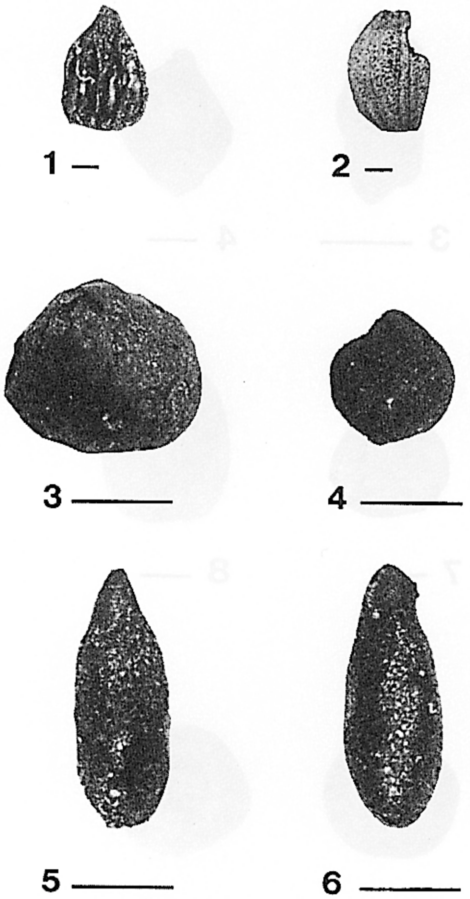

Plate 6. Dissecting microscope photographs of seed remains. 1-2: *Linum* sp.; 1: TMT XI; 2: TMT XII; 3: *Valerianella* sp. TMT XII; 4: *Helianthemum* sp. TMT XII; 5-6: *Ziziphora* sp.; 5: TMT XI; 6: TMT XII. Bar=0.5 mm.

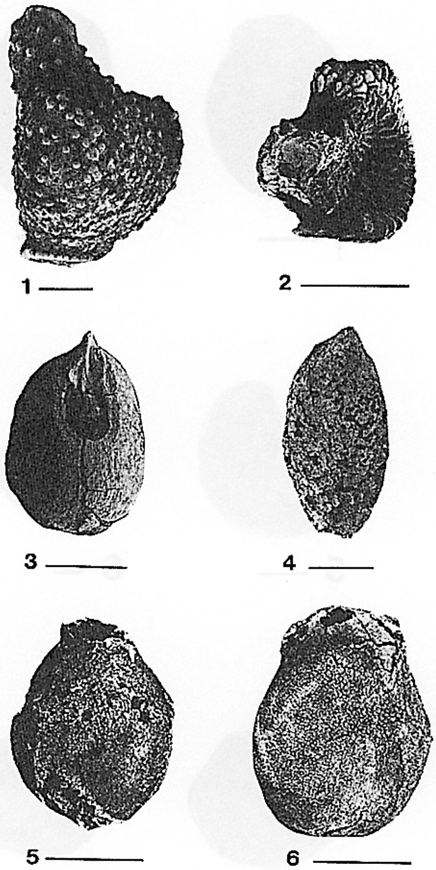

Plate 7. Scanning electron microscope photographs of seed remains.
1: *Lithospermun tenuiflorum.* TMT XI; 2: *Silene* sp. TMT XI; 3: *Echinacea* sp. TMT XII; 4: *Phalaris* sp. TMT XI; 5-6: *Trifolium melilotus;* 5: TMT XI; 6: TMT XII.
Bar=0.5 mm.

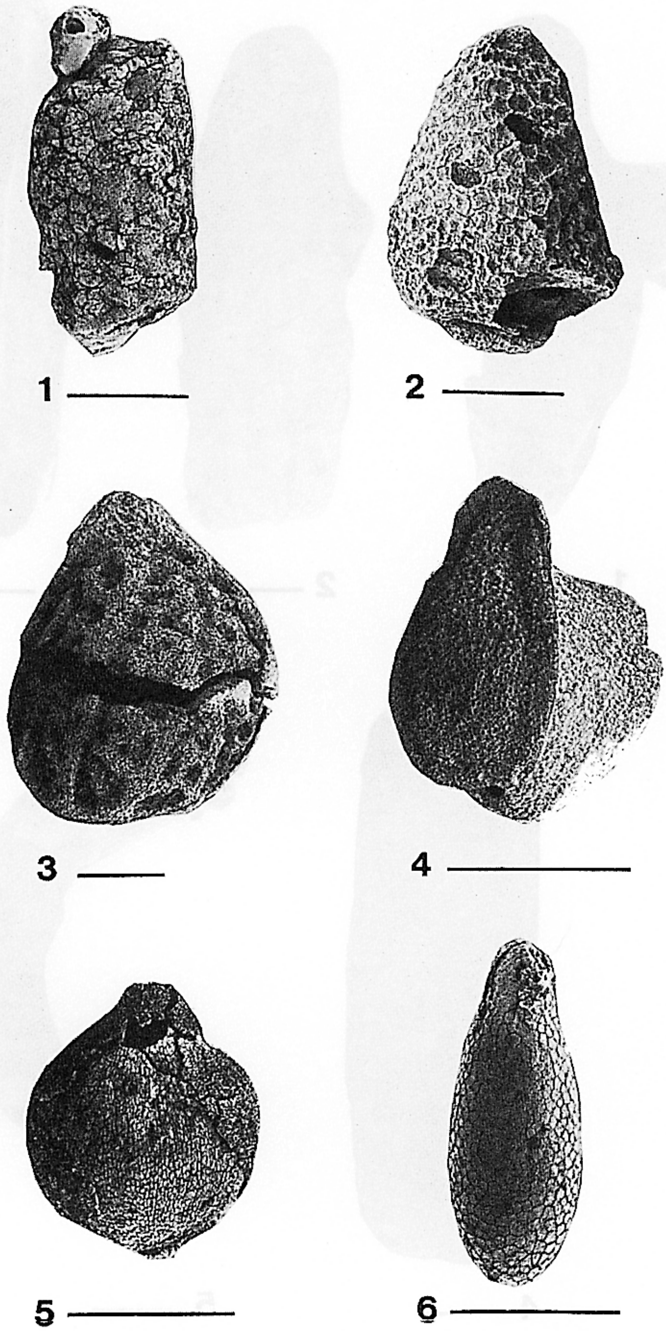

Plate 8. Scanning electron microscope photographs of seed remains.
1: *Trigonella astroites.* TMT XII; 2: *Ornithogalum* sp. TMT XII; 3: *Adonis* sp. TMT XI; 4: *Valerianella* sp. TMT XII; 5: *Herianthemum* sp. TMT XII; 6: *Ziziphora* sp. TMT XII.
Bar=0.5 mm.

Plate 9. Scanning electron microscope photographs of seed remains.
1-2: *Coronilla* sp.; 1: TMT XI; 2: TMT XII; 3: *Ammi majus*. TMT XII; 4: *Lolium* sp. TMT XI; 5: *Hippocrepis* sp. TMT XI. Bar=0.5 mm.

シリア北西部におけるオリーブ栽培センターの興亡
—テル・マストウーマ遺跡の調査から—

安田　喜憲

要旨：シリア北西部のイドリブ市周辺は前期青銅器時代いらいのオリーブ栽培の中心地であった。しかし、そのオリーブ栽培地は、幾度かの興亡をとげている。本報告はイドリブ市郊外のテル・マストウーマ遺跡の環境考古学的調査から、このオリーブ栽培センターの興亡の歴史を解明した。前期青銅器時代の後半からテル・マストウーマ遺跡では大規模なオリーブ栽培が始まった。ちょうどその時代は南部メソポタミアにまでその名がしれわたったエブア王国の全盛時代でもあった。今回調査したテル・マストウーマ遺跡はこのエブラ王国の支配下にあり、オリーブ栽培の拠点基地であったものとみなされる。エブラ王国を中心とする北西シリアの地は、南部メソポタミアにレバノン山脈やアスサリエ山脈それにアマノス山脈でとれる豊富なレバノンスギや銅、銀などのほかにこの地中海沿岸のオリーブ油を輸出することによって大繁栄した。ところが、この繁栄も後期青銅器時代にはいいて突然中断する。そしてエブラ遺跡をはじめこのテル・マストウーマ遺跡も突然放棄される。いったいなにがあったのか。これまで考古学者はその原因としてアナトリア高原からのヒッタイトの進入をあげていた。しかし、本報告の調査結果から、その突然の廃絶の背景には気候変動が深くかかわっていることが明らかとなった。シリア北西部の遺跡の大半が放棄され無人の荒野となった後期青銅器時代は、気候が著しく乾燥し、シリア北西部いったいが干ばつにみまわれたことが明らかとなった。干ばつによって弱体化したところにヒッタイトが攻略したのである。気候は鉄器時代初期にはふたたび湿潤化し、土壌水分条件も回復する。するとふたたび人々の居住が再開される。気候が湿潤化し居住条件が回復するとともに人々がふたたびやってきたのである。そして、ローマ時代にはシリア北西部はローマ帝国のオリーブ栽培の拠点として発展する。

キーワード：オリーブ栽培、シリア、テル・マストウーマ、気候変動、花粉分析