

## **ON THE OCCURENCE OF MAMETELLA (GREEN ALGAE) IN CARBONIFEROUS LIMESTONE BLOCKS OF THE AN- KARA FLYSCH FORMATION**

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### **ABSTRACT**

A set of gray limestone blocks within the Ankara Flysch Formation which we have contributed previously (Erk 1982) found at Dağırsacık plateau situated 5 km of Hasanoğlan village, 35 km East of Ankara. One of these blocks is a yellowish brown colored biomicrite which contains a rich microfauna and microflora; and among these fossils, *Mametella* which was described by P. BRECKLE (1977). From the begining our work, the interesting simillarities were found between our Microfauna - Microflora and European - N. America of similar age. To present this emphatic result this paper is prepared. A microflora of Stachininae among which *Mametella*, *Stachoides* and *Aoujihgalia* are also represented is explained.

### **INTRODUCTION**

The different limestone blocks transported gravitationally within the Ankara Flysch Formation (Erk 1982), are also encountered at Dağırsacık plateau stated 5 km NE of Hasanoğlan village, 35 km East of Ankara (Fig. 1). As we have explained in a previous paper (Erk 1982) within the Ankara Flysch Formation have been existed numerous exotic limestone blocks which are in various age, as Carboniferous, Permian and Triassic. The first and second are recognized by Fusulinids and the third to Triassic forams (Involutina) and Microflora (Dacycladacean; Green Algae).

One of these limestone blocks which below the others at Dagırsacık Hill have shown the presence of a very rich microfauna and microflora characterizing the Visean stage of Carboniferous, *Mametella* is also found among these fossils.

This rather big blocks of limestone is a yellowish brown colored micrite or microsparite limestone containing abundant clay and irone

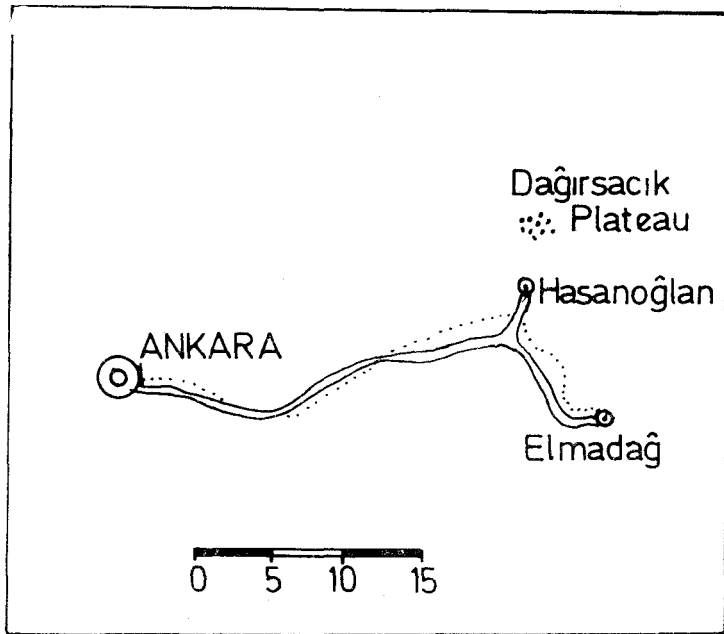


Fig. 1. The Location Map of Dağirsacık

oxide. Within it has broken bodies and shells of organisms accumulated on place as can be seen in the Plat. 2 Fig. 12-13.

We believe that the examined limestone blocks in its original environment is incorporated as a bed of lime-mud containing abundant remain of organisms in which must have been carried during their sedimentation in the Visean time. Thus, the fragile one (mostly Algae) are almost completely deformed. B. Mamet being kindly has identified complete microfossils of this limestone as we have listed below:

*Archaediscus* sp.

*Archaediscus* of the grp. *A. chernessoviensis* MAMET.

*Archaediscus* of the grp. *A. krestovnikovi* RAU. - CHER.

*Archaediscus kocktjubehsis* RAUSER-CHERNOUSOVA

*Erlandia* sp.

*Endothyra* of the group *E. bowmani* PHILLIPS emend. BRADY

*Endothyra* of the group *E. similis* RAU. - CHER. and RETILIN

*Eotuberitina* sp.

*Exvotariisilia* sp.

- Howchinia* sp.  
*Howchinia badiana* (HOWCHIN)  
*Pseudoammodiscus* sp.  
*Pseudoglomospira* sp.  
*Tetrataxis* of the grp., *T. angusta* VISSARIONOVA  
*Tetrataxis* of the grp. *T. conica* EHRENBERG sensu BRADY  
*Tuberitina* sp.  
*Valvulinella* sp.  
*Anthracoporellopsis* sp.  
*Aoujigalia* sp.  
*Aoujigalia richi* MAMET and ROUX  
*Aoujigalia variabilis* TERMIER and TERMIER  
*Asphaltinella* sp.  
*Calcisphaera* sp.  
*Cuneiphycus* sp.  
*Diplosphaerina* sp.  
*Issinella* sp.  
*Kamaena* sp.  
*Mametella* sp.  
*Nostocites* sp,  
*Omphalonotis* sp.  
*Omphalonotis circumplacata* (HOWCHIN)  
*Paleoberesella* sp.  
*Stachia* sp.  
*Stachoides tenuis* (PETRIX and MAMET)

In his additional note B. Mamet describe: "Age Zone 13, Late Middle Visean or slightly younger" is very rich algal assemblage, rather poor foraminiferal assemblage. Some Foraminifers are obviously displaced (e.g. brockens reworked, silicified *Howchinia* and *Valvulinella*), Some are insitu.

#### SYSTEMATIC PALEONTOLOGY

Phylum RODOPHYCOPHYTA PAPENFUS 1946

Family UNGDERALLACAE MASLOV 1956

Subfamily STACHIINAE LOB. and TAPPAN 1961

Genus MAMETELLA BRENCKLE 1977

Type species – *Mametella chautauque* BRECKLE, P. 1977.

*Mametella*, A new genus of calcareous red Algae (?) of Missisipian age in North America.

Type locality- Missisipi river valley (Chautauque quarry).

Biostrato-type- Fern Green Formation.

Range-Lower Osagian (Upper Tournesian-Lower Middl Visean).

Type description – As in P. Brenckle (1977 p. 250) “thalus is an encrusting and cylindrical fusiform or lemon shaped. Internal structure consist of numerous square or slightly rectangular cells arranged regularly in concentric rows arround the attachment area, vertical and concentrical elements of the cell wall are nearly equal in thickness. Wall is calcareous and light colored”. As stated abowe we also attributed Rodophycophyta found in Dagrısacık limestone block and shown in Pl. 1 and 2 to this genera which is the nearest in ressemblance.

#### Morphology.

The specimen in the rock could only be observed in thin-sections. Accordingly we are going the results obtained from 6 studied thin-sections and 6 peels, among them we could find about 20 individuals which we could use. Others were destroyed during abowe mentioned transportation. According to the results obtained from usable sections (Fig. 2) the *Mametella*'s are lemon shaped. Only this section is not alone this shape it has on its side an extention (protuberance, branches etc.). These latrones seen in the photomicrographe accompagnying the paper in which the *Mametella chautauque* BRECKLE is given as a type species of *Mametella* (Brenckle 1977 p. 263 Pl. 1 Fig. 6, 7, 10) and we have decided to take the measurment of this Algae from the parts where no protuberances.

The measurements taken accordingly from there mostly near sphaeric section B vary between 882 y and 514  $\mu$ . The figure in Pl. 1 Fig. 5 is not included in these measurments (the edge 735 y). As its inner structure cell row and the number of the cells in 4/1 th. of this row, cell hight, width and thickness of cell walls are measured as a whole as it was done by P. Brenckle and are given in the measurment table. The means of mesurments are given below:

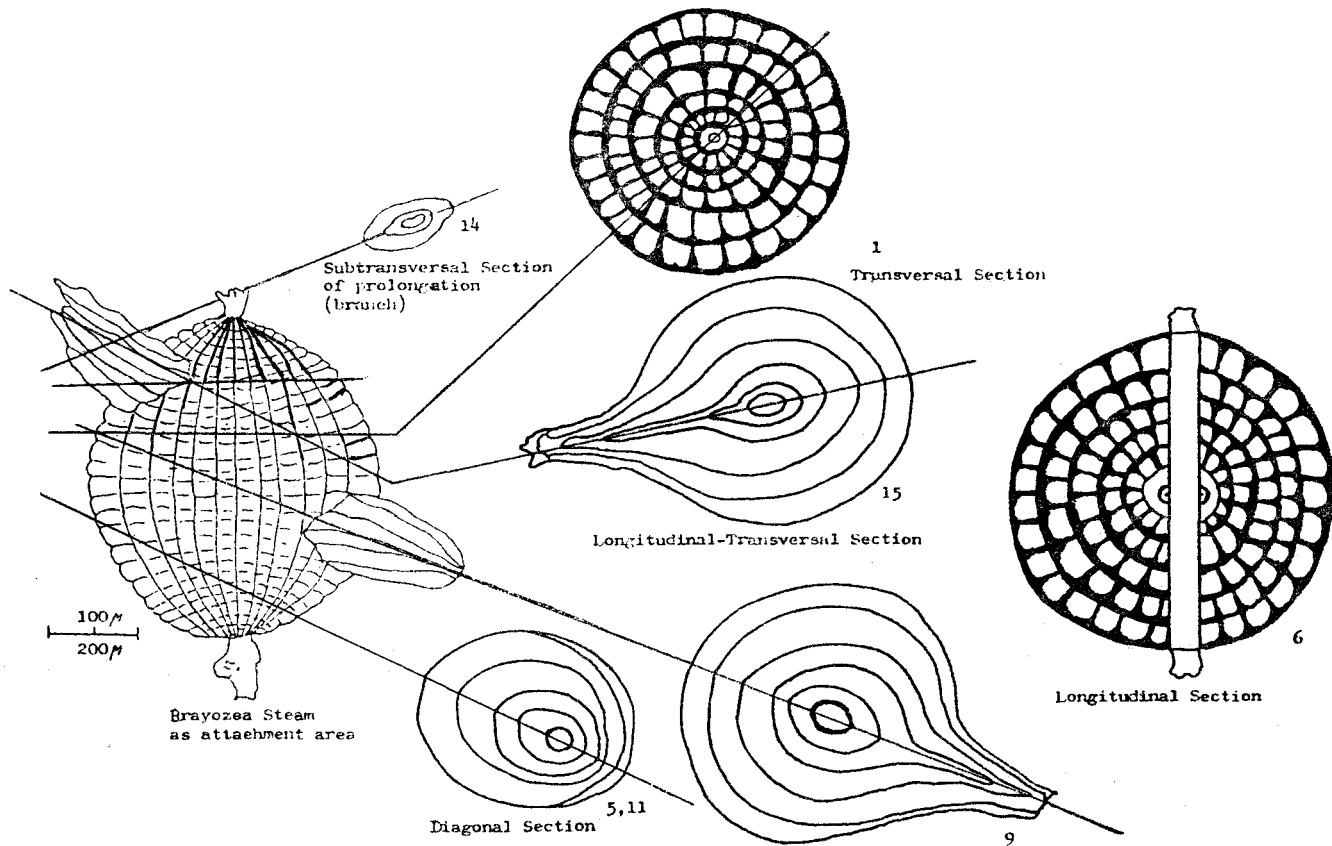


Fig. 2. Reconstruction - of Mametella BRECKLE and explanations of Sections in different directions (The numbers indicate the Figs. on Plates)

Mean of measurements.

No. of measured individuals 7.

Row no. mostly 7, range 3-7, Mean 3 rows.

Cell no. in 1/4: variable, range 4-15, Mean 8 no.

Cell height: nearly 4, range 29  $\mu$ - 49  $\mu$ , Mean 31  $\mu$ .

Cell wall thickness: nearly 4  $\mu$  - 6  $\mu$ , range 7  $\mu$  - 28  $\mu$ , Mean 13  $\mu$ .

Cell width: 56  $\mu$ , range 2  $\mu$  - 45  $\mu$ , Mean 32  $\mu$ .

Comparison.

If these measurements are compared with measurements of *P. Brenckle* holotype sample, very little difference would be found (1977 p. 252). Consequently we arrive the opinion that the *Mametella* described here in length is *Mametella chautauquae* BRECKLE.

Occurrence

In our investigation to date this species has been found in a limestone block (exotic) which is Carboniferous, within flysch of Jurassic age (Erk 1982).

Genus *Aoujgalia* THERMIER and THERMIER 1950.

Some of the sample seaming to those of subfamily Stachiinae are attributed to *Aoujgalia* nearest form in the subfamily. The measurements of the individuals in thin-section are on the table 2.

According to the measurements of thallus our individuals look like to *Aoujgalia variabilis* THERMIER and THERMIER 1950.

B. Mamet agrees this determination and that the other individual of Pl. 1 Fig. 2 is a *Aoujgalia richi* MAMET and RAUX.

Our intention is also valuable for the different *Kamaena* and *Stachoides* which found in assemblage of microfossils of Dagirsacik limestone block.

#### ACKNOWLEDGMENTS.

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Table I: Measurements of *Mametella chautauquae* BRENCKLE All measures are given as  $\mu$

Pl. 1. Fig. 1. Longitudinal section										
Rows no. 7	1°	2°	3°	4°	5°	6°	7°	8°	Average	Shape and
Cell no. in 1/4	15	15	—	—	—	—	—	—		Attachment area Subrounded Bryozoa Steam 5 $\mu$
Height	52	60	35	47	29	29	—	—	43	
Wall thickness	5	5	5	5	5	5	5	5	5	
Widthness	35	35	29	—	—	—	—	—	33	
Pl. 1. Fig. 5. Transversal section of a quadrangular shaped individus										
Rows no. 7	1°	2°	3°	4°	5°	6°	7°	8°	Average	Shape and
Cell no. in. 1/4	12	14	11	8	8(?)	—	—	—	10	Long 82 Brit 7 Complatly full by sediment
Height	64	35	41	23	29	24	24	—	34	
Wall thickness	6	6	6	6	—	—	—	—	6	
Widthness	24	24	12	12	—	—	—	—	18	
Pl. 1. Fig. 3. Slightly diagonal-Longitudinal section										
Rows no. 7	1°	2°	3°	4°	5°	6°	7°	8°	Average	Shape and
Hight	23	35	23	30	23	28	20	28	26	Opal 341213 Wall thick. 16 full of (alei and iron ozyde
Wall thickness	4	9	9	7	7	—	—	—	7	
Widthness	23	23	18	15	—	—	—	—	20	

Mean of Measurements

Measured individus 3

Rows no. Mostly 7, rang 3-7 mean 3, rows

Cell no. in 1/4: Variable, rang 8-15 menn 8

Cell Hight.: 34

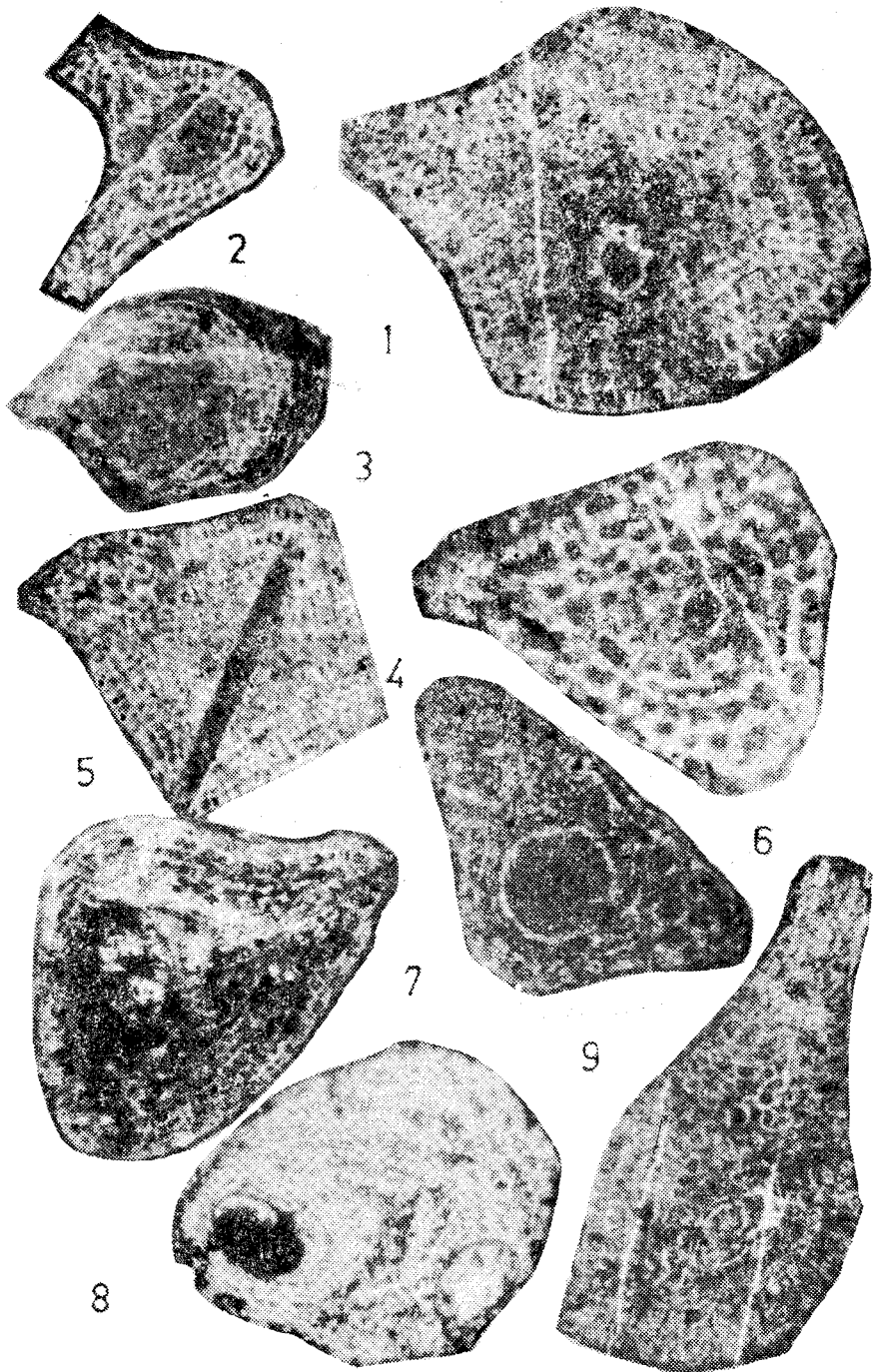
Cell Wall tick: 6

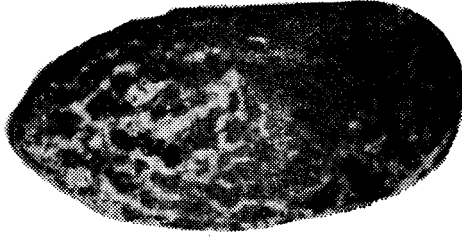
Cell Width: 47

Table II: Measurements of *Aoujgalia variabilis* TERMIER and TERMTER

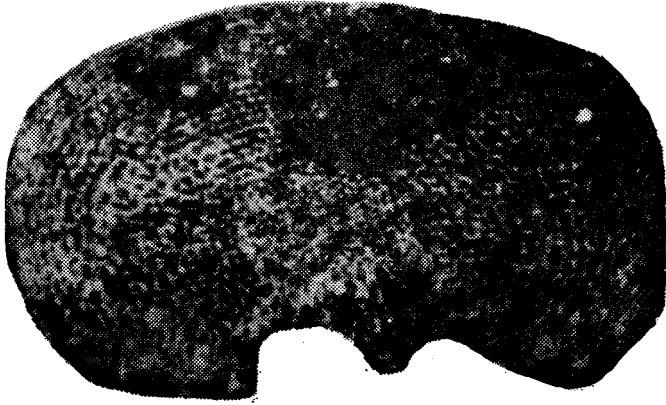
Pl. 1. Fig. 4. Longitudinal section through centre										
Rows no. 4-7 Collin 1/4	6	5						-	5.5	705 round
Hight	8	8	4	7	5	4	4	-	6	Wal thic. 12
Wall thickness	70	64	47	38	47	17	17	-	44	
Widthness	35	41	29	29	47	23	23	-	28	
	56	56	53	32	53	32	35	-	45	
Aoujgalia richi MAMET and ROUX										
Pl. 1. Fig. 2. Longitudinal section of a branch of individu										
Rows no. 3 Cell no. in 1/4	8	8	6	-	-	-	-	-	7.3	Subrounded
Hight	53	41	53	-	-	-	-	-	49	412x441
Wall tickness	18	23	23	-	-	-	-	-	21.43	no cortex
Widthness	44	50	58	-	-	-	-	-	50.6	ful of sediment







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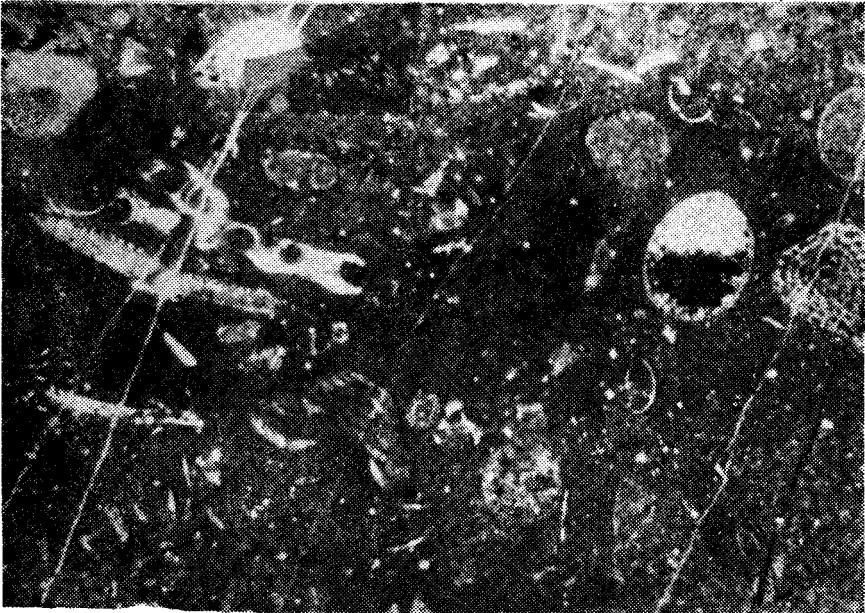
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MAMETELLA Form Dağirsacak Plateau

Pl.3



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## EXPLNATION OF PLATES:

## PL 1.

1. *Mametella chautauquae* BRECKLE 1977.  
Longitudinal section of thallus 50 X  
(Br. Bryozoan attachment at the center)
2. *Aoujgalia richi* MAMET and ROUX 50 X
3. *Cuneiphycus* sp.  
slightly diagonal - longitudinal 50 X
4. *Aoujgalia variabilis* THERMIER and TERMIER 1950  
Longitudinal section through center 50 X
5. *Mametella chautauquae* BRECKLE 1977  
Transversal section quadrangular shaped individu 50 X
6. *Stachoides tenuis* PETRYK and MAMET  
Longitudinal section of a branched individu 50 X
7. *Mametella chautauquae* BRECKLE 1977.  
Slightly diagonal - longitudinal section 50 X
8. *Stachoides* sp.  
Diagonal - longitudinal section 50 X
9. *Stachoides* sp.

Longitudinal section of a branched individu 50 X

## PL. 2.

10. *Stachoides tenuis* PETRYK and MAMET
11. A photomicrographie of a section looked to a Stachininae.  
It is more Echinoidea spins than Algae 50 X

## Pl. 3.

- 12 and 13. Thin-section photomicrographie of the limestone block of Dagırsackı.