

DESCRIPTION OF NEW PLANKTONIC DIATOMS FROM EGYPT

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The microscopic investigation on the plankton composition of Egypt, from the various aquatic habitats (SALAH and TAMÁS 1966) has revealed the presence of a number of peculiar diatoms new to science. Some of these have already been recorded (SALAH and TAMÁS and in press) and the others are included in this part. The area investigated needs no further description after that previously given by the author. One might repeat here again, however, that the area can be roughly divided into three main types of habitat, as follows:

1. Marine habitat includes the Mediterranean Sea, Bitter lakes, Suez Gulf and the Red Sea.
2. Brackish-water habitat comprises the Delta lakes and Lake Karoun.
3. Freshwater habitat such as the Nile River and its tributaries.

The localities from which the collectings were made, are shown in the map, published in the previous paper (SALAH and TAMÁS 1966).

The material was treated and mounted in a medium of high refractive index (SALAH, 1963). Photographs were produced of diatoms which gave sufficient contrast and a Zeiss photomicrographic apparatus was used. The irregular shape of the *Campylodiscus*, renders it rather difficult to focus the whole surface simultaneously, even under the low power of the microscope. This explains the deficiencies of the figures as some portions were out of focus, while the others were distinct. Type-specimens of the new diatoms are lodged in the Institute of Hydrobiology at Alexandria, Egypt and at the Biological Research Institute of the Hungarian Academy of Sciences, Tihany.

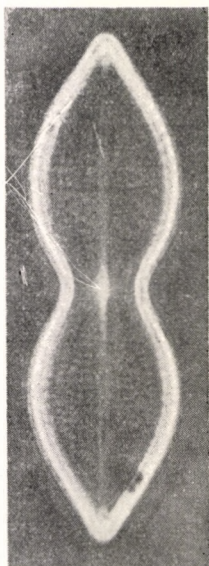
Description of new species

Dictyoneis prominentis n. sp. SALAH

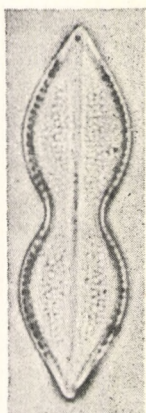
Plate I, Figs 1 to 6

Valvis brevibus latis, lateribus panduraeformibus; 72—75 μ longis; profunde abrupteque medio constrictis; labio paullo obtusisque, ad constrictionem 10—12 μ , ad lobos 20—25 μ latis; apicibus delicate productis, subacutis; raphe rami undata rectis, filiformis subattingentibus, poris centralibus mediocriter distincto adiantibus, ad fissura terminali aliquantum ab apicibus snbremostris, baculi pastoralis modo flexuosa

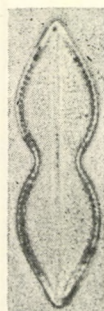
I. PLATE



1.



2.



3.



4.



5.



6.

Plate I

Figs 1 to 6. *Dictyoneis prominentis* n. sp. SALAH

et versa in contraria valvae latera; areis axialibus centralibusque distinctis; nodulo centrali rotundo; nodulis terminalibus spectantibus; superficie structura pruinosa subtiliter punctata, transversis, serie punctorum parvorum 9—10 in 10 μ , in media parte valvae crassae punctatis et solitario dispositis, irregulariter intercalatis longitudinalis formantibus; prope aream axialem oppositum arcuatum et margini coniuncto delicatissimis punctatis; punctis minoribus in lineam transversas; margine serie longitudinali loculorum (cellularum) numerosorum bene visibilibus, granulis distinctis, 6 in 10 μ ornato, ad constrictionem centralem, et ad apicalibus nullis (exceptis). — Hab. in aquis marinis ad Suez Gulf.

Valves elliptical panduriform, deeply constricted in the middle; segments cuneate, obtuse; apices finely produced, acute, 72—75 μ long, 20—25 μ broad (constr. 10—12 μ); widest transverse diameter of each lobe midway between centre and apex; axial area prominent; raphe straight with terminal fissures in opposite directions at either end, central pores approximate; valve surface loosely spattered with coarser wavy beads, transverse 9—10 in 10 μ ; outer and inner stratum finely punctate; middle stratum arranged in irregular, transverse rows, more or less coarsely reticulate; valve margin ornamented with a line of larger loculi (cells) 6 in 10 μ , except constrictions and apices.

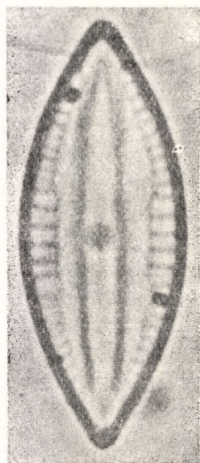
The valve structure, especially its peculiar margin, renders this diatom quite distinct from all the other members of the genus. It cannot, however, be assigned to any hitherto described species (cf. MILLS, 1933—1934). The only nearest relative is *Dictyoneis marginata* (LEWIS) CLEVE, as given in HUSTEDT (1930—1962, p. 576, Fig. 1009); also in CLEVE (1894—1895, p. 30); but that is a narrower and more angular form with finer beadings (12 in 10 μ) so spaced as to produce wavy longitudinal lines (HENDEY, 1958, p. 72). Further, it differs specifically on account of its characteristic arrangement of the marginal loculi, which clearly distinguish it. *Dictyoneis prominentiis* occurs rather sporadically, though not infrequent, in collections from Suez Gulf. Position in the halobion system: euhalobous.

Mastogloia delicata n. sp. SALAH

Plate II, Figs 1—6

Valvae ovato—vel elliptico, apicibus productis curtis, rostratis obtusis; 43—57 μ longis, 17—20 μ latis; valva superiore raphe leniter undata, cum poris centralibus approximatis; area axiali angusta; centralis parva rotundatis cincta, paene dialata, in utroque raphes latere per lineam longam hyalinam ad nodulum centralem coniunctum interruptis, ad formam lyrae dilatata, semilunaris; areovalva area axiali angusta sine area centrali; loculamentis numerosis (fere 30 loculis), in medianas breves lineas arcuatis dispositis; mediis loculis maioribus superantibus, paucissimis (saepe tantum 5—7), ambita elongatis, 4—5 in 10 μ , a latere (11—13 loculis) minoribus attingentibus, leniter decrescentibus, 10—12 in 10 μ ad polos percurrentibus interruptis, marginibus convexis; striis transapicalibus valvorum duorum similibus, tenuissimis rectis, previis parallelis vel subradiantibus, moniliformibus, delicatissimis subtilis, inconspicue punctatis. — Hab. in aquis brackish ad Karoun lacum.

II. PLATE



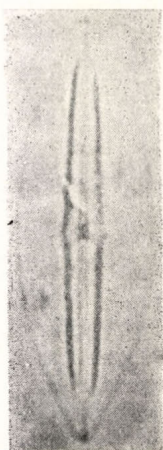
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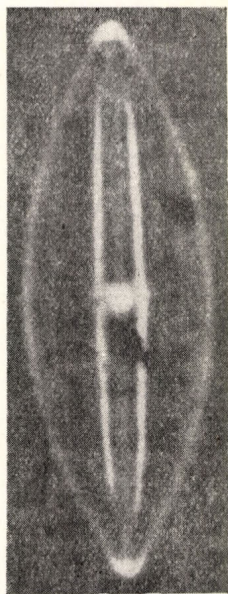
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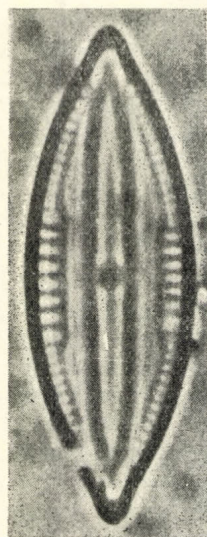
3.



4.



5.



6.

Plate II

Figs 1 to 6. Mastogloia delicata n. sp. SALAH

Valves elliptic oblong with produced rostrate apices; length 43—57 μ , breadth 17—20 μ ; furnished with marginal loculi, extend almost along the whole margin, unequal in size, longer than wide; median loculi being largest and convex towards the centre, terminal one tapered and terminate slightly further from the apices; loculi usually about 30 in numbers; central loculi (5—7), 4—5 in 10 μ ; lateral loculi (11—13), 10—12 in 10 μ ; raphe straight, delicate; axial area not evident; central nodule prominent, narrow, circular; a small hyaline expansion on either side of the median line; lower (rapheless) valve with narrow pseudoraphe, lyred form hyaline area, convergent towards the apices; striation on both valves alike, moniliform, faintly striate, parallel throughout, extremely fine, indistinctly punctate.

The general peculiar distinction of this curious *Mastogloia* is, however, its extremely delicate structure, with remarkably constant marginal loculi. It shows certain similarities to *Mastogloia angulata* LEWIS, figured in HUSTEDT (1930—1962, p. 465, Fig. 885); which is very common in the tropical and subtropical waters (VOIGT, 1942; PERAGALLO, 1897—1908). The new species is fundamentally distinguished by the arrangement and shape of its chambers, its finer striation and especially the dimensions of its valve (cf. also the new dimensions given by VOIGT, 1942, for the East Indies *Mastog. angulata*).

Mastogloia delicata is fairly well distributed throughout Lake Karoun where it shows a wide range of level. So however, it appears to be classed as mesohalobous and euryhaline in its ecological requirements.

Diploneis ornamentalis n. sp. SALAH

Plate III, Figs. 1 to 6

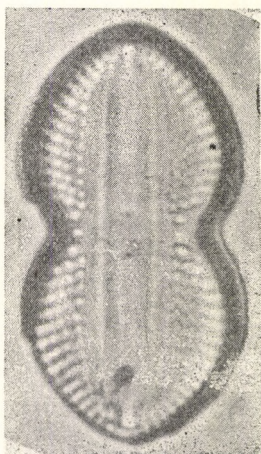
Valvis latis lateribus panduraeformibus; leviter profunde constrictis; ad locos circiter 25—40 μ longis, 12—22 latis (ad. constrictionem 7—17 μ); apicibus superiore valde rotundatis; raphe zona ampla hyalina cincta; nodulo centrali quadrato magno, rectis comibus; nodulis terminalibus spectantibus; poris centralibus aliquanto distantibus; appendicibus valde evolutis; sulcibus ad modum latis, arcuato-seriata praebentibus; spatii marginibus suis exterioribus inclusi tertiam quartamve partem includentibus, parallelis, non dilatis adversus nodulum centrale, ordinem ocellorum magnorum habentibus; costis transapicalis validae 9 in 10 μ ; moniliformibus, leviter in medio parallelis, quarum omnes, 3 centralibus exceptis, lineam marginalem longitudinalem transversam habent, et ad apicalibus exceptis quae leniter convergent curvatis; parte valvae media tantum margaritas nonnulas maiusculas solitarias praebente; costae transapicalis non cum ordinibus alveolorum alterant. — Hab. in aquis brackish ad Karoun lacum.

Cells solitary; valve panduriform, constricted in the middle, with rounded ends; 25—40 μ length, 12—22 μ breadth (constr. 7—17 μ); the median constriction broad and gently concave; widest diameter of each half is midway between the centre and the apex; central nodule conspicuous, quadrate, prolonged into strong siliceous arcuate horns enclosing the raphe, the ends of which are not set back from the ends of the valve; horns parallel; raphe straight, strong; sulcus (furrows) narrow, protracted around the central nodule and bordered with a single row of imperfect beads corresponding in

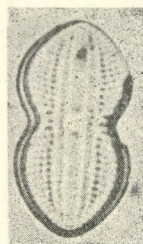
III. PLATE



1.



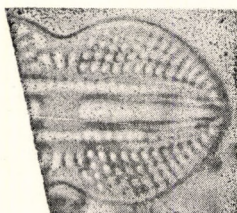
2.



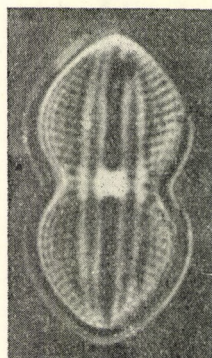
3.



4.



6.



5.

Plate III

Figs 1 to 6. *Diploneis ornamentalis* n. sp. SALAH

numbers and portion to the adjacent rows of costae; lunula more or less narrow, luneate; costae 9 in 10 μ , smooth, wavy beads, crossed by one to three longitudinal lines except the three median ones on each side which are much shorter than the rest, being vertical to the median line and distant from the remaining costae, which are strongly radial and progressively curved as approach the apices; round blotch near the middle margin, the width of this band varies in exact proportion to the width of the valve, being widest midway and narrowing to the middle and to the apices; no alveoli between the trans-apical costae.

This new diatom is clearly distinct by the character of its coastal markings as well as the shape and outline of the valve. It has far more affinity with *Diploneis bombus* (EHR.) KÜTZ. in SCHMIDT's Atlas (1874—1959, Pl. 69, Figs 28, 29) and in CLEVE's (1894—1895, p. 90); but its peculiarly rounded contour, middle margin and coastal bars, make its specific distinctness much more evident. Moreover, *Diploneis bombus* differs from it in the subelliptical character and in the details of the heading together with the wider costae (cf. PERAGALLO, 1897—1908, p. 119, Pl. 18, Figs 10, 11; HUSTEDT, 1930—1962, p. 704, Fig. 10). In spite of these differences, *Diploneis ornamentalis* bears also close connection to *Diploneis suezii*, a marine form recently described from the Suez Gulf. However, the present specimen is distinguished by the measurements of the valve, being smaller and much broader in proportion, and especially the costae are very distinctive.

In general, *Diploneis ornamentalis* is exceedingly abundant in Lake Karoun, being found in rather large numbers, where it tolerates a wide range of habitat. It is, however, fairly well distributed on the spot and it appears to be classed ecologically as both mesohalobous and euryhaline.

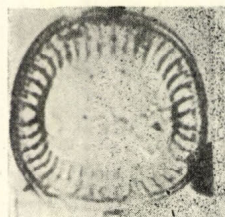
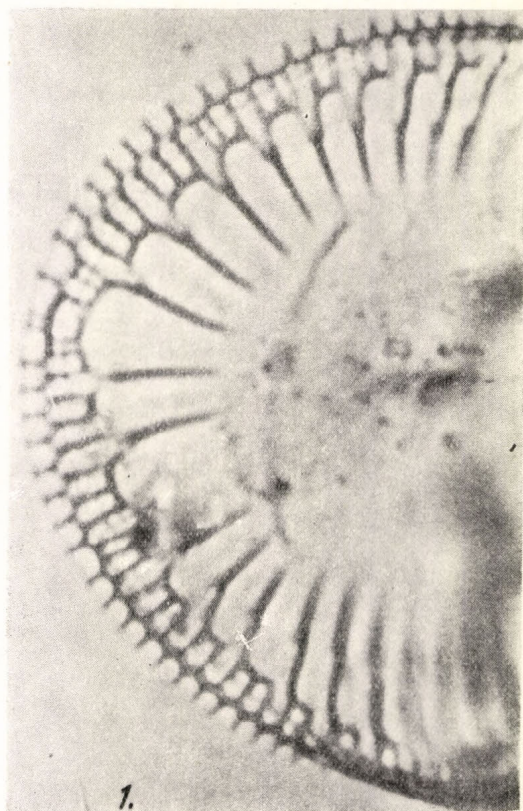
Campylodiscus orientalis n. sp. SALAH

Plate IV, Figs 1 to 3; Plate V, Figs 4 to 6

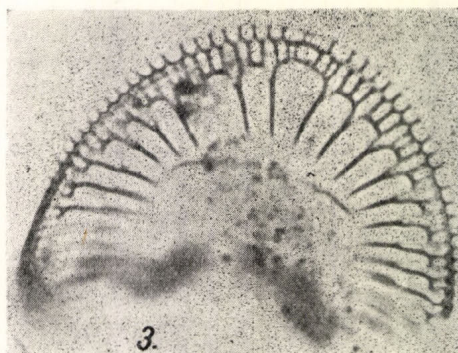
Disco suborbiculare, valde flexuosus; 92—107 μ diam. metientibus; margine lato costato; utroque latere circiter costas in series 2 per spatium leve angustum discretas gerente, semel arcuatis (4—5 in 10 μ); prope marginem subtiliter striatum inter seriem prominentiarum truncatarum (2,5 μ d, et 5—6 in 10 μ); costis interioribus radiantibus leniterve incurvis validis, brevibus cir. 3 in 10 μ ; polos versus arcuatis, ad marginem versus bifidis et hic per 2 striolas arcuatas discretis, non interstitiis punctatis (nullis); exterioribus linearibus interioribus coniunctis; area mediana (centrali) subquadrangulari vel subrotunda, maxima, totam valvae occupantae, 62—70 μ lata, plicis curvatis instructa, medio discum parvum lineas apice incurvas utrique ferentem radiisque cinctum ostendentae, dorsum concavis praesentibus; centro obscure hyalina. — Hab. in aquis marinis ad Bitter lacum.

Frustules saddle-shaped in girdle view, somewhat flexuosus; valve orbicular or suborbicular; 92—107 μ in diameter; its border consisting of an outer narrow band of a single row of small polygonal divisions (4—5 in 10 μ), rounded on their inner side and forming an angle on their outer side, the apex of each angle ending in a minute bead or bar reaching to the rim of the valve margin (2.5 μ d. and 5—6 bars in 10 μ); within this band is a single row of broad tongue-like

IV. PLATE



2.

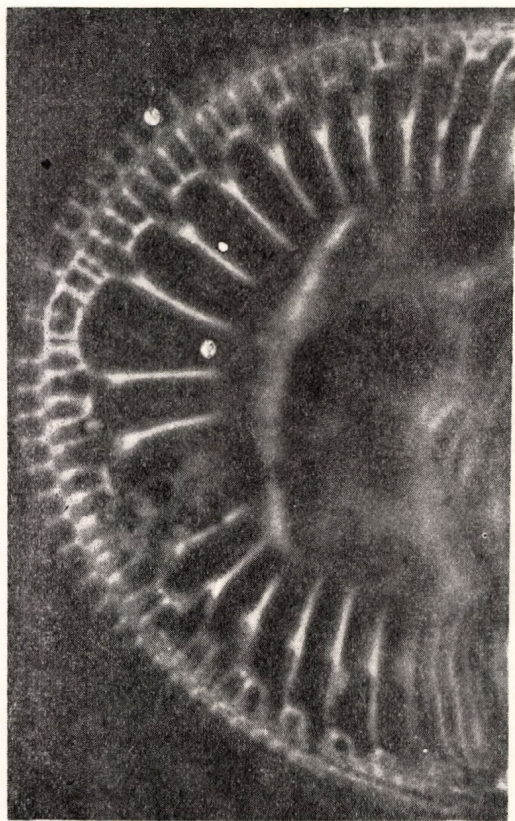


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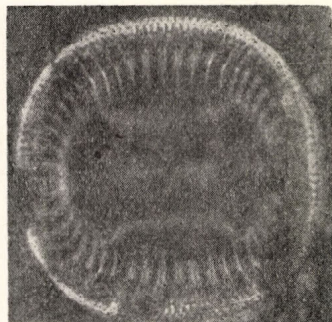
Plate IV

Figs 1 to 3. Campylodiscus orientalis n. sp. SALAH

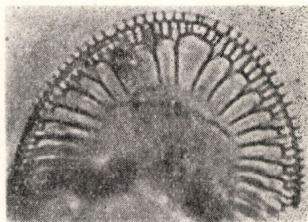
V. PLATE



4.



5.



6.

Plate V

Figs 4 to 6. *Campylodiscus orientalis* n. sp. SALAH

and glossy scallops of slightly unequal length and very irregular width, being from two to five times as wide as the polygonal partitions of the outer band (flap margin), the largest scallops being prominent at the two ends of the valve, marking the two pollar areas; costae (rays) robust, short and converging inward to the hyaline central space, about 3 in 10 μ , without interstitial puncta or lines between the main costae; being progressively radial and curved as approach to the ends; the central portion (median space) of the valve suborbicular or subquadrate, about two-third its diameter, without markings, except for a short central, rugose line, running towards but not reaching the end, diameter 62—70 μ .

The new diatom is related to *Campylodiscus adriaticus* GRUN. (GRUNOW, 1862, p. 440, Pl. 11, Fig. 8) and var. *massiliensis* GRUN. as figured in SCHMIDT's Atlas (1874—1959, Pl. 16, Figs 13—16). *Campylodiscus orientalis* separates principally on the bases of its peculiar characteristic structure; as in these forms, the costae (rays) are forked near the margin, with fine interstitial puncta as well as the median areas are two-fold; which sharply differentiate them. Moreover, the present species differs in the dimensions of the valve (cf. DEBY, 1891, Pl. 5, Fig. 34; DE-TONI, 1891—1894, p. 619; PERAGALLO, 1897—1908, p. 239, Pl. 53, Fig. 5). *Campylodiscus orientalis* is one of the most widespread and fairly well represented throughout the Bitter lakes. It is, however, widely distributed in marine habitat and to be classed ecologically as euhalobous within the halobion system.

Acknowledgements

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ÚJ PELAGIKUS KOVAMOSZATOK EGYIPTOMBÓL

M. Salah

Összefoglalás

Szerző az egyiptomi (tengeri, brakvízi és édesvízi) planktonminta-sorozatok mikroszkópiai meghatározása során a tudományra új kovamoszatfajokat talált. Ebben a tanulmányában 4 új faj leírását közli.

1. *Dictyoneis prominentiis* SALAH, a Szezi-csatorna planktonmintáiban szórónyosan fordul elő, de nem ritka. A kovamoszatok sőtűrésének fokozatában e u h a l o b. A taxonómiai irodalomban egyedül a *Dictyoneis marginata* (LEWIS) CLEVE fajhoz áll közel.

2. *Mastogloia delicata* SALAH, a Karoun tó planktonmintáiban gyakori. Sőtűrés szempontjából mezohalob (brakvízi), euryhalin szervezet.

Taxonómiaiailag közel áll a trópusi és subtrópusi vizekben nagyon elterjedt *Mastogloia angulata* LEWIS fajhoz.

3. *Diploneis ornamentalis* SALAH, ugyancsak a Karoun tóból származó planktonmintákban szerepelt rendkívül nagy számban. A sőtűrés mezohalob (brakvízi) fokozatába sorolható, euryhalin szervezet.

Rendszertanilag rokonságban áll a *Diploneis bombus* (EHR.) KÜTZ. fajjal. Meglehetősen közel áll a *Diploneis suezii* SALAH et TAMÁS tengeri kovamoszatokhoz is, melyet egy korábbi tanulmányban a Szezi-csatornából írtak le.

4. *Campylodiscus orientalis* SALAH, a nagy keserűsós tó (Bitter lakes) lakója. A tengerek magas sótartalmát eltűrő e u h a l o b szervezet.

Taxonómiaiailag közel áll a tengeri *Campylodiscus adriaticus* GRUN. és *C. adriaticus* var. *massiliensis* GRUN. formaköréhez.

НОВЫЕ ПЕЛАГИЧЕСКИЕ КРЕМНЕВЫЕ ВОДОРОСЛИ ИЗ ЕГИПТА

М. Салах

При микроскопическом анализе образцов планктона морских и пресных вод Египта автором были обнаружены новые виды кремневых водорослей. В данном сообщении описывается 4 новых вида.

1. — *Dictyoneis prominentiis* SALAH был найден в образцах планктона Суецского канала. Таксономически близок к *Dictyoneis marginata* (LEWIS) CLEVE.

2. — *Mastogloia delicata* SALAH часто встречается в планктоне озера Кароун. Таксономически близок к *Mastogloia angulata* LEWIS.

3. — *Diploneis ornamentalis* SALAH присутствует в планктоне озера Кароун. Систематически близок к *Diploneis bombus* (EHR.) KÜTZ. и *Diploneis suezii* SALAH et TAMÁS.

4. — *Campylodiscus orientalis* SALAH живет в соляных озерах (Биттеры). Таксономически близок к *Campylodiscus adriaticus* GRUN. и к *C. adriaticus* var. *massiliensis* GRUN.