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Brebisson — NOTES ON SOME FRENCH DIATOMACEAE

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## NOTES ON SOME FRENCH DIATOMACEÆ.

PRESENTED TO THE CLUB BY

ALPH. DE BREBISSON, CORR. MEM.

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*Pleurosigma Æstuarii*. W. Sm.—Morfalines, near St. Vaast (Manche). In these two preparations there will also be remarked the *Amphora membranacea*, *Nitzschia spathulata*, and even a few individuals of *Toxonidea falcata* and *insignis*.

*Pleurosigma gracilentum* Rabenh. *P. Kützingii* Grun. This ought to be the *P. Spencerii* of W. Smith's Synopsis, but it is not Bailey's species, according to his own examination.

*Navicula (Pinnularia) dactylus*. Ehrb. One of the principal forms of the group which includes the *Navicula* or *Pinnularia nobilis*, *major*, etc., which, doubtless, all have the same origin, as coming from the *N. viridis* Ehrb. (Infus. vol. xiii., f. xvi.)

*Navicula punctata* (W. Arnott, in litt.) This species, which is always mixed with many other Diatomaceæ, is easy to distinguish by the three enlargements, one of which is central, and two terminal, all rounded, and nearly of the same volume, and especially by its carapace covered with punctuations or rugosities, which appear to be internal. It is this species to which I had in 1828 ("Consid. sur les Diatom. p. 19) given the name of *Frustulia acrosphæria*, but it is not the *Navicula acrosphæria* of Kützing (Bacill., p. 97, tab. 5, f. ii.), the summits of which are not sensibly enlarged, nor, as some authors have thought, the *Nav. tabellaria* of Ehrenberg, which has no punctuations. To avoid a confusion, which is always to be regretted, Walker-Arnott proposed to give to this species the name of *Navicula* (or *Pinnularia*) *punctata*, an opinion which I hastened to adopt, supported by so competent an authority.

*Navicula humerosa* Bréb. (in W. Sm. App.) This species, which I first found at Divas, in the sandy pools of the sea shore, is pretty common between Trouville and Honfleur in the pools or pits of slightly brackish water with stony bottom.

It much resembles the *Nav. granulata*, but the valves of the latter are more elongated, less suddenly attenuated at the summit, often

contracted towards the middle, and charged with more pronounced and more distinctly moniliform striæ.

*Navicula oculata* Bréb. (in Desm. Crypt., 110) First discovered by the learned algologist, M. G. Thuret, near Lagny, in the environs of Paris; this species has since been collected by us near Falaise. It is very small, linear, with rounded summits, and remarkable by its very apparent central nodule.

*Peronia erinacea* Bréb. and W. Arn. (in Journ. Micr. Sc.) Different characteristics, and principally the absence of a central nodule on the valves, not permitting this Diatom to be retained in the genus *Gomphonema*, where I had first placed it (see Kützing, Sp. Alg. p. c g, sub. *Gomph. Fibula*) have determined W. Arnott and myself to propose this new genus which at present contains but one single species which grows in fresh water springs, on inundated plants, and especially on the leaves of *Sphagnum*.

*Cymatopleura apiculata* W. Sm. et var. We do not think that this *Cymatopleura* can be anything but a variety of *C. Solea*. All the forms presented by this species pass so much from one to the other in an insensible manner that it would be always difficult to assign them a place in a regular series. The forms included in the accompanying preparation are the var. *apiculata* and another larger, broader, figured by Ehrenberg in his large work on the Infusoria (t. xiii., xxii., f. 1 and 3) and which, for this reason, I call var. *Ehrenbergii*. Fig. 2 of the same plate must be the variety *Librile*.

*Surirella Capronii*. I am indebted to Mr. Fr. Kitton for the knowledge of this remarkable *Diatom*. Having communicated to him, nearly two years ago, the mixture of *Surirella* which had been collected in our neighbourhood, he observed to me that, in the midst of the numerous individuals of *Sur. elegans* which were most prevalent, there was another form, the valves of which were provided on their broadest summit with a sort of spur, or salient point, and informed me at the same time that a similar form had been noticed in England by Dr. Capron, the naturalist, who is so often mentioned by W. Smith as having communicated to him interesting researches in the neighbourhood of Guildford. Dr. Capron having been so good as to address to me a preparation of his curious *Surirella*, I was able to convince myself of its identity with the Normandy plant; I then proposed to dedicate it to Dr. Capron. I have since received from the clever Danish preparer, M. Möller of

Wedel, another *Surirella*, the *S. nobilis* or *robusta*, the valves of which are also armed with a spur. It is the *S. splendida* (?) var. *aculeata* of M. Grunow. Then, finally, I found again near Falaise, a real *S. splendida*, Ehrenb., on the valves of which is also seen a rudimentary spur. This appendage is not, therefore, an essential characteristic, on which we can establish a distinction of species, but only an accidental state, the result of a superabundance of silex in a certain point of the carapace of these Diatoms. Often in such a case, a collection of the siliceous matter, the secretion of which forms the envelope of the Diatomaceæ shows itself on the middle of the valves, in the form of a kind of cord, or medial nerve. This line, strengthened, may remain straight and salient, in consequence of rupture in the point where the valve bends suddenly, especially at the broad and rounded extremity of the cuneiform frustules; at the other summit, which is narrower and less curved inwards, it is rarer to meet with such a spine-shaped appendage, although this anomaly is sometimes met with there.

The *Surirella biseriata*, which is also in these preparations, having no decided curve at the summits of its valves is never furnished with spurs. Nevertheless, this Diatom, although its envelope is not cuneiform, is probably, like the preceding, only a modification of one and the same type.

*Surirella linearis*, W. Sm. and *Sur. amphioxys*, W. Sm. In examining the different forms which are found mingled together in these preparations, we might be tempted to believe that the drawings given by W. Smith were made from a similar collection. Several authors, and W. Smith himself, have remarked that the figures 58a, a<sup>1</sup> and b<sup>1</sup> of the synopsis (t. 1., pl. viii.) belonged to at least two species. In these preparations may be recognised individuals which ought to be referred to the *Sur. pinnata*, the *S. panduriformis*, and even to the *S. angusta*, which would assign to all these forms one and the same point of departure, an hypothesis which is very admissible.

*Surirella crumena* Bréb. (in litt. ad Kütz., 1844, con. spec.)  
*Cyclotella Meneghiniana*  $\beta$ . *major* Spec. Alg. p. 19. *Surir. Brightwellii*, W. Smith, syn. i., p. 33, pl. ix., f. 69. (?) Fresh and brackish waters, Calvados, Geneva, Montpellier, etc. Misled by a form of *Sur. subsalsa* with large valves and rounded, which I refer to fig. 69, pl. ix., of W. Smith's Synopsis, I thought that as this figure represented the type of *S. Brightwellii* this species ought to be

different from my *S. crumena*; thence came the observation I addressed to W. Smith, which determined him to announce in a note to his 2nd vol., p. 89, that I had recognised characteristic differences between *S. crumena* and *S. Brightwellii*. Since then I have had numerous specimens from England, from W. Smith himself, from W. Arnott, and M. G. Norman, which have convinced me that it was one and the same species. Only it is possible that W. Smith's figure, quoted above, ought to be referred to a form with large and rounded valves of *S. subsalsa*. This latter species is especially distinguished by its inferior summit of the valves, which is attenuated and considerably hollowed into a gutter, and by the presence of applied wings, but these are raised and more apparent near the summits. The valves are also generally oval, while in the *crumena* they are nearly always circular, and so much so that Kützing in his Spec. Alg., p. 19, thought proper to unite this species to his *Cyclotella Meneghiniana* as variety  $\beta$ . *major*; a connection which it is difficult to understand, if we remark the double direction of the *canaliculi* which converge towards two diametrically opposite points of the circumference, the two summits (*Poli* Rab.) instead of radiating regularly in the direction of one centre, as is the case in the *Cyclotella*.

*Surirella minuta* Bréb. (in Kütz. Spec. Alg.) although this Diatom is always smaller than the *ovata*, that its colour is darker, more blackish, and that its figure is different, it is very probable that it is only a form of *S. ovata* to which ought to be united also a certain number of pretended species which are common in brackish waters.

*Nitzschia Brébissonii* W. Sm. syn. i., p. 38 (exclus. synonym). I had no right to the honour of this dedication, which must be accepted in order to avoid rendering the synonymy inextricable. This species, from brackish waters, differs completely from *Sigmatella Brébissonii* of Kützing, which inhabits fresh water, and is only a broad and but slightly sinuous variety of *Nitz. sigmoidea*, a variety which may be called *Armoricana* in order to avoid a source of errors. It was the *Synedra Armoricana* of Kützing (Bacill, tab. 4, f. 34.)

*Nitzschia obtusa* W. Sm. (syn. i., p. 35, pl. xiii, 107.) Pools of brackish water near Trouville. This species is found in abundance in the midst of the filaments of algæ which carpet the surface of the pools. It was thought that the filaments had originally con-

tained the frustules, which would consequently have belonged to the genus *Homeocladia*. This opinion was the result of an incomplete observation. These felted layers supplied the diatom with an accidental station, but were not a part of their individuality.

*Nitzschia gracilentata* Grun. in. litt. Found in November, 1868, in pools near Falaise, on a clayey soil.

*Fragilaria virescens* Ralfs. Remarkable in this state on account of its numerous sporangiferous articles, half as long again as the frustules, which are disposed in series, and present the most varied forms.

*Eupodiscus Gregoryanus*. Bréb. MSS. Cherbourg. This species is probably *Eup. subtilis* of W. Gregory, (Diat. Clyd., p. 29, tab. iii., f. 5.) but it may be doubted, for the figure indicates a kind of central nodule, and does not mention the series of small protuberances (processes) which are placed near the edge of the valves. It is this species which was first indicated by W. Smith, under the name of *Coscinodiscus concinnus*. It cannot be referred to Ehrenberg's *Coscinodiscus concinnus*, and therefore it seems to me better to give it a new name.

*Eupodiscus Roperii* Bréb. MSS. *Coscinodiscus ovalis*. Rop. This species, like the preceding, ought to belong to the genus *Eupodiscus*. Its texture is the same, and its valves also bear, near their edge, a row of small protuberances or salient appendices (processes), which have no communication with the centre by means of radiating lines, as in the genus *Aulacodiscus*.

This is certainly Roper's *Coscinodiscus ovalis* (Journ. Micr. Sc., vi., p. 3, f. 4.) In truth, in the figure given (*b.c.*), the intermarginal processes are not indicated, and they may have escaped the draughtsman's observation if he had under his eyes a balsam preparation, as this renders these organs too transparent.

This species, and the preceding, ought to belong to the genus *Cestodiscus*, founded by Greville.—(Trans. of Micro. Soc., N.S., vol., xiii., p. 48.)

*Cyclotella rectangula* Bréb. (*Cycl. operculata*  $\beta$ . *rectangula* Kütz. Spec. Alg., p. 19.)—I first collected this Diatom near Lagny, in the environs of Paris, and we have since found it around Falaise. It differs much from *Cyclot. operculata*; its valves are plane and not undulating; their contour is strongly marked with points or dimples which are very apparent, even on the very squarely angular edge of the frustules (front view).

*Biddulphia lævis* Rop. Found at Divanx (Côtes du Nord) at the mouth of the Rance, at a few leagues from St. Malo. It has also been seen in the neighbourhood of Carentan.

*Epithemia succincta* Bréb. I discovered this Diatom in June, 1852, at Ouistreham, at the mouth of the canal, which was not then open to navigation. It was growing mixed with *Epith. sorex* and *ventricosa*, on the floating débris of semi-decomposed Ulvaceæ. I named it *Epith. constricta*, and I offered it, under that name, to W. Smith, who was travelling through our country at that time. Occupied at that time with the publication of the first volume of his fine work on the English Diatomaceæ, he inserted *Epithemia constricta*, and figured it in one of his supplementary plates. The drawing was not made from my specimens, but from a different plant of the same. Always seeking to avoid causes of error, I have abandoned the name of *constricta* to Smith's species, and have called the Ouistreham one *Ep. succincta*. It is much smaller than the former; its lateral indentation is also less decided. This strangulation might be only accidental, and not furnish a really distinctive character fit to establish a species. The *Epithemia gibberula*, so common in the Mediterranean, sometimes presents a kind of analogous indentation.

M. Pedicino has figured this state of *E. gibberula*, figs. 10, 20, and 23 of plate 1 of his work on the Diatomaceæ of the thermal waters of the Isle of Ischia.

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NOTE.—The preparations mentioned in the foregoing communication having been submitted to Mr. F. Kitton for his opinion, elicited the following observations:—

“I do not see much to add to M. de Brebisson's remarks. I would suggest that the specific name of *Navicula punctata* be changed, as we have already a *Navicula punctulata*. I should, however, prefer retaining the genus *Pinnularia*, and referring to that genus all forms with costate markings. The following are the synonyms of this form:—*Pinnularia tabellaria*, Synopsis of British Diatomaceæ—the longer form of the same species, *P. acrosphæria* of the same work. In a communication from Dr. Arnott he says—‘I send you slide of *P. tabellaria*, true, from

C. Van Deyn

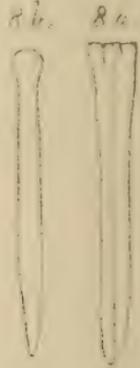
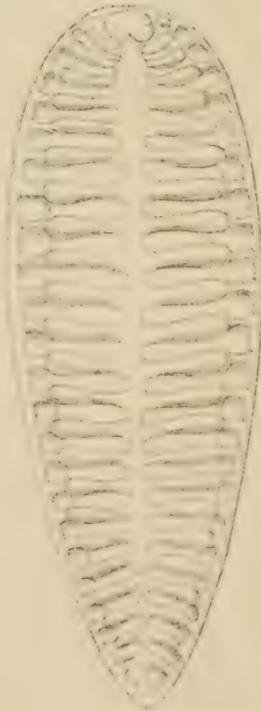
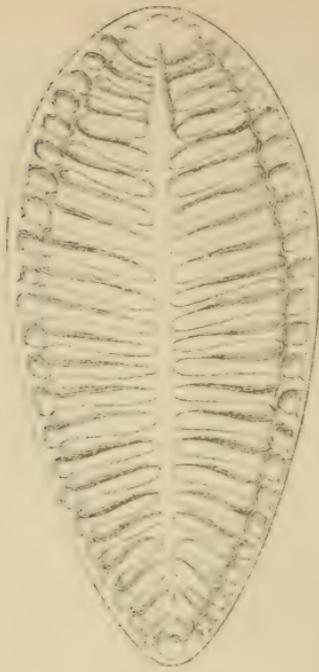
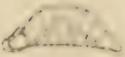


Plate No. 100. Lith.  
A. C. C. C. C. C.

*Veronica D. C. C. C.*

Wales, agreeing exactly with Smith's in his slide in the Brit. Mus.; his *P. acrosphæria* turns out to be the longer form of the same seen also here, but most common in the Premnay peat.' I am afraid that the spines of *Surirella Capronii* are of no scientific value, and if not this form must be referred to *S. splendida*.

"*Eupodiscus Gregorianus* is the *Eupodiscus subtilis* of Gregory. It is not a true *Eupodiscus*, but one of the forms of *Actinocyclus* Ehr.; the marginal spines are not peculiar to this genus, and are of no generic or specific value; they may be observed in other genera, notably in *Cyclotella rotula*. This form is not the same as *Coscinodiscus concinnus* of Smith, which is a true *Coscinodiscus*, with delicate hexagonal cellules. It is common in the stomachs of *Noctiluca*.

"*E. Roperiana* is identical with *Coscinodiscus ovalis*. My remarks on the preceding species apply to this form. It seems to me to belong to the genus *Actinocyclus* rather than *Eupodiscus* or *Coscinodiscus*.

"One of the slides marked for *Eupodiscus Gregorianus* does not contain that form, but is the same as the *Navicula punctata* slide. I enclose a slide of *Navicula punctata* (from the Premnay peat) for the Club.

"F. KITTON."

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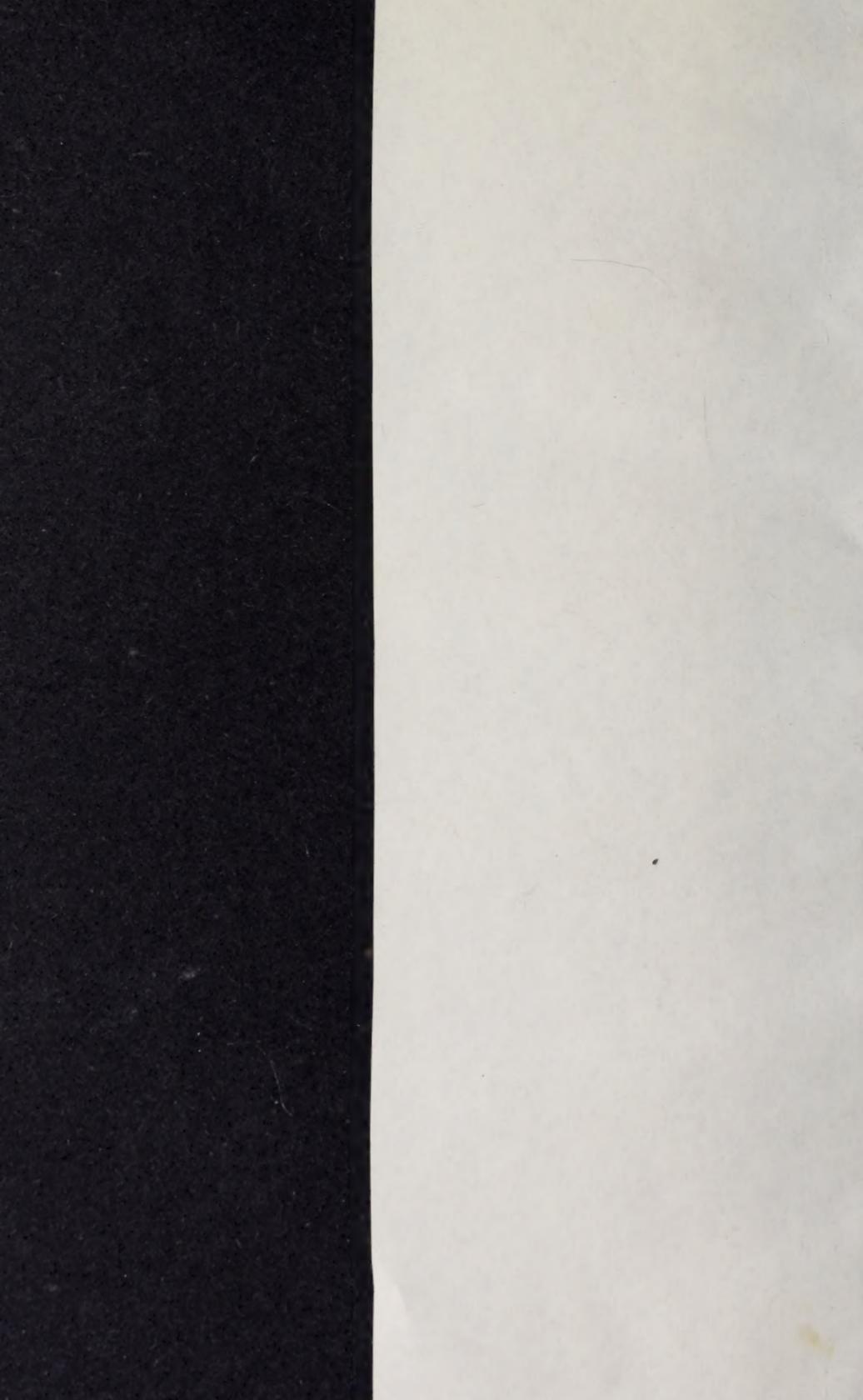
PLATE I.

- Fig. 1. *Surirella Capronii*—the form found at Shere by Dr. Capron  $\times 300$  diameters.  
 Fig. 2. *Surirella Capronii*—as found by M. de Brebisson at Falaise  $\times 300$  diameters.  
 Fig. 3. Longitudinal section of valve of the same species  $\times 300$  diameters.  
 Fig. 4. *Navicula punctata*  $\times 600$  diameters.  
 Fig. 5. *Navicula oculata*  $\times 600$  diameters.  
 Fig. 6. *Cyclotella rectangula*  $\times 600$  diameters.  
 Fig. 7. *Epithemia succincta*  $\times 600$  diameters.  
 Fig. 8. *Peronia erinacea*  $\times 600$  diameters.

All the above figures drawn from the slides by H. F. Hailes, V.P.







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