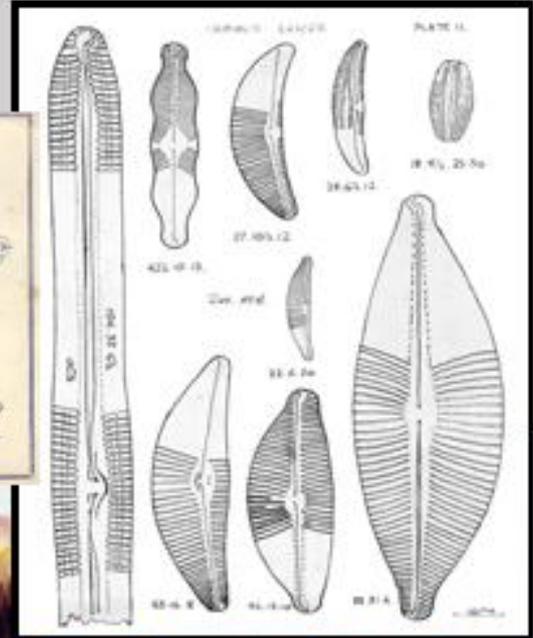
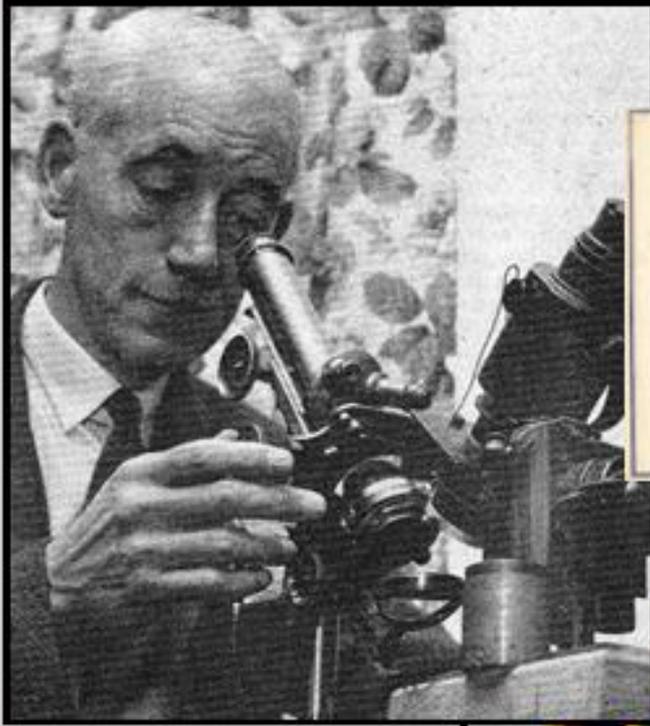


# Contributions to the Diatom Flora of Leicestershire



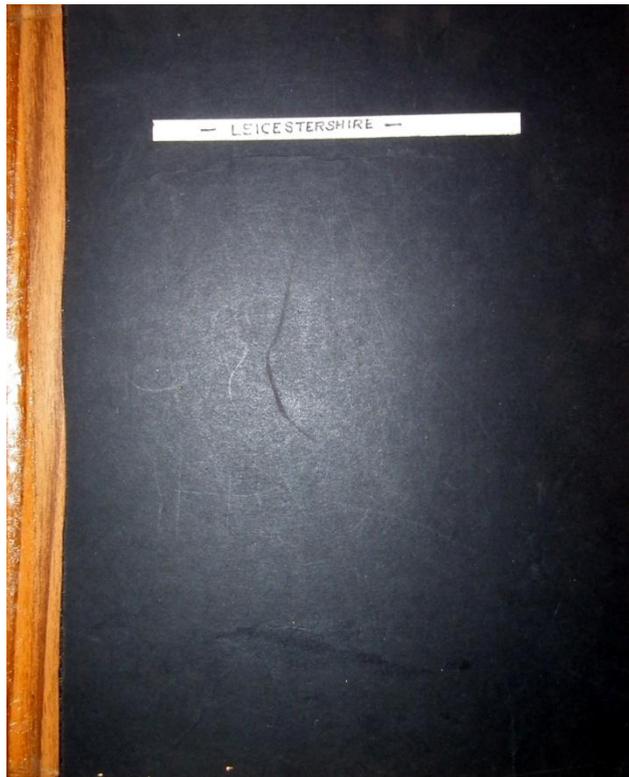
*Horace G. Barber*

Transcribed and Edited by Steve Gill



**Editor's Notes**

The original document was produced on 10 inch (25cm) x 8 inch (20cm) paper (8R) and the leaves tied together to form a book some ¾ inch (2cm) thickness. Robust dark blue/black covers were used to house the file. The front cover bears a simple title legend.



The leaves were held together using two treasury fasteners.

Each plate was created using trimmed original illustrations stuck onto a thick white card. Unfortunately the glue used has discoloured considerably with age and in many instances has simply failed and loose illustrations were all over the place. The example below gives an indication of the deterioration in the plates and this is after the illustrations had been re-glued.



The whole of the document has been transcribed including elements that have been crossed-out. This enables the reader to follow the thought processes of the author. Horace, by his own admission, was not the most skilled at identification. He was, however, a consummate draughtsman, an artist with an eye for detail. The execution of his drawings of diatoms is quite exquisite as he was able to portray the substance of a valve or frustules with the minimum number of pen-strokes and yet capture all of the relevant information.

Many of the locations he sampled are still extant and where there is permissible access photographs have been taken and added to the appropriate section.

If, as an amateur or professional diatomist, you are looking for a volume that absolutely defines species, variation and form, then this offering is not for you. If, however, you are content to peruse the structural forms and variety from specific locations then read on, you will not be disappointed. The diatoms described, although pertaining to the County of Leicestershire, are sufficiently widespread to be of interest to most outside the geographical area.

Horace rarely used the plural form of puncta and stria and often used rhaps for raphe. I have not deemed it necessary to correct these. I have made very few editorial changes to the main body of the text. The most major change from the original is the grouping of all the Cosby records so that they appear consecutively in the document.

Also appended to the document are two indexes (Appendix A and B) listing species by location and also illustrated species.

A third Appendix (C) reproduces Horace Barber's obituary which originally appeared in the Quekett Journal of Microscopy.

Appendix D is a brief summary of Horace's life.

Appendix E is a Bibliography.

Appendix F is the privately published paper - Some Freshwater Diatoms from Malham Tarn

This document is formatted for A4 (8½x11 inches, 21x30 cm) paper and double-sided printing. This means that if you are printing single-sided then there may be a number of blank pages, though I have reduced these to a minimum.

Thanks must go to Alan Barber, Horace's son, for permission to reproduce the document and also for providing most of the information and images relating to Horace reproduced in Appendix D. I must also acknowledge the assistance given by Steve Edgar, of Kendal and Klaus-Dieter Kemp, of East Brent, for checking my progress throughout and curbing me from excesses of enthusiasm and ignorance of my subject,....

...and finally to Horace himself, I hope he would have approved!

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# Introduction

## Contributions to the Diatom Flora of Leicestershire

In order to save duplicating the drawing of many forms in some of the later accounts I have referred to a previous sketch as 'see Plate No. Figure No./Dimensions' etc.

The taxonomy followed is that of F. von Hustedt by reference to his works as follows:

- Hustedt, F. (1930) Bacillariophyta (Diatomeae) Die Susswasser-Flora Mitteleuropas. Jena
- Hustedt, F. (1962) Die Kieselalgen – Deutschland Österreich und der Schweiz.

H. G. Barber

# An Illustrated Account of the Diatom Flora of Cosby Brook in the village of Cosby – Leicestershire 1975

On occasions when staying in the village I have taken gatherings from a few points with the object of recording the flora to add to my British Isles records.

The material, after cleaning, was mounted in Naphrax (R.I. 1.67) and examined by oil immersion objective (1.30N.A.), 10X and 20X eyepieces.

There are some forms I have been unable to satisfactorily identify and these I have duly recorded within the notes.

I have not taken any pH values of the water and would not like to assess this from the flora. I am sure the factor varies quite a lot due to the water flow being determined largely by rainfall and quick run-off from land and field drains.

From some members of the present flora there is an indication of nitrogenous pollution. I do, however, notice the absence of one or two genera, such as *Pinnularia* and *Cymbella*, which struck me as rather unusual.

Number of genera recorded = 17

Number of species etc. recorded = 44

One usually finds, 5-60.

The numbers beside each form are the dimensions of the form concerned, viz.:

20.10.7 =        20 $\mu$  Length  
                      10 $\mu$  Breadth  
                      7 stria in 10 $\mu$

Where a fourth number is included it is the Keel (Fibula) puncta rate per 10 $\mu$ .

I hope the project is of use, if not at present but possibly in the future when others can compare possible environmental changes.

I have no objection to the work being copied etc., for scientific use providing due recognition is given to the author.

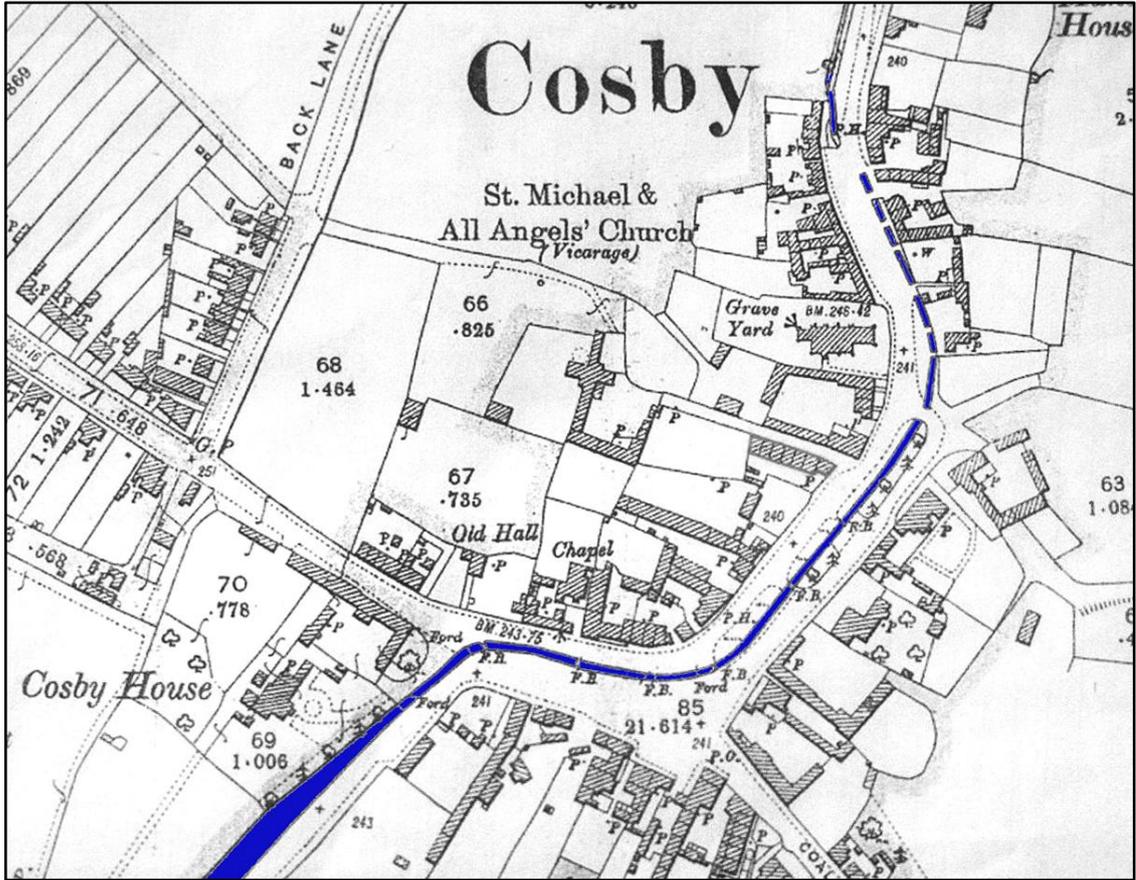


Hafan  
Mancetter Road  
Nuneaton  
CV10 0HP  
June 1975

[52.547594,-1.195729]



[Editor's Note: The stream (Cosby Brook) in the village is at the junction of Broughton Road and The Nook and also runs along the centre of The Nook. This stream eventually leads to the River Soar.]

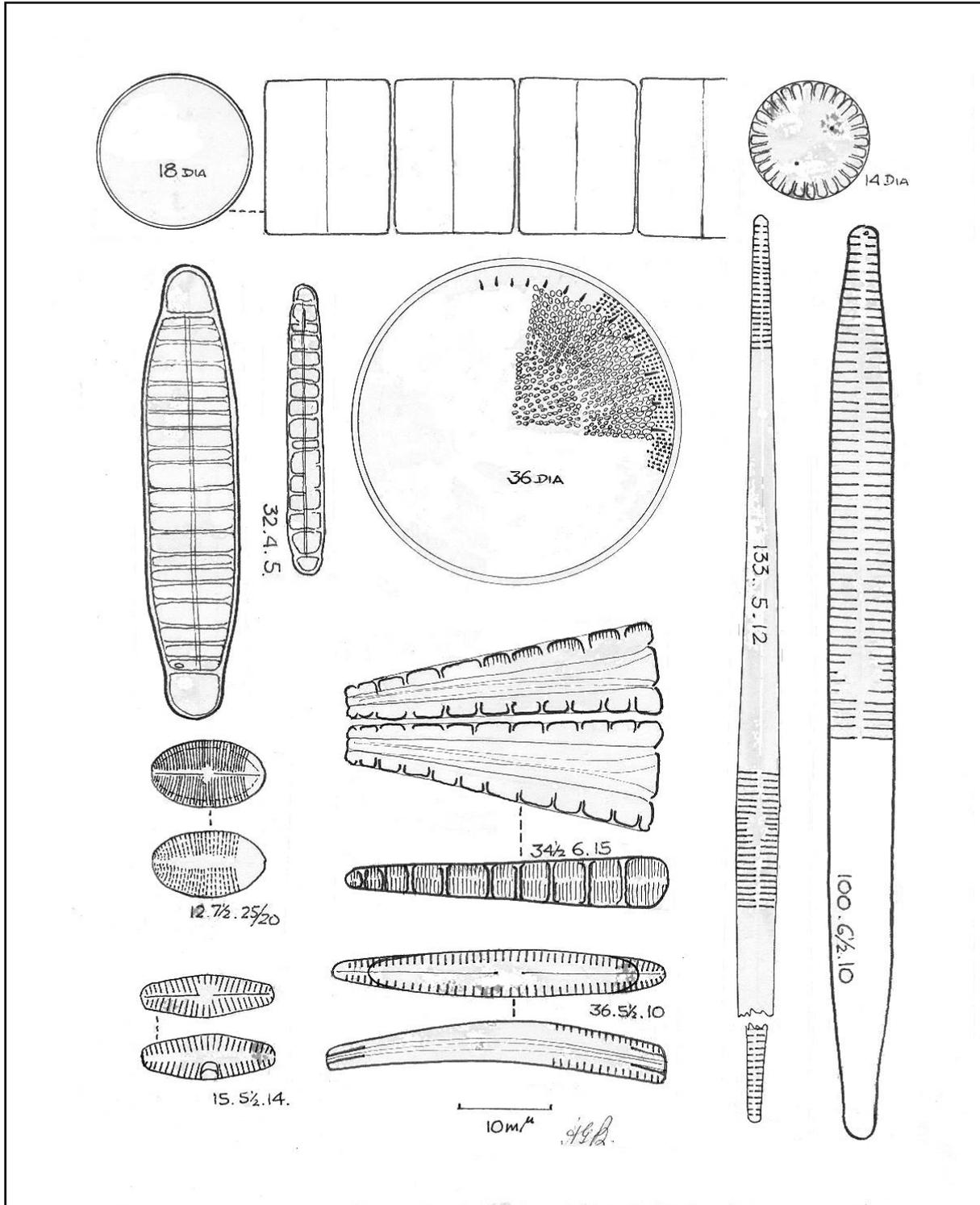


*The course of Cosby Brook through Cosby village*

## Plate 1 - Cosby

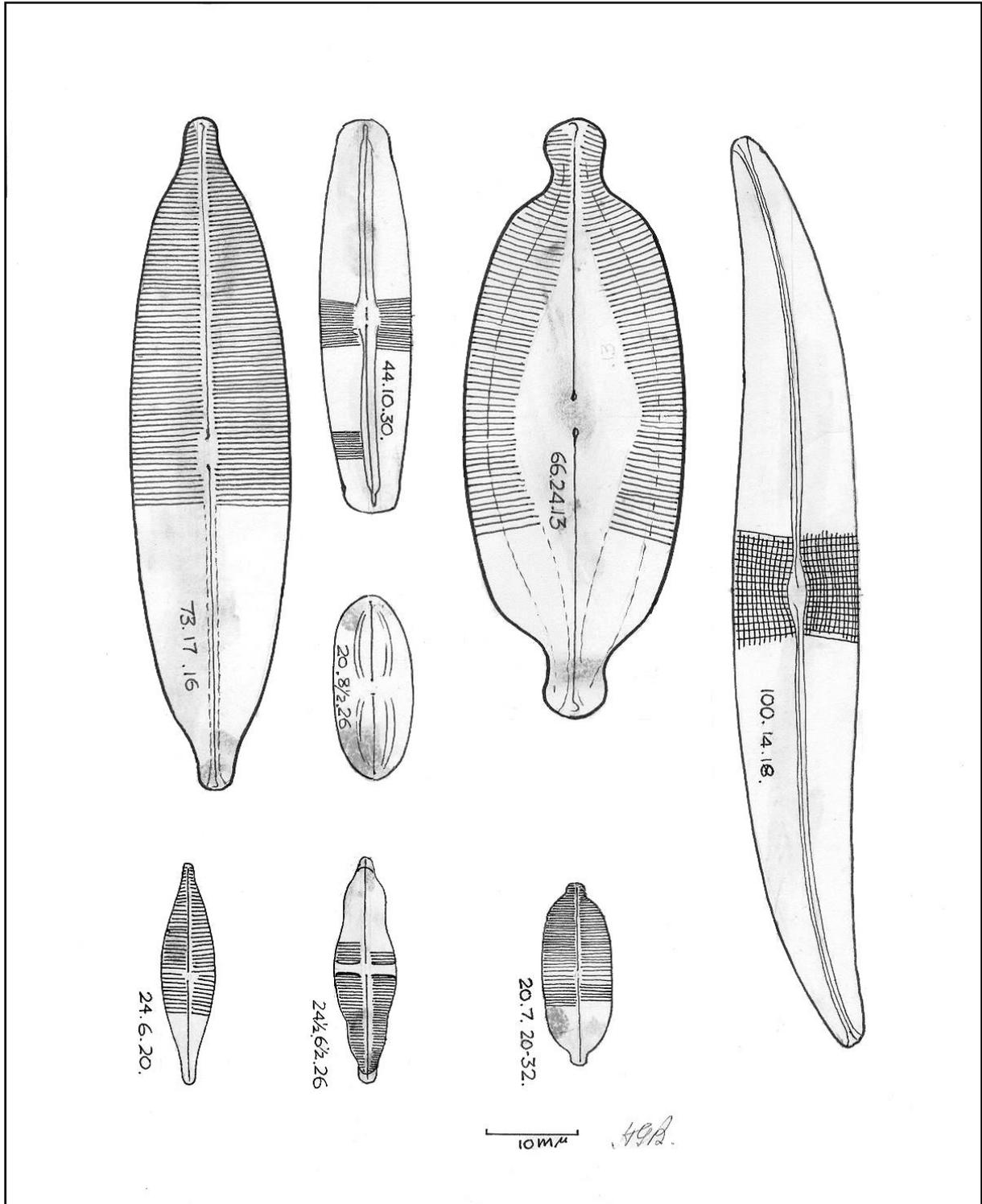
Figure/dimensions	Name
18μ diameter	<i>Melosira varians</i> C.Agardh
	A common species in the brook, favours slow waters and ditches. Can often be found in chains of joined frustules to 1mm long. The body does not exhibit any puncta or similar features. See also Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
14μ diameter	<i>Cyclotella Meneghiniana</i> Kützing
	Only one specimen found, possibly unsuitable water. See also Plate 6 Figure 28½ diameter
36μ diameter	<i>Stephanodiscus rotula</i> (Kützing) Hendey
	Here again, only one valve found, this is not surprising as the normal habitat is large standing waters such as lakes and reservoirs. Could be a bird introduction.
50.10.5	<i>Diatoma vulgare</i> var. <i>producta</i> Grunow
	See also Figure 50.10.6 & Plate 29 Figure 6
32.4.5	<i>Diatoma vulgare</i> var. <i>linearis</i> H.v.Huerck
34½.6.15	<i>Meridion circulare</i> C.Agardh
	Valvar and girdle views See also Plate 20 Figure 3 & 3B
133.5.12	<i>Synedra ulna</i> (Nitzsch) Ehrenberg
	I feel this form falls within the type cycle. <i>Synedra ulna</i> (Nitzsch) Ehrenberg, has many presentations and intermediates are complex. See also Figure 133.5.12 & Plate 29 Figure 11
100.6½.10	<i>Synedra ulna</i> (Nitzsch) Ehrenberg
	This form can be considered typical and is very prevalent in the stream. See also Figure 133.5.12 & Plate 29 Figure 11
15.5½.14	<i>Achnanthes lanceolata</i> (Brébisson) Grunow
	In this case I am using the name at present in use via classical literature. Eventually it is hoped to rename <i>Achnanthes sublanceolata</i> (Brebisson) Moller, to give due recognition to M. Moller's researches in connection with this taxon. See also Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
12.7½.25/30	<i>Cocconeis placentula</i> Ehrenberg
	See also Plate 7 & Plate 20 Figure 30
36.5½.10	<i>Rhoicosphenia</i> ( <i>Rhoicosigma</i> ?) <i>curvata</i> (Kützing) Grunow

Plate 1



## Plate 2 – Cosby (continued)

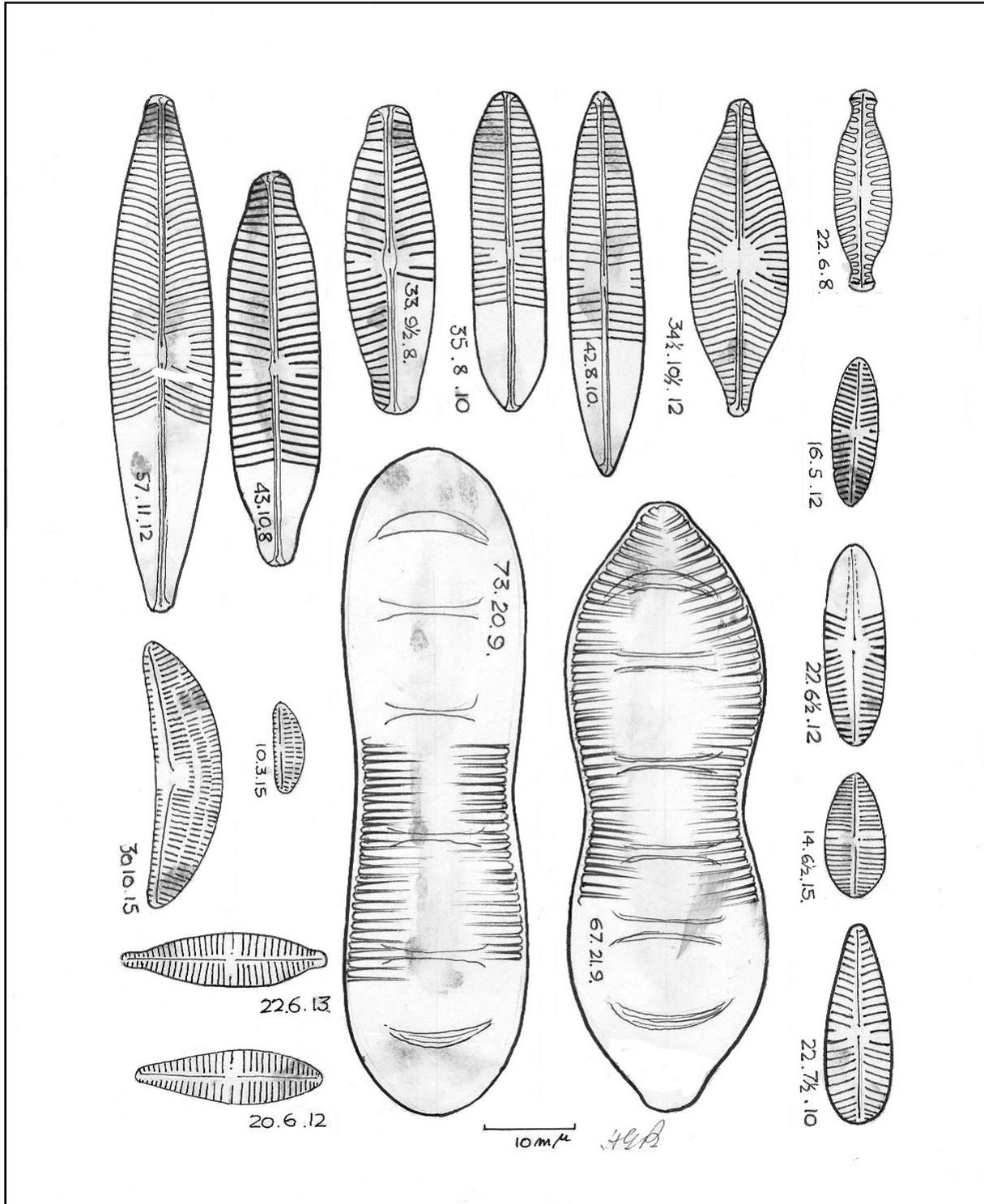
Figure/dimensions	Name
44.10.30	<i>Frustulia vulgaris</i> (Thwaites) DeToni
	See also Plate 29 Figure 22
100.14.18	<i>Gyrosigma Kutzingii</i> (Grunow) Cleve
66.24.13	<i>Caloneis amphisbaena</i> (Bory) Cleve
24½.6½.26	<i>Stauroneis Smithii</i> Grunow
24.6.20	<i>Navicula gregaria</i> Donkin
	This taxon is very common in the site, shews quite a degree of variation in outline, many of the forms having a closer length/breadth ratio than figured. Tolerates considerable pH range and water pollution.
73.17.16	<i>Navicula cuspidata</i> Kützing
	This form is intermediate between the type and variety <i>ambigua</i> (Ehrenberg) Cleve
20.7.20/30	<i>Navicula accomoda</i> Hustedt
20.8½.26	<i>Navicula pygmaea</i> Kützing



## Plate 3 – Cosby (continued)

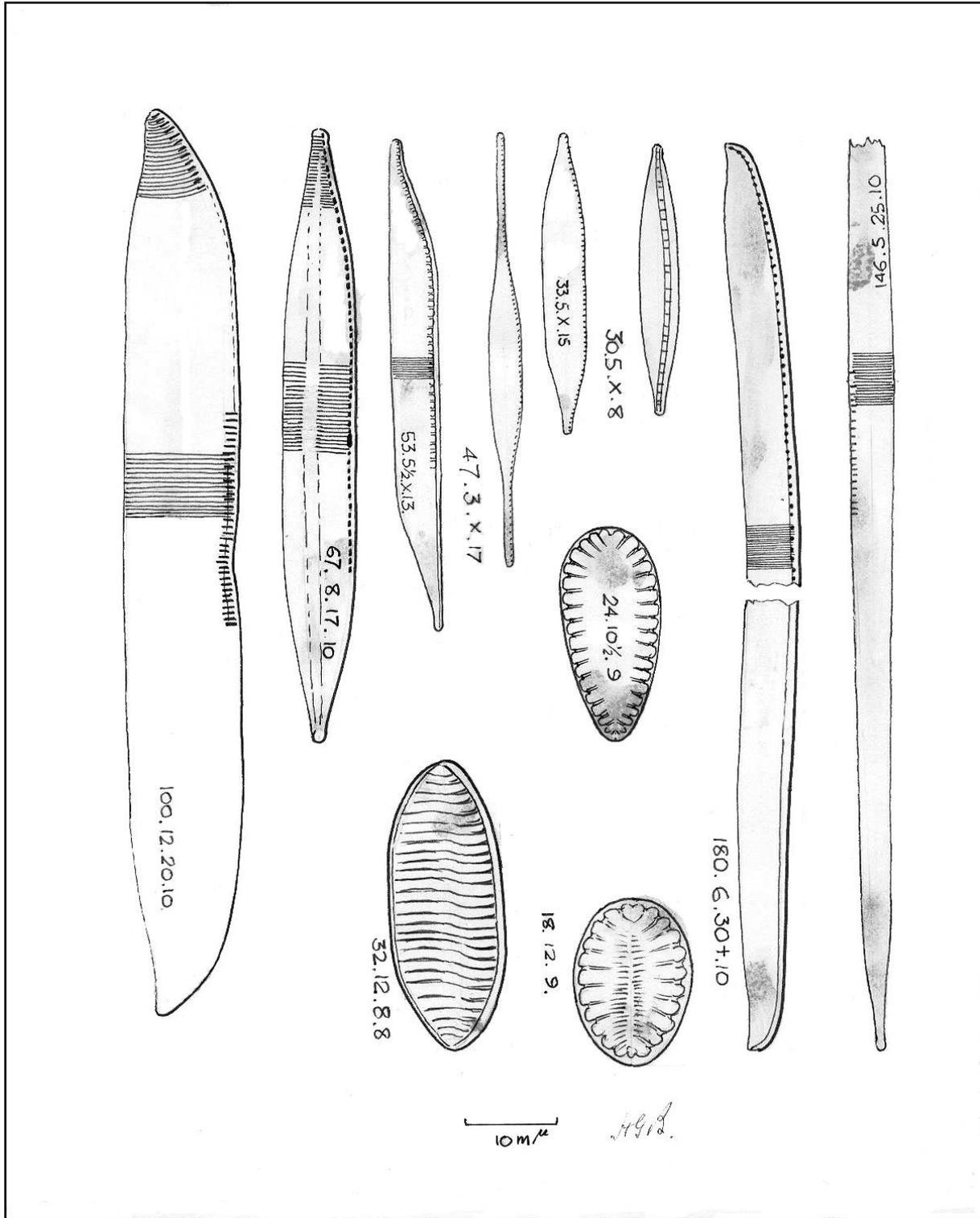
Figure/dimensions	Name
57.11.12	<i>Navicula avenaceae</i> Brébisson I consider this taxon to be of specific status and not a variety of <i>Navicula viridula</i> (Kützing) as is accepted by some diatomists.
33.9½.8 & 43.10.8	<i>Navicula sclesvicensis</i> (Grunow) Cleve Outlines variable as depicted. The same remarks apply to this plant as for 57.11.12
35.8.10	<i>Navicula gracilis</i> Ehrenberg This taxon varies in outline but this is the common outline.
42.8.10	<i>Navicula gracilis</i> Ehrenberg A variation to lanceolate form. See also Figure 42.8.10 & Plate 9 Figure 48.9½.9
34.10½.12	<i>Navicula salinarum</i> Grunow There are specimens of this taxon in the gatherings where the outline is obtuse, reduced to elliptic with very slight rostrate ends.
22.6.8	<i>Navicula Hungarica</i> var. <i>capitata</i> (Ehrenberg) Cleve See also Plate 20 Figure 13
16.5.12	<i>Navicula</i> sp. This is close to <i>Navicula cryptocephala</i> var. <i>veneta</i> (Kützing) Rabenhorst, for there are one or two features which are not acceptable to the characters of var. <i>veneta</i> . Stria at rather a low rate and end stria still radiate.
22.6½.12	<i>Navicula</i> sp. I am unable to say what this form is other than one of the lineate groups. The nearest I know of is <i>Navicula cincta</i> var. <i>heufleri</i> (Grunow) Grunow in H.v.Heurck, but the lineations (not depicted) are far too fine and the axial area too wide.
30.10.15	<i>Amphora ovalis</i> var. <i>libyca</i> (Ehrenberg) Cleve See also Plate 11 Figure 28.6½.12
10.3.15	<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
22.6.13	<i>Gomphonema angustatum</i> var. <i>producta</i> Grunow
20.6.12	<i>Gomphonema parvulum</i> (Kützing) Grunow I identify but with some doubts See also Plate 12 & Plate 29 Figure 25
14.6½.15	<i>Gomphonema parvulum</i> (Kützing) Grunow This could also be <i>Gomphonema olivaceoides</i> Hustedt, without the usual number of central area puncta, for it does occur where they are absent to varying degrees. See also Plate 12 & Plate 29 Figure 25
22.7½.10	<i>Gomphonema olivaceum</i> (Lyngbye) Kützing Note: For forms 73.20.9 and 67.21.9 See Plate 4 notes.
73.20.9	<i>Cymatopleura solea</i> (Brébisson) W.Smith The plant is very frequent in a gathering taken in May 1975 and shews a range of outline variation as depicted with intermediates present. See also Plate 29 Figure 8
67.21.9	<i>Cymatopleura solea</i> var. <i>apiculata</i> (W.Smith) Ralfs This comes within the classic description of var. <i>apiculata</i> but I have recorded forms with more apiculate ends as previously noted. There are many intermediates. I consider such cases should be relegated to forma status.

Plate 3



## Plate 4 – Cosby (continued)

Figure/dimensions	Name
100.12.20.10	<i>Nitzschia dubia</i> W.Smith
67.9.17.10	<i>Nitzschia Hungarica</i> Grunow See also Plate 20 Figure 29
53.5½.X.13	<i>Nitzschia</i> sp. This form is near to <i>Nitzschia clausii</i> Hantzsch, but I am reluctant to be sure about it. The stria and keel puncta are within features but there are other features, which are a problem.
47.3.X.17	<i>Nitzschia acicularis</i> (Kützing) W.Smith See also Plate 14 Figure 67.5.X.20
33.5.X.15	<i>Nitzschia palea</i> (Kützing) W.Smith See also Plate 5 Figure 48.4.X.15 & Plate 17 Figure 23/40.3½.X.12
30.5.X.8	<i>Nitzschia dissipata</i> (Kützing) Grunow See also Plate 13 Figure 14.4.X.7 & Figure 32.4.X.7
180.6.30+.10	<i>Nitzschia vermicularis</i> (Kützing) Grunow See also Plate 19 Figure 5/153.10.24.10 & Plate 29 Figure 10
146.5.25.10	<i>Nitzschia tenuis</i> (W.Smith) Grunow With the exception of the breadth of this form which should be about half the width, the rest of the features are quite acceptable
32.12.8.8	<i>Nitzschia tryblionella</i> var. <i>victoriae</i> Grunow See also Plate 14 Figure 46.19.X.9 & Figure 32.12.8.8
24.10½.9	<i>Surirella ovata</i> Kützing See also Figure 24.10½.9 & Figure 24/10½.60
18.12.9	<i>Surirella ovata</i> Kützing The central area of this taxon is subject to variation and the forms of this site are no exception. See also Figure 24.10½.9 & Figure 24/10½.60



## Railway Embankment Drain – Cosby 1969

This small temporary drain is situated at the rear of the houses of Chiltern Avenue. In February 1969 there was a fair amount of water passing and supporting rafts of algae. A handful produced a good amount of diatoms, principally of the genera *Stauroneis* and *Pinnularia*.

[Editor's Note: The railway embankment still exists though there are no rails and the trackway has become a walking route. (52.549055, -1.187414). The Great Central Railway, the last main line to be built from the north of England to London, opened on 15<sup>th</sup> March 1899 and ran past the east side of Cosby on an embankment. Although there was never a station at Cosby, this section of the line was well known for the lengthy curve which for northbound trains was to the right (east), after coming out of which the city of Leicester would be directly ahead and the route would be almost ruler straight all the rest of the way to the centre of the city, a distance of almost 5 miles (8km). Railwaymen referred to this curve as *Cosby Corner*. The line closed on 5<sup>th</sup> May 1969 (just a couple of months after Horace collected there); today the rear gardens of many adjacent homes have been extended up over the embankment.]

Note: There were two rather surprising finds i.e. *Pinnularia subnodosa* Hustedt, I had only previously recorded from Ambersham Common near the South Coast [West Sussex on River Rother, 2½ miles (4km) S.E. of Midhurst] and I think is a rare form for the British Isles. The other form was *Pinnularia suttuerii* previously recorded only from Linton Bog, Roxburgh, Scotland in deep sediment [The loch (Linton Loch), which has virtually disappeared as a result of the extensive drainage, was formerly fed by the River Kale. Some 1000 acres (404 hectares) of water and marsh, it dominated the area. The remains of its banks can be seen as terraces at mouth of the Kale valley leading up to Hownam. A paper - "The diatom assemblage of a marl core from Linton Loch - Mannion, A.M., Transactions - Botanical Society of Edinburgh. 1981. v. 43 (pt.4)" probably names the species in question.]. The form is apt to be confused with *Pinnularia major* (Kützing) Rabenhorst, but differs by having a more complex raphe system and narrower longitudinal bands. There were, of course, other taxa present and from the material I enumerate below:

**Railway Embankment drain.**

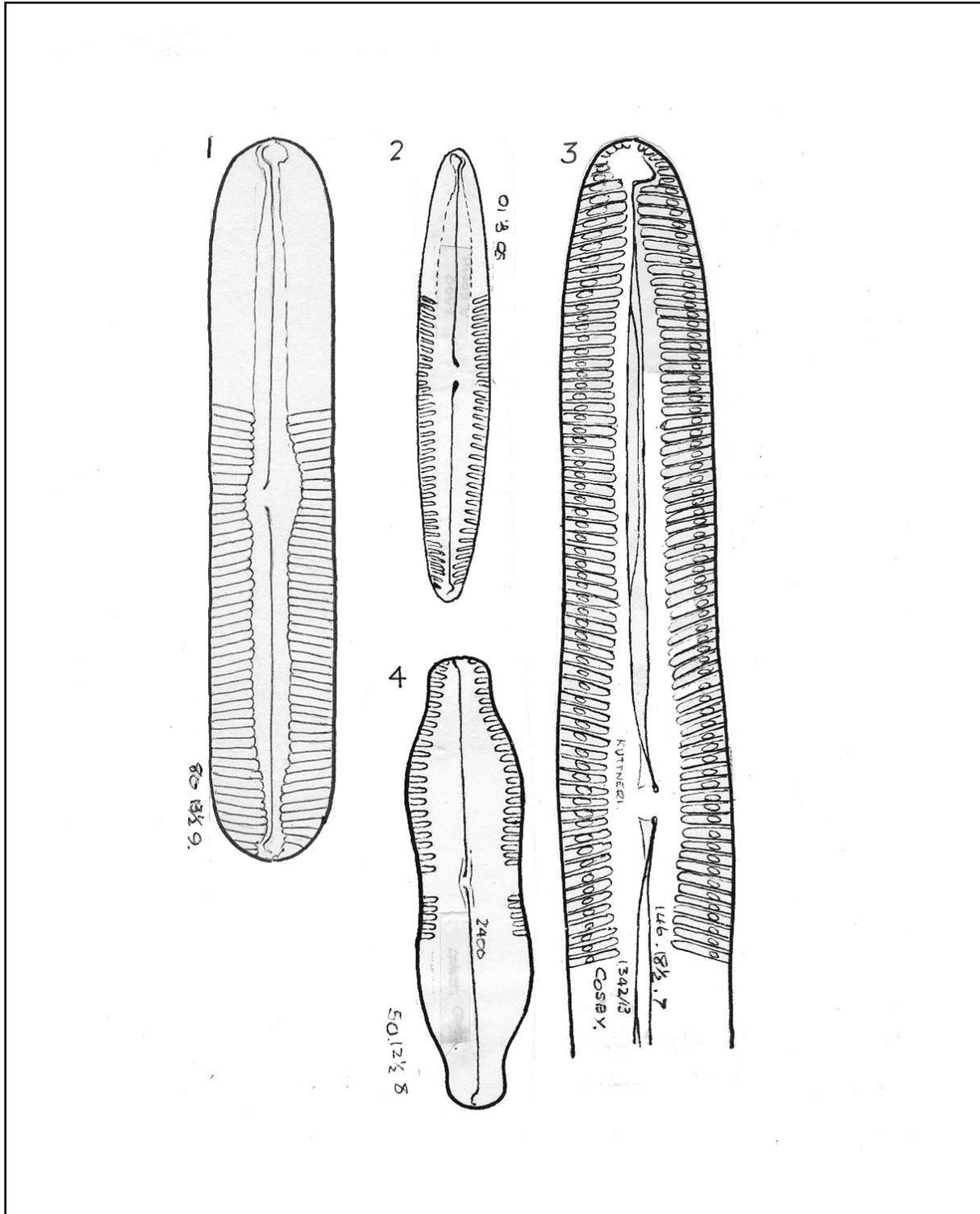
Species figured on Plates in other sections or not figured at all.

Name
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6%.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Eunotia pectinalis</i> fa.
See Plate 23 Figure 6
<i>Stauroneis phoenicentron</i> (Nitzsch) Ehrenberg
Plate 8 Figure 86%.16.16 & Plate 16 Figure 11/134.26.18 & Plate 20 Figure 24
<i>Gyrosigma Kutzingii</i> (Grunow) Cleve
See Plate 2 Figure 100.14.18
<i>Caloneis ventricosa</i> (Ehrenberg) F.Meister
See Plate 8 Figure 50.13%.16
<i>Navicula cryptocephala</i> Kützing
See Plate 5 Figure 33.10.15 & Figure 44.10.15 & Plate 20 Figure 14
<i>Navicula cryptocephala</i> var. <i>veneta</i> (Kützing) Rabenhorst
See Plate 3 & Plate 8 Figure 13%.4.15
<i>Navicula gregaria</i> Donkin
See Plate 2 Figure 24.6.20
<i>Pinnularia nodosa</i> (Ehrenberg) W.Smith
See Plate 24
<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
See Plate 10 Figure 100.26%.7 & Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6 & Plate 29 Figure 18
<i>Pinnularia viridis</i> var.
See Plate 12
See also Plate 21 Figure 7
<i>Pinnularia major</i> (Kützing) Rabenhorst
See Plate 10 Figure 166.30.6% & Plate 20 Figure 1
<i>Pinnularia microstauron</i> var. <i>Brebissonii</i> (Kützing) Hustedt
See Plate 24 Figure 3 & Figure 4
<i>Amphora ovalis</i> (Kützing) Kützing
See Plate 11 Figure 37.10%.12 & Plate 20 Figure 8
<i>Amphora ovalis</i> var. <i>libyca</i> (Ehrenberg) Cleve
See Plate 3 Figure 30.10.15 & Plate 11 Figure 28.6%.12
<i>Gomphonema sarcophagus</i> Gregory
See Plate 3
<i>Cymatopleura solea</i> var. <i>apiculata</i> (W.Smith) Ralfs
See Plate 3 Figure 67.21.9
<i>Nitzschia amphioxys</i> (Ehrenberg) W.Smith
See Plate 4 & Plate 14 Figure 63.8.16.7 & Plate 24 Figure 10/83.8.16.8 & Plate 26 Figure 4
<i>Nitzschia apiculata</i> (W.Gregory) Grunow
See Plate 13 Figure 33.6.20.20
<i>Surirella ovalis</i> Brébisson
See Plate 20 Figure 11 & 12 & Plate 25 Figure 1/71.35.57 & Figure 2/90.29.60
<i>Surirella ovata</i> Kützing
See Plate 4 Figure 18.12.9 & Figure 24.10%.50 in 100 $\mu$ & Figure 24.10%.9 & Figure 24/10%.60
<i>Surirella ovata</i> var. <i>angustata</i>
See Plate 15

**Plate 4A – Railway Embankment drain**

<b>Figure/dimensions</b>	<b>Name</b>
<b>1/80.13½.9</b>	<i>Pinnularia rupestris</i> Hantzsch?
<b>4/50.12½.8</b>	<i>Pinnularia subnodosa</i> Hustedt
<b>3/146.18½.7</b>	<i>Pinnularia ruttneri</i> Hustedt
<b>2/50.8.10</b>	<i>Pinnularia viridis</i> var. <i>sudetica</i> (Hilse) Hustedt?

## Plate 4A



So far as the species I have queried, these forms of the so-called "viridis group" I can say that *Pinnularia rupestris* Hantzsch in Rabenhorst, and *Pinnularia viridis* var. *sudetica* (Hilse) Hustedt, are close, but having examined both type slides of the British Museum can state they are not typical.

The whole group of forms comprising *viridis* and varieties per literature is most unsatisfactory and most diverse views prevail as to particular identification.

# Additions to the Diatom Flora of Cosby Brook in the Village of Cosby, Leicestershire 1976

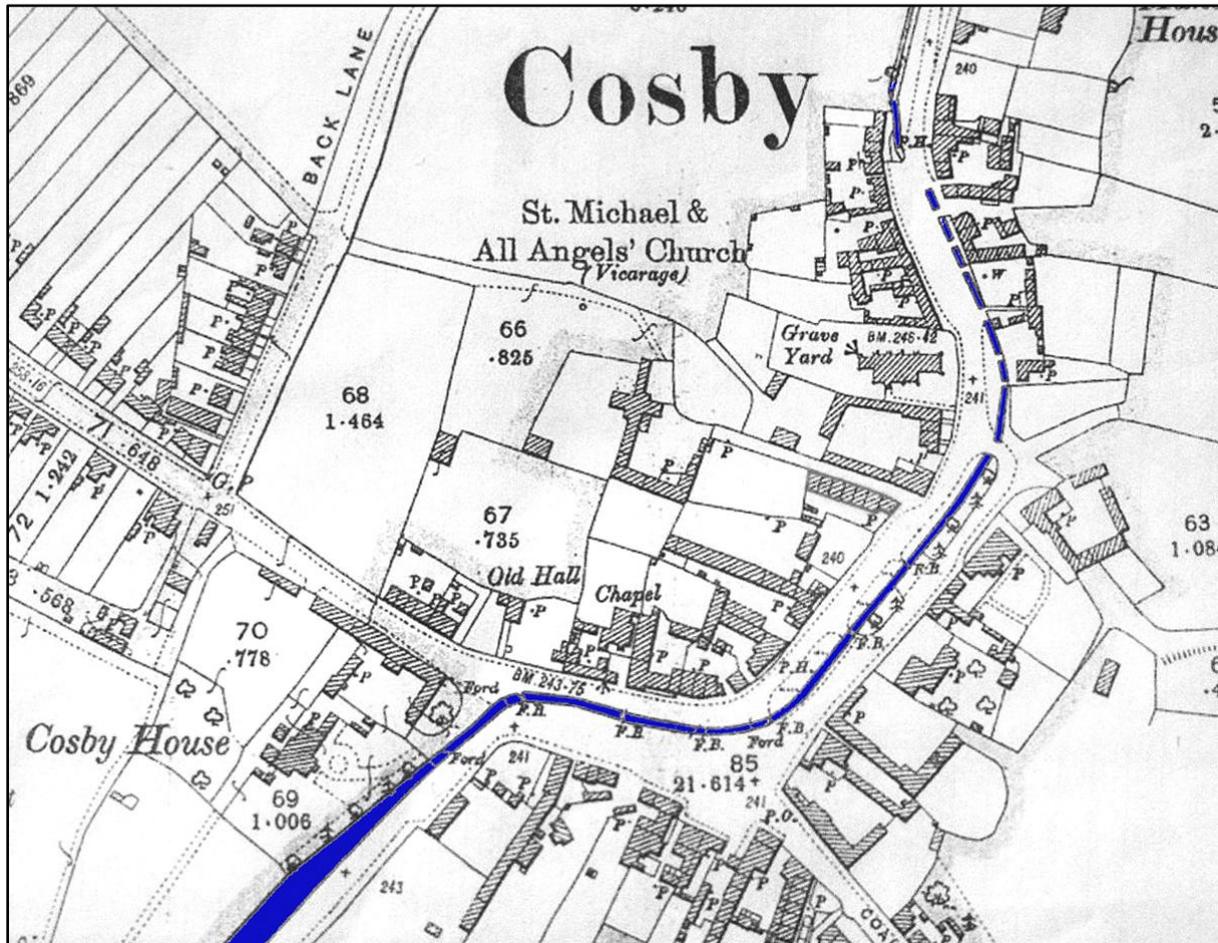
During the latter part of May 1976 further gatherings were made at two points within the confines of the village:

1. By the ford near the Bull's Head Hotel [Editor's Note: The Bull's Head public house is still in the village.]



2. At the footpath bridge to the playing fields, Narborough Road. [Editor's Note: This location still exists @ 52.553443,-1.195359]





The course of Cosby Brook through Cosby village

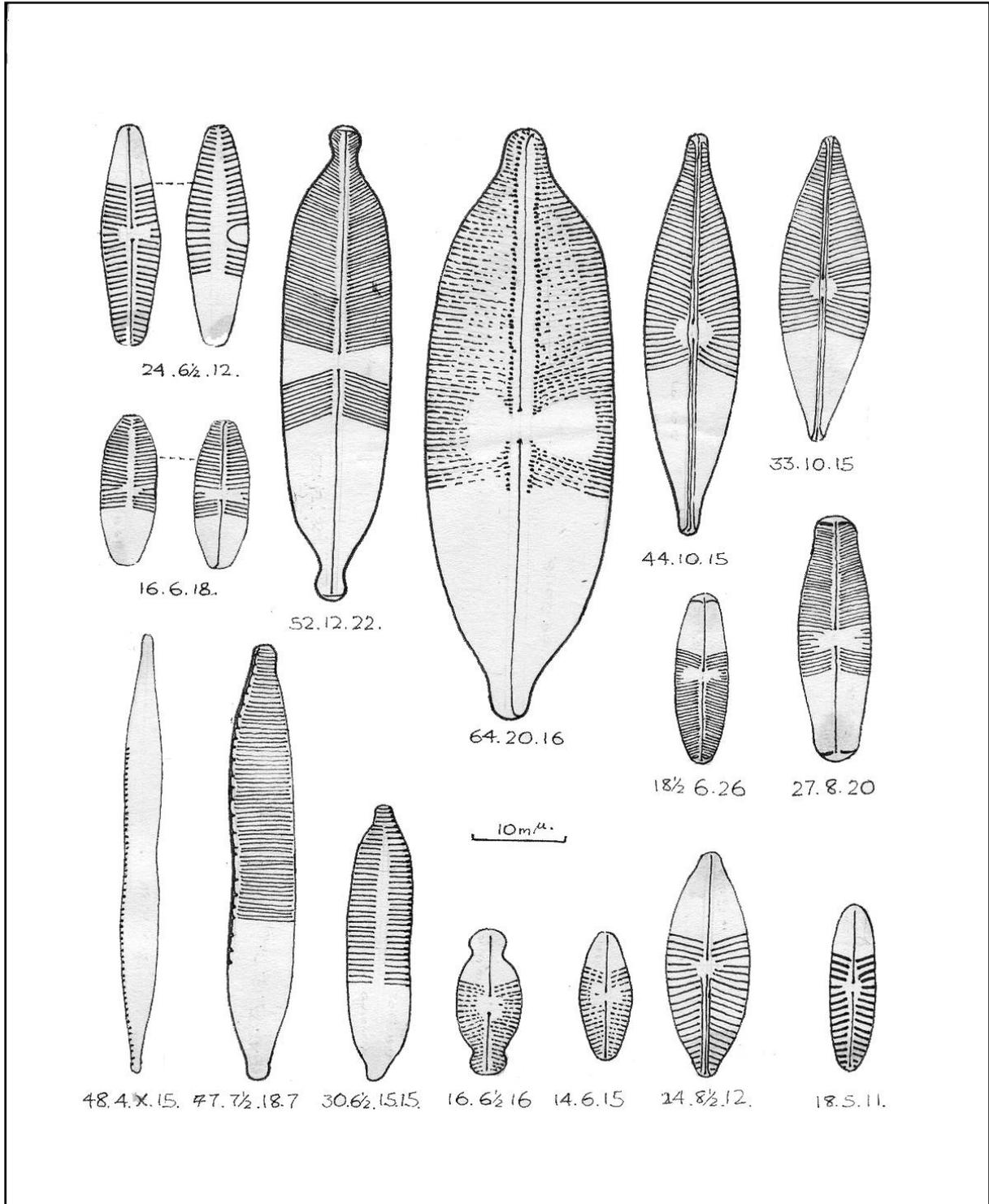
The brook on this occasion had a very small amount of flow due to a low rainfall. The main constituents of the flora had appreciably altered in consequence. There was a noticeable lack of the taxon *Synedra*, a previously dominant form and on this occasion only one specimen was noted. The particular species of *Synedra* is unable to tolerate oxygen deficient waters, also a high nitrogenous content.

In contrast to the above feature, *Nitzschia palea* (Kützing) W. Smith, a taxon thriving in sewage polluted water and lacking oxygen, constituted about 99% of the flora at site No. 2. At site No. 1 things were somewhat better.

About a month previous I had observed the brook's flow below the Church was practically all of sewage, due, I understand, to a fractured foul water drain, consequently I refrained from making any collections. This would have a great bearing on the flora and fauna of the water. I do not think the stream has yet recovered and will not possibly do so until flushed by heavy rains.

## Plate 5 – Cosby (additional species – May 1976)

Figure/dimensions	Name
24.6½.12	<i>Achnanthes lanceolata</i> (Brébisson) Grunow
	The type form with simple horseshoe mark – see Plate 1 Fig.15.5½.14, remarks. Rare in gathering 1. See also Plate 1 Figure 15.5½.14 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
16.6.18	<i>Achnanthes Hungarica</i> Grunow
	Rare in gathering. See also Plate 7 Figure 27.6.18 & Plate 24 Figure 16
52.12.22	<i>Stauroneis anceps</i> fa. <i>linearis</i> (Ehrenberg) Cleve
	Only 1 form noted (in gathering 1)
64.20.16	<i>Anomoeoneis sphaerophora</i> (Kützing) Pfitzer
	Quite frequent in gathering No.1. Not strictly to type for lateral areas but other features fit. Very close to var. <i>Guntheri</i> O.Mull
44.10.15	<i>Navicula cryptocephala</i> Kützing
	See also Plate 20 Figure 14
33.10.15	<i>Navicula cryptocephala</i> Kützing
	The taxon shows a degree of variation in outline from those with produced ends to others barely possessing the feature. Reasonably frequent in gathering No.1 and good specimens too. See also Plate 20 Figure 14
27.8.20	<i>Navicula pupula</i> Kützing
	One form only noted. See also Plate 29 Figure 31
18½.6.16	<i>Navicula pupula</i> var. <i>elliptica</i> Hustedt
16.6½.16	<i>Navicula neoventricosa</i> Hustedt
	One only seen in gathering No.1.
14.6.15	<i>Navicula mutica</i> Kützing
	One only seen in gathering No.1. See also Plate 20 Figure 17
24.8½.12	<i>Navicula anglica</i> Ralfs
	A few specimens in gathering No.1. See also Plate 8 Figure 14.6½.12
18.5.11	<i>Navicula umida</i> Bock
	This was rather an unusual find for I had only previously known one site in North Warwickshire where the form occurs. One specimen only observed in gathering No.1.
48.4.X.15	<i>Nitzschia palea</i> (Kützing) W.Smith.
	I have previously recorded this taxon on plate 4. But decided to depict here a form longer than general and which shows the central slight constriction, typical, not usually noted in literature. The May 1976 gatherings as noted in the opening remarks contained <i>Nitzschia palea</i> (Kützing) W.Smith, in profusion. Consequently one was able to see the limits to which the plant can vary, according to the habitat. See also Plate 4 Figure 33.5.X.15 & Plate 17 Figure 23/40.3½.X.12



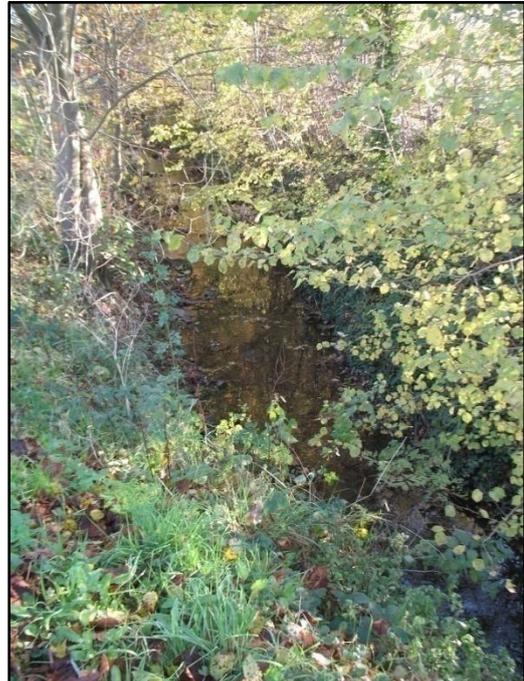
**A Record of Diatoms from Cosby Brook at the footbridge  
from Narborough Road to the playing fields.  
Opposite to 'Rosedene' (No.1) Narborough Road.  
May 1980.**

During the last week of May 1980 I took a gathering of diatoms as they were profuse amongst the rafts of algae lining the brook bottom and floating on the surface. I made the collection with a view to seeing what change there was in the flora of June 1975. It was obvious to me it would not at this site be the same as for May 1976 when at this point the brook was badly polluted by sewage. The balance of the flora had changed from June 1975 when the most dominant species were the *Synedra*, mostly *ulna* (Nitzsch) Ehrenberg, and its forms but in May 1980 *Navicula avenacea* (Rabenhorst) Brébisson ex Grunow in Schneider, was profuse.

Diatoms have their bloom periods during the year and under normal conditions the response is of a similar time each year. If one had the time and facilities it would be most interesting to take gatherings weekly from the same point for a period of one or two years.

I think the May 1980 flora could have been influenced by the previous dry period, the flow of water low and in consequence various species responding to the change in chemical balance of the water. But I have no proof, just assumption, gained by experience.

For illustrations to the records see appropriate plate and figure number/dimensions.



## List of species recorded for Cosby - May 1980

Name
<i>Melosira varians</i> C.Agardh
A few forms present See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Thalassiosira fluviatilis</i> Hustedt
I had not previously recorded this taxon in the brook but it was now present in quantity. The only other point recorded was for the River Sence and then only infrequent. See Plate 6 Figure 20 diameter
<i>Diatoma vulgare</i> var. <i>producta</i> Grunow
Few See Plate 1 Figure 50.10.5 & Figure 50.10.6 & Plate 29 Figure 6
<i>Synedra ulna</i> (Nitz.) Ehrenberg
Very Frequent See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Cyclotella Meneghiniana</i> Kützing
Few See Plate 1 Figure 14µ diameter & Plate 6 Figure 28½ diameter
<i>Meridion circulare</i> C.Agardh
Few See Plate 1 Figure 34½.6.15 & Plate 20 Figure 3 & 3B
<i>Rhoicosigma curvata</i> (Kützing) Grunow
Few See Plate 1 Figure 36.5½.10
<i>Cocconeis placentula</i> (Ehrenberg) Hustedt
Few See Plate 1 Figure 12.7½.25/30 & Plate 7 & Plate 20 Figure 30
<i>Achnanthes lanceolata</i> Brébisson
Few See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Achnanthes Hungarica</i> Grunow
Few See Plate 5 Figure 16.6.18 & Plate 7 Figure 27.6.18 & Plate 24 Figure 16
<i>Stauroneis Smithii</i> Grunow
One See Plate 2 Figure 24½.6½.26
<i>Frustulia Kützingii</i> (Grunow) Cleve
Frequent See Plate 2 Figure 100.14.18
<i>Frustulia vulgaris</i> Thwaites
Few Plate 2 Figure 44.10.30 & Plate 29 Figure 22
<i>Caloneis amphisbaena</i> (Bory) Cleve
Few See Plate 2 Figure 66.24.13
<i>Navicula avenaceae</i> (Brébisson) Grunow
This taxon was the most frequent and constituted about 80% of the flora. See Plate 3 Figure 57.11.12
<i>Navicula gracilis</i> Ehrenberg
Frequent See Plate 3 Figure 35.8.10 & Figure 42.8.10 & Plate 9 Figure 48.9½.9

## List of species recorded for Cosby - May 1980 (continued)

Name
<i>Navicula gregaria</i> Donkin
Frequent See Plate 2 Figure 24.6.20
<i>Navicula sclesvicensis</i> (Grunow) Cleve
Few Plate 3 Figure 33.9½.8 & Figure 43.10.8
<i>Navicula salinarum</i> Grunow
Frequent See Plate 3 Figure 34½.10½.12
<i>Navicula cuspidata</i> Kützing
One or two See Plate 2 Figure 73.17.16
<i>Navicula rhyncocephala</i> Kützing
One or two See Plate 9 Figure 38.11.10 & Plate 20 Figure 21 & Plate 29 Figure 30
<i>Navicula radiosa</i> Kützing
See Plate 9 Figure 86.12.11 & Plate 29 Figure 17
<i>Pinnularia borealis</i> Ehrenberg
One See Plate 18 Figure 15
<i>Pinnularia Brebissonii</i> (Kützing) Hustedt
One The site is not favourable to the genus <i>Pinnularia</i> . The water needs to be cleaner and of an acid nature.
<i>Gomphonema angustatum</i> var. <i>producta</i> Grunow
Few See Plate 3 Figure 22.6.13
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith
One See Plate 12 Figure 40.12.10
<i>Cymatopleura solea</i> (Brébisson) W.Smith
Frequent See Plate 3 Figure 67.21.9 & Figure 73.20.9 & Plate 29 Figure 8
<i>Cymatopleura solea</i> var. <i>gracilis</i> Grunow
Frequent Both the type and variety are frequent in the gatherings and intergrade so that the status of var. <i>gracilis</i> Grunow, is questionable. Generally the taxa are more separate. See Plate 14 Figure 200.33
<i>Nitzschia amphioxys</i> (Ehrenberg) Grunow
One or two See Plate 4 & Plate 14 Figure 63.8.16.7 & Plate 24 Figure 10/83.8.16.8 & Plate 26 Figure 4
<i>Nitzschia dissipata</i> (Kützing) Grunow
One of two See Plate 4 Figure 30.5.X.8 & Plate 13 Figure 14.4.X.7 & Figure 32.4.X.7
<i>Nitzschia palea</i> (Kützing) W.Smith
One or two See Plate 4 Figure 33.5.X.15 & Plate 5 Figure 48.4.X.15 & Plate 17 Figure 23/40.3½.X.12
<i>Nitzschia linearis</i> W.Smith
Frequent      See Plate 13 Figure 100.5.28.9

## List of species recorded for Cosby - May 1980 (continued)

Name
<i>Nitzschia apiculata</i> (Greg.) Grunow
Few See Plate 13 Figure 33.6.20.20
<i>Nitzschia tryblionella</i> var. <i>debilis</i> A.Mayer
One or two See Plate 14 Figure 140.24.X.6 & Plate 20 Figure 4 & Plate 28 Figure 4/93.24.6.7
<i>Nitzschia sigmoidea</i> (Ehrenberg) W.Smith
Frequent See Plate 4 Figure 180.6.30+.10 & Plate 13 Figure 330.10.27.5/6 & Plate 20 Figure 2
<i>Nitzschia acicularis</i> W.Smith
This and one or two other numbers of the genus were more frequent prior to cleaning but on account of the amount of gravitation and washing needed for a reasonably clean slide some were undoubtedly lost. See Plate 4 Figure 47.3.X.17 & Plate 14 Figure 67.5.X.20
<i>Nitzschia</i> ? <i>ignorata</i> Krasske
Although the form's dimensions and striae rates together with the keel punctae rates also fall within the classic dimensions. I am not confident of the identification.
<i>Nitzschia Hungarica</i> Grunow
Few See Plate 4 Figure 67.8.17.10 & Plate 20 Figure 29
<i>Nitzschia gracile</i> ( <i>Nitzschia gracilis</i> ?)
Few
<i>Nitzschia</i> ?sp.
Frequent See Plate 19 Figure 160.4.X.14
<i>Surirella ovata</i> Kützing
Very frequent See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60
<i>Surirella angustata</i> Kützing
Frequent See Plate 15 Figure 37.9½.60 in 100µ & Plate 29 Figure 23

## Additions to Cosby – May 1980-(not in taxonomical order)

Name
<i>Navicula mutica</i> Kützing
Two seen See Plate 5 Figure 14.6.15 & Plate 20 Figure 17
<i>Gomphonema olivaceum</i> (Lyngbye) Kützing
Few See Plate 3 Figure 22.7½.10
<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck
One seen See Plate 6 Figure 14.4.15 & Figure 6.4.15
<i>Navicula cryptocephala</i> Kützing
One or two Plate 5 Figure 33.10.15 & Figure 44.10.15 & Plate 20 Figure 14
<i>Caloneis ventricosa</i> Ehrenberg
One seen See Plate 8 Figure 50.13½.16
<i>Amphora ovalis</i> var. <i>libyca</i> (Ehrenberg) Cleve
One seen See Plate 3 Figure 30.10.15 & Plate 11 Figure 28.6½.12
<i>Surirella ovalis</i> Brébisson
Two seen See Plate 20 Figure 11 & 12 & Plate 25 Figure 1/71.35.57 & Figure 2/90.29.60
<i>Surirella ovata</i> Kützing
Very frequent The taxon <i>Surirella ovata</i> Kützing, is subject to considerable variation and often particular sites have their forms, slight differences. The same applies to <i>Surirella ovalis</i> Brébisson. The genus as a rule suffers and is often difficult to diagnose particular species. Only a few are really stable in all respects. The marine section of the group contains species which are exasperatingly fluid so that it becomes a personal opinion for identification. Although there are typical forms of <i>Surirella ovata</i> Kützing, very frequently present there are also forms which run to var. <i>pinnata</i> (W.Smith) Brun, and <i>Surirella angustata</i> Kützing, and even to var. <i>salina</i> (W.Smith) Rabenhorst. The taxonomy is in need of revision. See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60



June 1980.

# An Illustrated Account of the Diatom Flora of certain Sites in the County of Leicestershire

By

H. G. Barber 1976

Nuneaton

## Various Leicestershire Sites

Further to the account of Cosby Brook diatom flora, the following is an illustrated list compiled from my gathered materials so far as some other sites within the County of Leicestershire. It must, of course, be clearly understood there are many more sites but I do not have material from these.

It must not be assumed the records give a total flora for I am confident further gatherings and differing seasons could increase the existing records.

The nomenclature of species etc. is not in alphabetical order but I have arranged the genera in the generally accepted taxonomic order.

Along with each species I have noted by key numbers whether the taxon is present.

The numbers on or beneath each illustration is the usual length, breadth and stria rate per 10 $\mu$ . This gives immediate reference instead of consecutive numbering per plate.

So far as the naming of species etc., I have not entered into the question of synonyms but used accepted nomenclature; neither have I illustrated the outline of specie variants otherwise the account would be much larger.

Plates 1-5 are to be found in the Cosby Brook account.

## Key to Site Numbers from which Records were made.

### Site 5: Roadside ditch near Fenny Drayton

The following text is the description given in 'The Diatom Flora of Nuneaton and some Outlying Districts' by Horace G. Barber:

"This site was an old roadside ditch which had been cleaned out some few days prior to my visit. As a result of this cleaning operation the plants had certainly thrived on the enriched water now flowing and everything in the ditch and surface of the water was coated heavily with diatoms (*Navicula viridula* var. *arenacea*)"

[Editor's Note: Probably at the side of the A444. The only spot along the A444 that is frequently cleared out is just passed the Fenny Drayton turn. The deep ditch is on the right hand side of the road.]



**Site 6: River Sence – near Twycross**

[Editor's Note: The River Sence proper doesn't actually go through Twycross itself though there are a number of small brooks that are tributaries of the same. This site is likely to be the River Sence where it crosses the A444 near Gibbett Lane.(52.624701, -1.482511) some 3 miles (4.8km) from Twycross village.]



**Site 7: Pool, Melbourne H. – Note: on border of County under note.**

Editor's Notes:

Melbourne Hall - Pool  
[52.819415,-1.424146]

The Hall is situated in Church Square, Melbourne, Derbyshire DE73 8EN. Melbourne is 8 miles (13km) south of Derby and 4 miles (6.5km) from East Midlands Airport. Take Junction 24 off the M1 and follow the signs for the airport, Isley Walton and Melbourne

From the A42, come off at Ashby-de-la-Zouch, follow the signs to East Midlands Airport, then turn left at Lount crossroads towards Melbourne.

From Derby Bus station take bus No: 61 to Swadlincote, getting off at Melbourne Market Place or Church Square

The home of Lord and Lady Ralph Kerr

*"Melbourne Hall was, and mercifully is, one of the most exquisite of the smaller stately homes of England, while the formal gardens... are as close to perfection as any in the country..." - Philip Ziegler*



*“Melbourne Hall stands in an idyllic setting at the east end of the village overlooking the 20 acre mill pool. Passers-by get little more than a fleeting glimpse, because its principal aspects are south and east towards the parkland and gardens, while the courtyards and outbuildings separate it from the village to the north and west.*

*The house has a chequered and unusually well-documented history, and all centuries from the 16th to the 20th have left their mark on the fabric. This combined with the fact that Melbourne remains a lived-in family home, accounts for its warm, welcoming and comfortable atmosphere.”*

It is now the home of Lord and Lady Ralph Kerr.

Melbourne Hall and Gardens Opening hours (as at 2013) - House Opening: During August visits to Melbourne Hall are by guided tour only Tuesday-Saturday (Hall closed first 3 Mondays in August) and start from the front entrance every half hour from 2:15 - 4:15pm. No guided tours in the Hall on Sundays or Bank Holiday Mondays. During this time the Gardens are open between 1:30 - 5:30pm. Garden Visits: The Gardens are open on Wednesdays, Saturdays, Sundays and Bank Holiday Mondays during the months of April to September inclusive. Visiting times: 1:30 - 5:30pm. Also open whenever the Hall is open during August.

The pool as well as being an ornamental lake was a mill-pond.

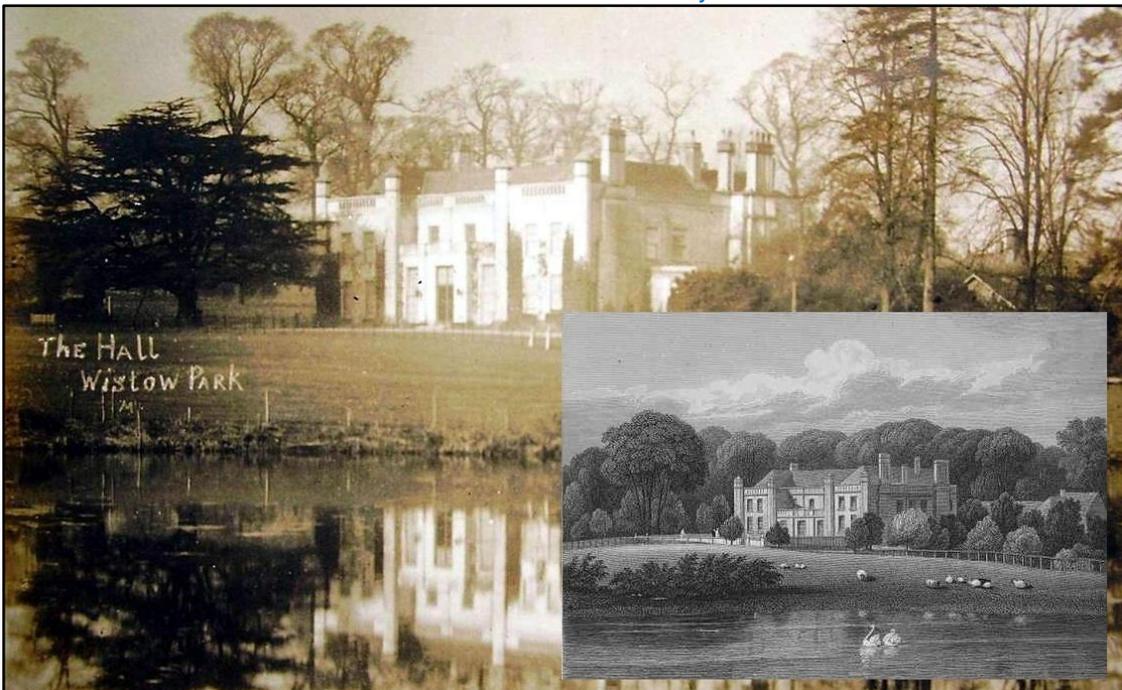


### Site 8: Wistow Hall. Pool

Editor's Notes:

[52.556707,-1.05252]

Wistow lies seven miles south-east of Leicester in the valley of the River Sence.





Site 9: Stream to reservoir – Bradgate Park



BRADGATE PARK TRUST  
(A Registered Charity)  
V.A.T Reg No. 928 1739 48  
Place Ticket on dashboard this side up  
4:12 24 NOV 13  
01 £ 3.00  
PARK CLOSURE AT DUSK  
131124

BRADGATE COUNTRY PARK  
REFRESHMENTS AVAILABLE AT  
Bradgate Country Park Shop  
and TEA ROOM  
Full Kitchen (self-serve)  
ALSO GIFTS, SOUVENIRS,  
PUBLICATIONS & INFORMATION  
ALSO AT  
DEER BARN TEA ROOM  
(in centre of Park)  
VISITOR CENTRE  
next to Deer Barn Tea Room  
Car Park Season Tickets  
Write Exceptional Value for Regular Visitors  
at Home Shop, Visitor Centre or Estate Office  
Tel. 0116 236 2713

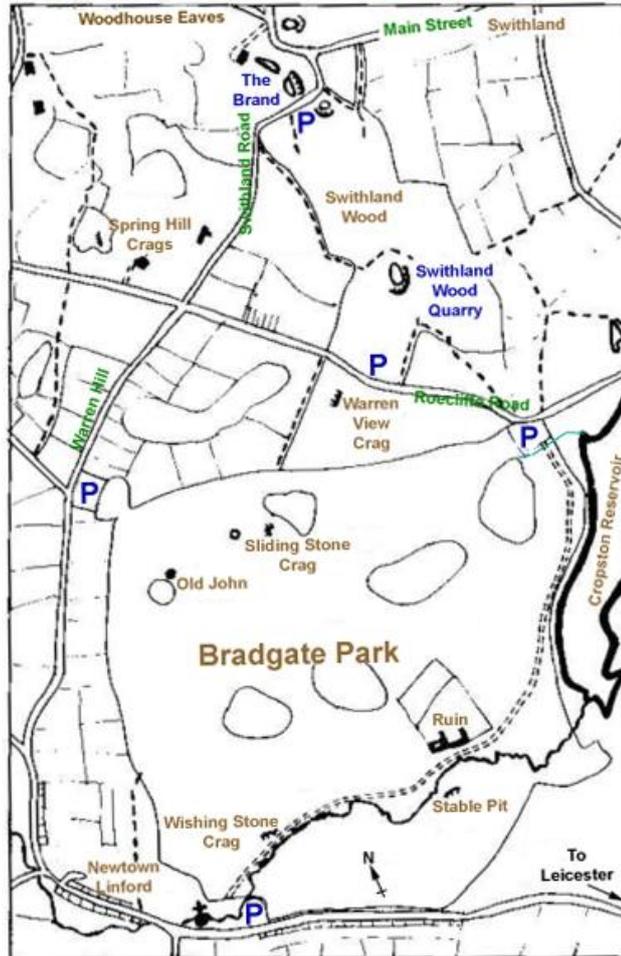
Editor's Notes:

The reservoir in question is Cropston Reservoir @ 52.695399,-1.188326

The stream is either that entering the reservoir on its southern end @ 52.685417,-1.203368 or the one immediately adjacent to the Cropston Reservoir Car Park off Roecliffe Road. This latter stream (pictured left) looks most favourable for diatom sampling as it comprises a series of small falls.



*Cropston Reservoir from Bradgate Park*



**Site 11: Thornton Reservoir**

[52.664255,-1.302395]

Editor's Notes: Thornton Reservoir, Reservoir Road, Thornton, Leicestershire, LE67 1AR

The site is open every day from dawn until dusk apart from Christmas Day.



**Site 12: Groby Pool**

Editor's Notes:

[52.669174,-1.230726]

Grid ref: SK 521 082 (OS Landranger 140)

Groby Pool is situated on the southern edge of Charnwood Forest and is reputedly the largest natural expanse of open water in Leicestershire, covering 38 acres (15 hectares). Groby Pool and the surrounding area are of great ecological importance and contain a wide range of plants and animals. In recognition of this, the area was notified as a Site of Special Scientific Interest in 1956.

The pool is some 4 miles (6.4km) north-west of Leicester, just north of the A50. Leave the A50 at the junction with the A46, and follow the road into Groby. Turn right after about a mile (1.6km), just before the fish and chip shop. The car park (free) is on the left after about a ¼ mile (0.4km), then walk about 200 yards (183 metres) to the pool. Break-ins can be a problem at this site, so do not leave valuables on show. There is access to the eastern side of the pool, and a footpath runs around the northern side.



**Site 13: Mill Pool – Sheepy Mill**

The following text (and Editor's Notes) is the description given in 'The Diatom Flora of Nuneaton and some Outlying Districts' by Horace G. Barber:

This is of course the River Anker impounded at Sheepy Mill and dredging and reed squeezes resulted in good collections being made. It is notable that 2 of the prolific forms are *Amphora ovalis* and *Caloneis amphisbaena*. The latter I've not usually found in such a site.

[Editor's Note: This site possibly refers to the mill on Sheepy Road/Atherstone Road (B4116) receiving its water from the River Anker. Not to be confused with the mill pool at Sheepy Magna that receives its water from the River Sence. However, the aforementioned mill was called Alder Mill [52.591213,-1.547356] and the latter WAS known as Sheepy Mill. The Sheepy Mill site is now an exclusive residential development and access to the original mill pond is not possible. This location [52.610078,-1.515512] seems the most likely despite the source being the Sence rather than the Anker. A large fishing lake [52.609384,-1.515276] now exists across the road and possibly contains similar species.]



Sheepy Lake



*Alder Mill Pool*

**Site 15: River Sence.**

[Editor's Note: There is no indication as to where along the course of the River Sence this site is.]

(Horace's note to self: see also Cosby Brook Slide 2511)

*Thalassiosira fluviatilis* Hustedt, quite frequent.

**Site 16: Saddington Reservoir – overflow**



Editor's Notes:

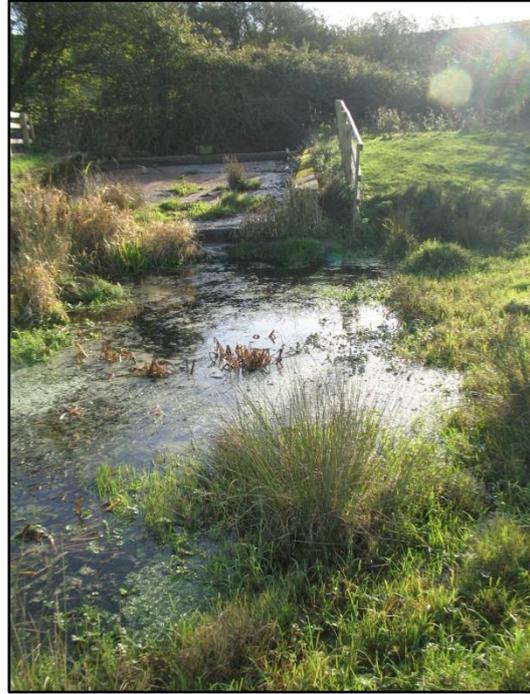
Constructed in 1802 to feed the Grand Union Canal. The second oldest reservoir in the County. Now an SSSI. About ½mile (0.8km) south-south-west of Saddington (1.1 miles (1.8km) by road – Main Street to Mowsley Road)

Ordnance Survey Sheet 141. SP 664911

[52.513949,-1.023402 Altitude 364 feet (111 metres), 33 acres (13 hectares)]

[Overflow at 52.516195,-1.023488]

[There are two concrete overflows at the tail of this reservoir. The first is directly from the reservoir over a covered sill. The second is slightly further along the resulting stream. This latter overflow looks to be more promising.



**Site 17: Narborough Road – Littlethorpe**

[Possibly the River Soar or tributary. There is no Narborough Road at Littlethorpe! The road leading from Littlethorpe to Narborough is called Station Road. Just before Station Road crosses over the River Soar on the left side when heading north is a small but long pool (about 300ft long (91 metres), and mostly only about 10ft wide (3 metres), 30ft (9 metres) at its widest) lying in a South-west to North east direction. This looks just the sort of collection point Horace favoured.]

Littlethorpe is a small village approximately 6 miles south of Leicester, separated from the village of Narborough by the Leicester to Birmingham railway line, and the River Soar.



[Editor's Note: Sites 1 thru 4, 10 and 14 are omitted – and no references to these appear in the document.]

**Various Leicestershire Sites.**

Species figured on Plates in other sections or not figured at all.

<b>Name</b>	<b>Location/s</b>
<i>Melosira varians</i> C.Agardh	6,8,9,15,16
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A	
<i>Diatoma vulgare</i> var. <i>linearis</i> Grunow	6
See Plate 1 Figure 32.4.5	
<i>Diatoma vulgare</i> var. <i>producta</i> Grunow	7,16
See Plate 1 Figure 50.10.5 & Figure 50.10.6 & Plate 29 Figure 6	
<i>Meridion circulare</i> C.Agardh	2,16,17
See Plate 1 Figure 34½.6.15 & Plate 20 Figure 3 & 3B	
<i>Fragilaria intermedia</i> (Grunow) Grunow in H.v.Heurck	16
See Plate 27 Figure 18	
<i>Synedra ulna</i> Nitzsch	6,7,8,9,12,13,15,16
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11	
<i>Cocconeis placentula</i> Ehrenberg	7,8,12,13,15
See Plate 1 Figure 12.7½.25/30 & Plate 7 & Plate 20 Figure 30	
<i>Achnanthes lanceolata</i> Brébisson	5,6,8,11
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12	
<i>Achnanthes microcephala</i>	16
Not figured	
<i>Gyrosigma Kutzingii</i> (Grunow) Cleve	6,7,11,13,15
See Plate 2 Figure 100.14.18	
<i>Caloneis amphisbaena</i> (Bory) Cleve	7,13
See Plate 2 Figure 66.24.13	
<i>Stauroneis Smithii</i> Grunow	7,17
See Plate 2 Figure 24½.6½.26	
<i>Navicula cuspidata</i> Kützing	11,13
See Plate 2 Figure 73.17.16	
<i>Navicula gregaria</i> Donkin	6,8,9,11,13,15
See Plate 2 Figure 24.6.20	
<i>Navicula pupula</i> Kützing	12,17
See Plate 5 Figure 27.8.20 & Figure 27.8.5 & Plate 29 Figure 31	
<i>Navicula sclesvicensis</i> (Grunow) Cleve	5,6,7
See Plate 3 Figure 33.9½.8 & Figure 43.10.8	
<i>Navicula Hungarica</i> var. <i>capitata</i> (Ehrenberg) Cleve	6,7,12,13
See Plate 3 Figure 22.6.8 & Plate 20 Figure 13	
<i>Navicula</i> sp. ? <i>cincta</i> Kützing	
See Plate 3 Figure 22.6½.12	
<i>Navicula cryptocephala</i> Kützing	6
See Plate 5 Figure 33.10.15 & Figure 44.10.15 & Plate 20 Figure 14	
<i>Navicula avenaceae</i> (Brébisson) Grunow	6,13,15,17
See Plate 3 Figure 57.11.12	
<i>Navicula salinarum</i> Grunow	6,12,13
See Plate 3 Figure 34.10½.12	
<i>Navicula lanceolata</i> Kützing	12
See Plate 18 Figure 13/20.6½.12	
<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing	7,8,9,13
See Plate 3 Figure 10.3.15	

**Various Leicestershire Sites**

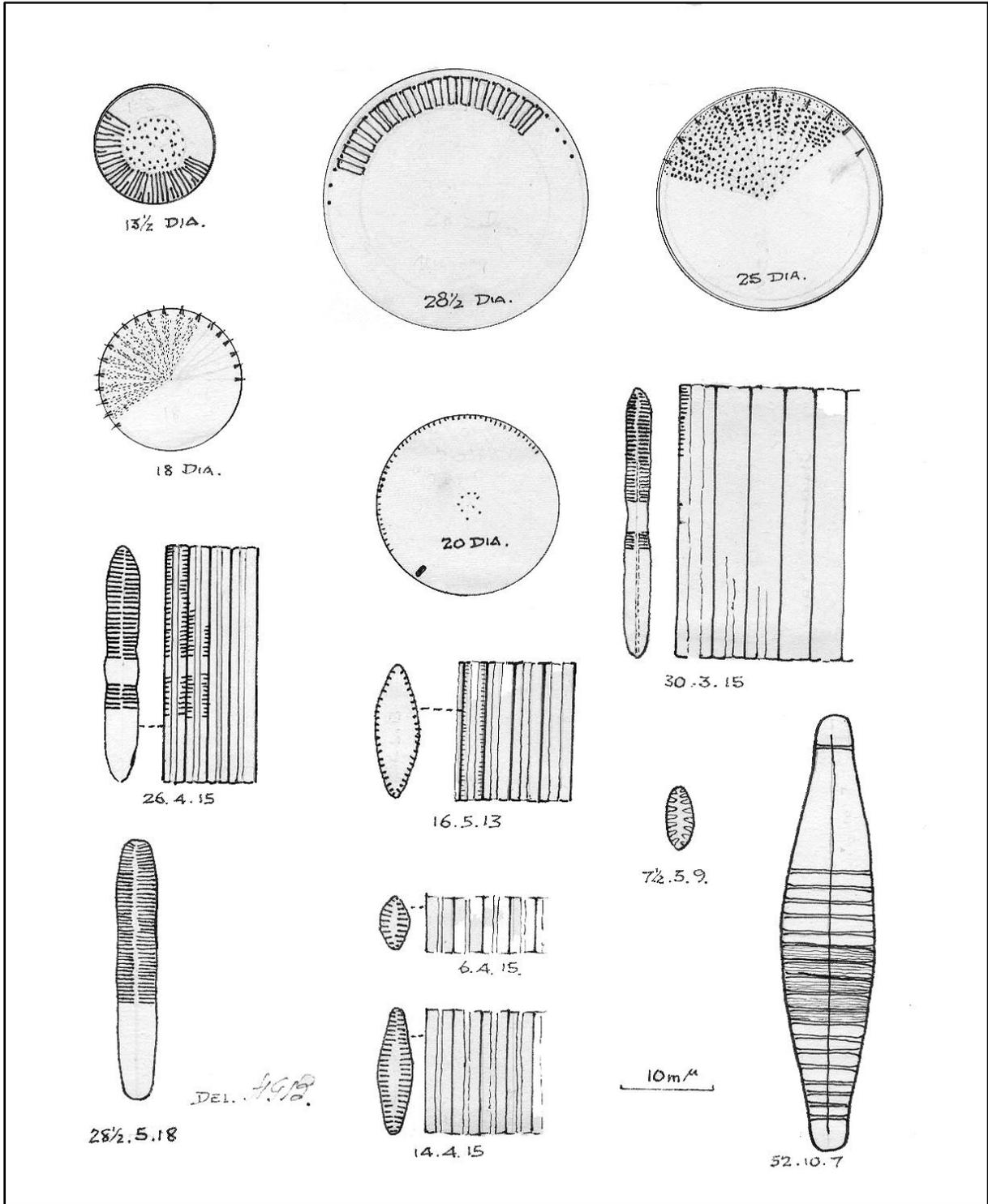
Species figured on Plates in other sections or not figured at all. (continued)

<b>Name</b>	<b>Location/s</b>
<i>Cymbella ventricosa</i> C.Agardh	16
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21	
<i>Cymbella affinis</i> Kützing	16
See Plate 27 Figure 13 & Plate 29 Figure 20	
<i>Gomphonema olivaceum</i> (Lyngbye) Kützing	16
See Plate 3 Figure 22.7½.10	
<i>Gomphonema parvulum</i> (Kützing) Grunow	9,16
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25	
<i>Gomphonema angustatum</i> var. <i>producta</i> Grunow	7,8,12
See Plate 3 Figure 22.6.13	
<i>Nitzschia palea</i> (Kützing) W.Smith	11
See Plate 4 Figure 33.5.X.15 & Plate 5 Figure 48.4.X.15 & Plate 17 Figure 23/40.3½.X.12	
<i>Cymatopleura solea</i> (Brébisson) W.Smith	7,11,12,13
See Plate 3 Figure 67.21.9 & Figure 73.20.9 & Plate 29 Figure 8	
<i>Surirella ovata</i> Kützing	6,12,13
See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60	
<i>Surirella ovalis</i> Brébisson	17
Frequent See Plate 20 Figure 11 & 12 & Plate 25 Figure 1/71.35.57 & Figure 2/90.29.60	
<i>Surirella gracilis</i> (W.Smith) Grunow	17

## Plate 6 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
28½ diameter	<i>Cyclotella Meneghiniana</i> Kützing	11,12,13,15,16
	See also Plate 1 Figure 14µ diameter	
13½ diameter	<i>Cyclotella Kutzingiana</i> var. <i>planetophora</i> Fricke	11
25 diameter	<i>Stephanodiscus minutula</i> (Kützing) Round	11
18 diameter	<i>Stephanodiscus Hantzshii</i> Grunow	13
20 diameter	<i>Thalassiosira fluviatilis</i> Hustedt	15
	It was rather surprising to find this form in the site for it is only generally found planktonic in large lakes.	
52.10.7	<i>Diatoma vulgare</i> Bory	7,8,16,17
30.3.15	<i>Fragilaria capucina</i> Desmazières	8,19,12
26.4.15	<i>Fragilaria capucina</i> Desmazières	8,19,12
16.5.13	<i>Fragilaria brevistriata</i> Grunow	13
28½.5.18	<i>Fragilaria virescens</i> Ralfs	6
	Note: A non-rostrate form. See also Plate 16 Figure 1/33.5.18 & Figure 2	
6.4.15	<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck	8,9
	Variable between this outline and that below.	
14.4.15	<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck	8,9
	Variable between this outline and that above.	
Note: The foregoing <i>Fragilaria</i> are to be found in long ribbons lying in the girdle view but I have shewn both aspects.		
7½.3.9	<i>Fragilaria elliptica</i> Schumann	8

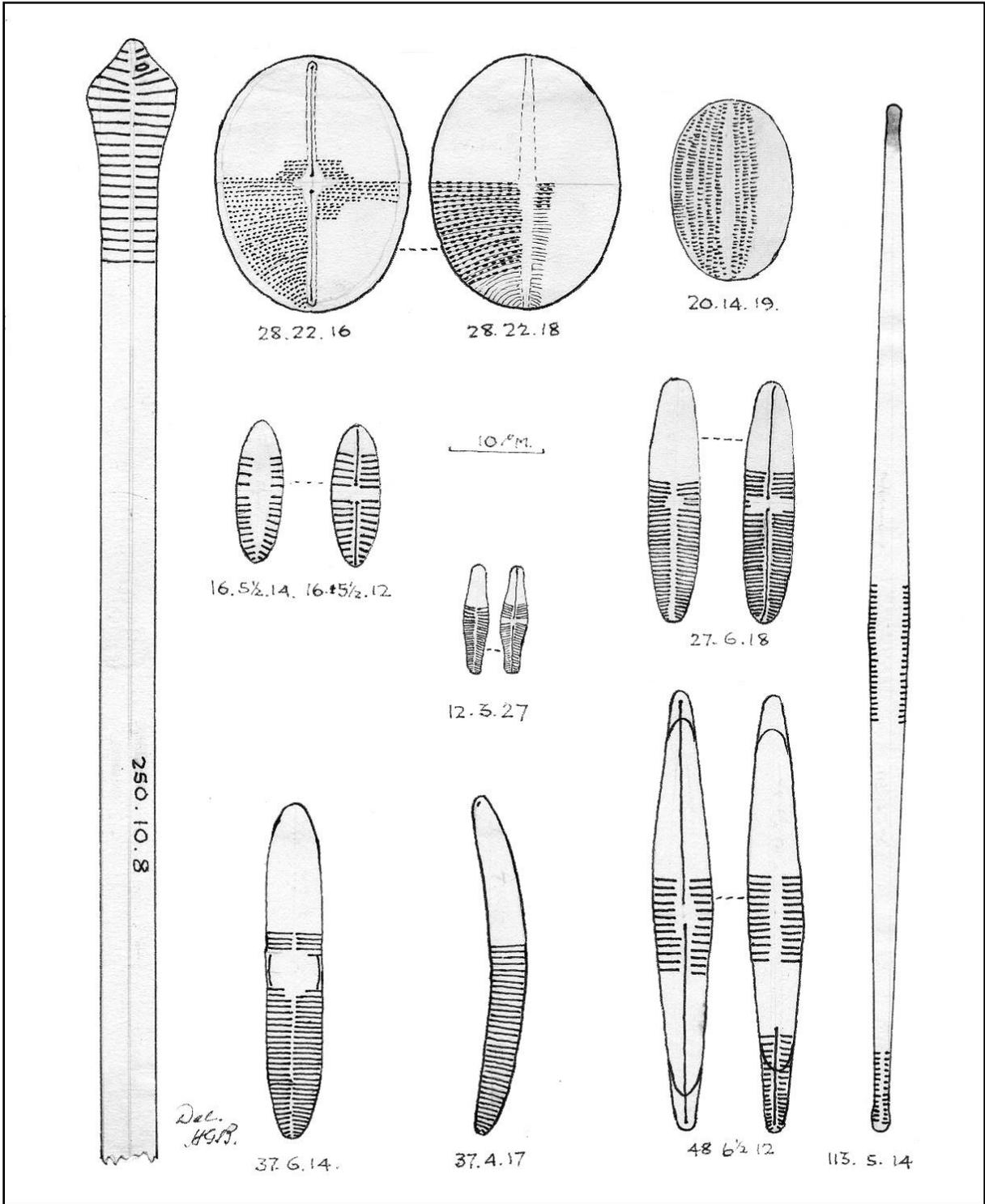
Plate 6



## Plate 7 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
250.10.8	<i>Synedra ulna</i> var. <i>spathulifera</i> Grunow	8
37.6.14	<i>Synedra pulchella</i> var. <i>naviculacea</i> Grunow	6
113.5.14	<i>Synedra affinis</i> Kützing	7
	See also Plate 20 Figure 18 & Plate 23 Figure 5/196.5.12	
37.4.17	<i>Eunotia lunaris</i> (Ehrenberg) Grunow	6
	See also Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16 & Plate 20 Figure 26	
28.22.16	<i>Cocconeis pediculus</i> Ehrenberg	7,8,9,11,12,13,15,16
	Major and minor valves See also Plate 29 Figure 7 & 7A	
20.14.19	<i>Cocconeis placentula</i> var. <i>euglypta</i> (Ehrenberg) Cleve	15
	Minor valve only	
12.3.27	<i>Achnanthes affinis</i> Grunow	6,11
	See also Plate 27 Figure 7/18½.3.28	
27.6.18	<i>Achnanthes Hungarica</i> Grunow	8
	See also Plate 5 Figure 16.6.18 & Plate 24 Figure 16	
16.5½.14	<i>Achnanthes conspicua</i> var. <i>brevistriata</i> Hustedt	8
16.5½.12	<i>Achnanthes conspicua</i> var. <i>brevistriata</i> Hustedt	8
48.6½.12	<i>Rhoicosphenia curvata</i> (Kützing) Grunow	7,8,12,15
	The form figured is rather rhombic in outline from site 7. The usual outline is as Plate 1 Fig. 36.5½.10 and is often as short as 10-12µ.	

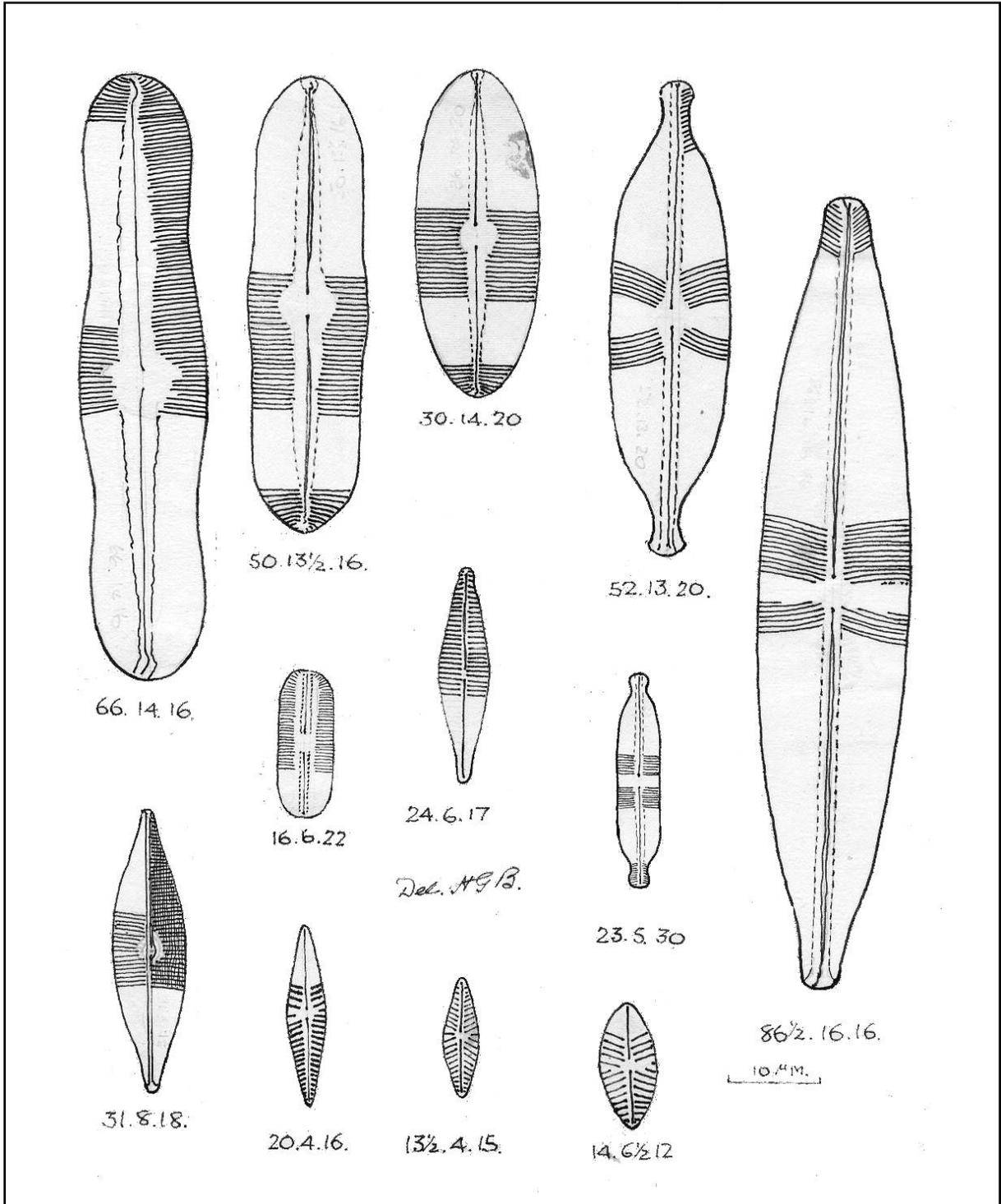
Plate 7



**Plate 8 - Various Leicestershire Sites (continued)**

Figure/dimensions	Name	Location/s
50.13½.16	<i>Caloneis ventricosa</i> (Ehrenberg) Meister	7,13
30.14.20	<i>Caloneis ventricosa</i> var. <i>trunculata</i> (Grunow) Meister	13
66.14.16	<i>Caloneis ventricosa</i> var. <i>peisonis</i> Hustedt	13
	The group of forms <i>Caloneis ventricosa</i> (Ehrenberg) Meister, are complex and of fluid outline, consequently it is difficult to be at all dogmatic in identification.	
16.6.22	<i>Diploneis oculata</i> (Brébisson) Cleve	12
23.5.30	<i>Stauroneis pygmaea</i> Kreiger	
	See also Plate 20 Figure 23	
52.13.20	<i>Stauroneis anceps</i> Ehrenberg	5
	Plate 10 & Plate 16 Figure 10/50.9½.22 & Plate 20 See also Figure 20	
86½.16.16	<i>Stauroneis phoenicentron</i> (Nitzsch) Ehrenberg	5
	See also Plate 16 Figure 11/134.26.18 & Plate 20 Figure 24	
14.6½.12	<i>Navicula anglica</i> Ralfs	15
	See also Plate 5 Figure 24.8½.12	
13½.4.15	<i>Navicula cryptocephala</i> var. <i>veneta</i> (Kützing) Rabenhorst	8,9,11,12
24.6.17	<i>Navicula halophyla</i> (Grunow) Cleve	8,9
31.8.18	<i>Navicula phyllepta</i> Kützing	13
20.4.16	<i>Navicula tenella</i> (?) (Brébisson) Grunow	7,8

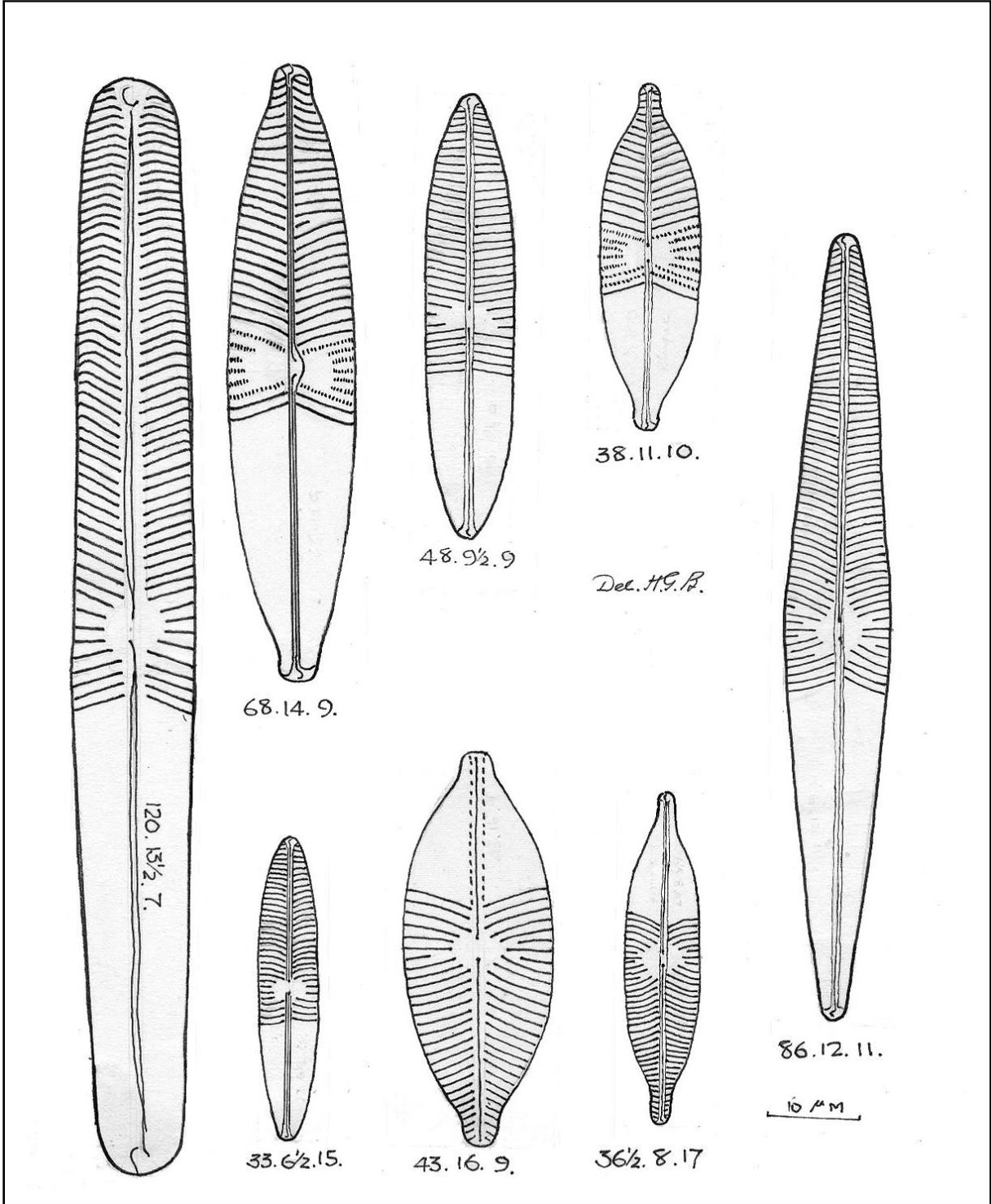
# Plate 8



## Plate 9 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
38.11.10	<i>Navicula rhynchocephala</i> Kützing	6,13
	See also Plate 20 Figure 21 & Plate 29 Figure 30	
86.12.11	<i>Navicula radiosa</i> Kützing	7,8,9,12
	See also Plate 29 Figure 17	
48.9½.9	<i>Navicula gracilis</i> Ehrenberg	7,8,9,11,15,16
	See also Plate 3 for other outlines	
	See also Plate 3 Figure 35.8.10 & Figure 42.8.10	
68.14.9	<i>Navicula viridula</i> Kützing	7,15
36½.8.17	<i>Navicula intermedia</i> Grunow	7,12,15
120.13½.7	<i>Navicula oblonga</i> Kützing	7
	See also Plate 20 Figure 6	
33.6½.15	<i>Navicula graciloides</i> A.Mayer	13
43.16.9	<i>Navicula placentula</i> fa. <i>rostrata</i> A.Mayer	

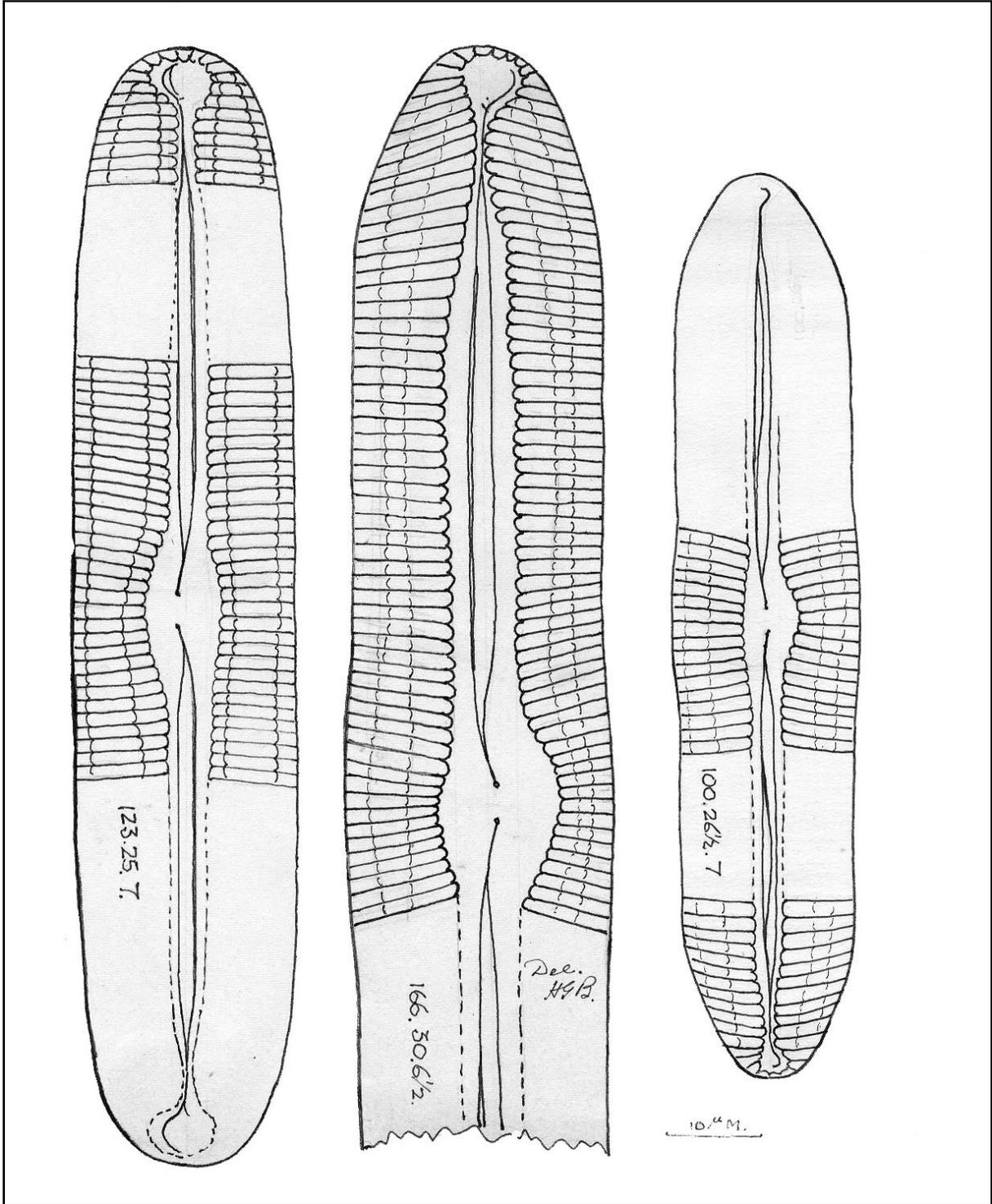
Plate 9



## Plate 10 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
123.25.7	<i>Pinnularia gentilis</i> Donkin	13
	I have some doubts on the identification of this form for the ends are not typical and the raphe system not quite right but <i>Pinnularia gentilis</i> Donkin, is about the nearest fit.	
166.30.6½	<i>Pinnularia major</i> (Kützing) Cleve	13
	See also Plate 20 Figure 1	
100.26½.7	<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg	13
	The <i>Pinnularia</i> in gathering 13 from Sheepy Mill (R. Sence) are rather unusual there being slight differences in specific features to the usual forms. This could be a habitat feature, type of water. See also Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6 & Plate 29 Figure 18	

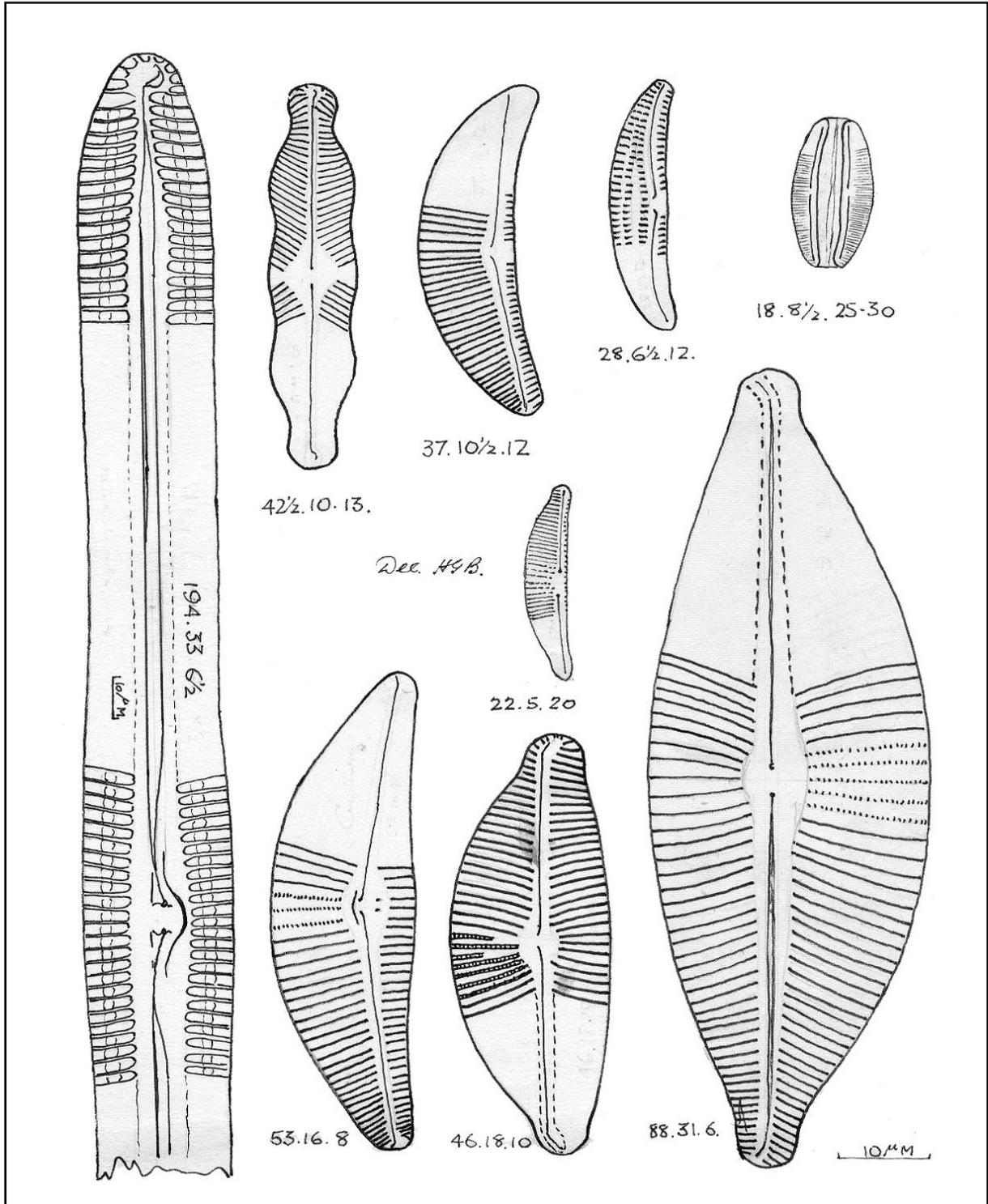
Plate 10



**Plate 11 - Various Leicestershire Sites (continued)**

<b>Figure/dimensions</b>	<b>Name</b>	<b>Location/s</b>
<b>194.33.6½</b>	<i>Pinnularia macilenta</i> Ehrenberg	7
	Note: ½X	
<b>42½.10.13</b>	<i>Pinnularia mesolepta</i> (Ehrenberg) W.Smith	7
<b>22.5.20</b>	<i>Amphora veneta</i> Kützing	8,12
<b>37.10½.12</b>	<i>Amphora ovalis</i> Kützing	7,11,13,16
	See also Plate 20 Figure 8	
<b>28.6½.12</b>	<i>Amphora ovalis</i> var. <i>libyca</i> (Ehrenberg) Cleve	7,12,13
	See also Plate 3 Figure 30.10.15	
<b>18.8½.25/30</b>	<i>Amphora delicatissima</i> Krasske	6
<b>53.16.8</b>	<i>Cymbella cistula</i> (Ehrenberg) O.Kirchner	7,8,9
	See also Plate 12 Figure 42.14.9 & Plate 29 Figure 19	
<b>46.18.10</b>	<i>Cymbella prostrata</i> (Berkeley) Cleve	7
	See also Plate 27 Figure 16	
<b>88.31.6</b>	<i>Cymbella Ehrenbergii</i> Kützing	13

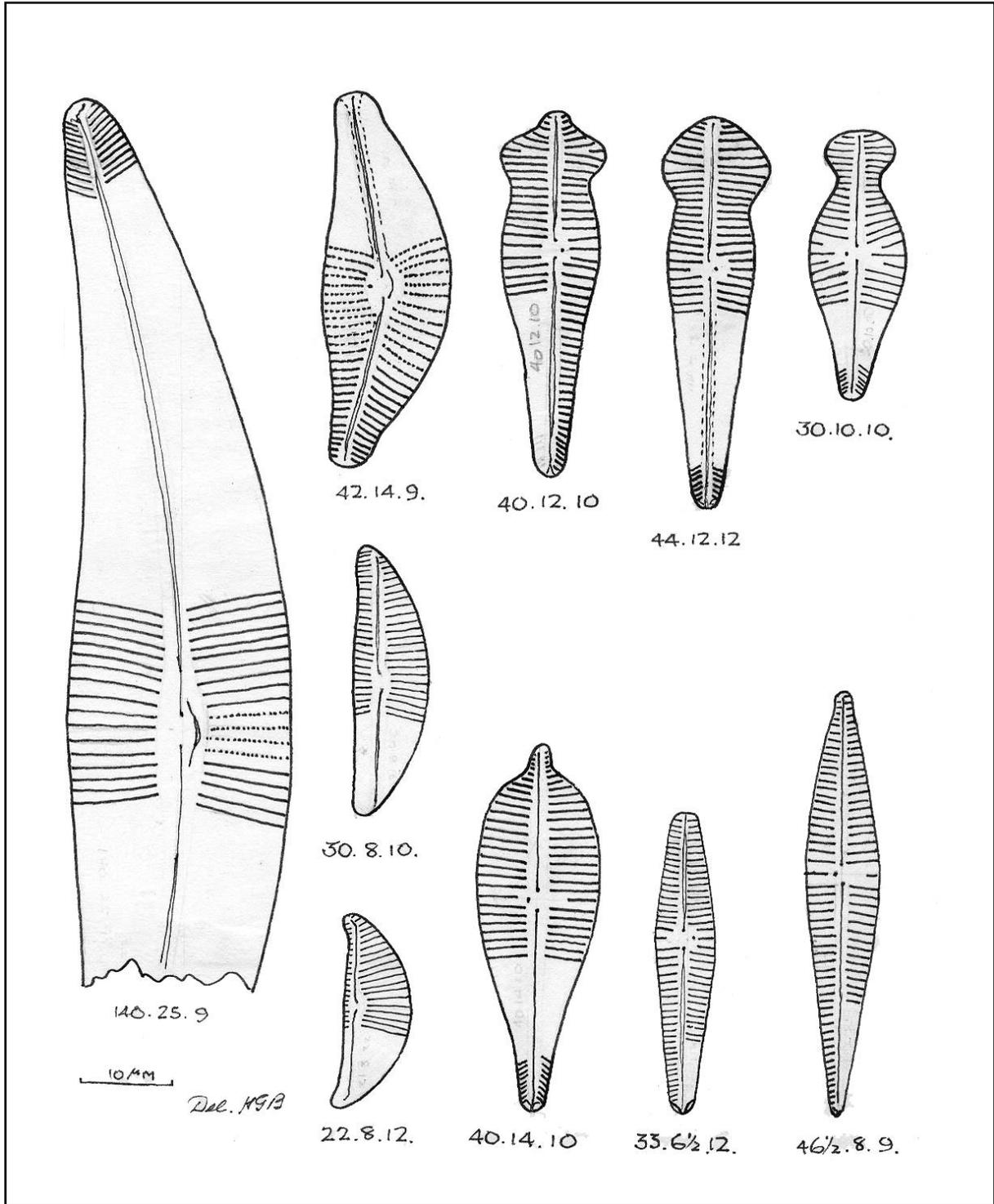
Plate 11



## Plate 12 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
140.25.9	<i>Cymbella lanceolata</i> (Ehrenberg) H.v.Heurck	7
22.8.12	<i>Cymbella ventricosa</i> Kützing	7,12,16
	See also Plate 29 Figure 21	
42.14.9	<i>Cymbella cistula</i> (Ehrenberg) O.Kirchner	7
	This taxon is quite variable for outline and central area isolated puncta, the latter varying 1-4. See also Plate 11 Figure 53.16.8 & Plate 29 Figure 19	
30.8.10	<i>Cymbella turgida</i> (W.Gregory) Cleve	5
	The small forms of <i>Cymbella turgida</i> (W.Gregory) Cleve, run very close to <i>Cymbella ventricosa</i> Kützing, and are often difficult to separate.	
33.6½.12	<i>Gomphonema longiceps</i> var. <i>subclavata</i> Grunow	7,9
40.12.10	<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith	7
44.12.12	<i>Gomphonema acuminatum</i> var. <i>Brebissonii</i> (Kützing) Cleve	7,8
40.14.10	<i>Gomphonema augur</i> Ehrenberg	7,8
30.10.10	<i>Gomphonema constrictum</i> Ehrenberg	7,8
	See also Plate 29 Figure 26	
46½.8.9	<i>Gomphonema gracile</i> var. <i>lanceolata</i> (Kützing) Cleve	8

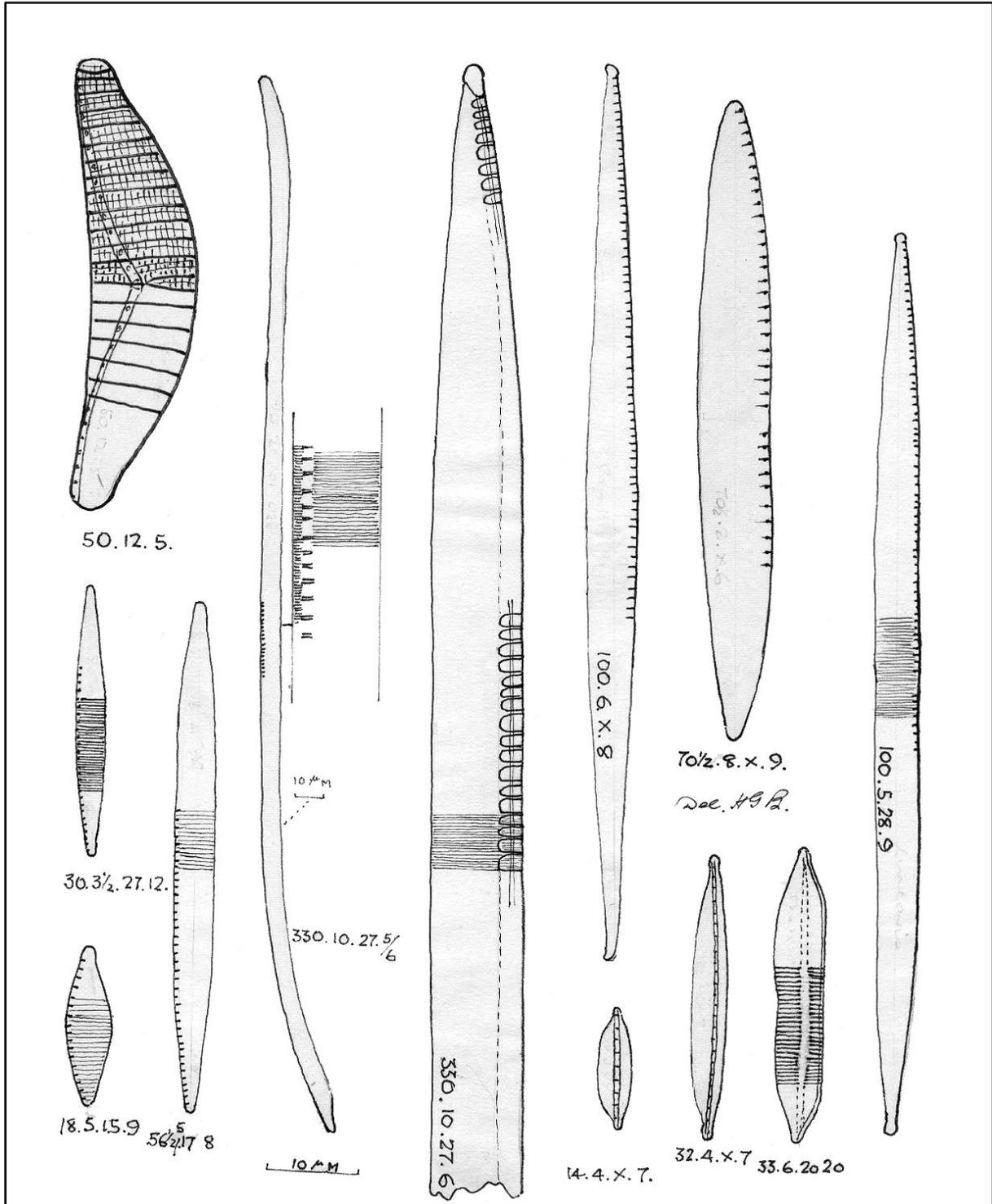
# Plate 12



## Plate 13 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
50.12.5	<i>Epithemia turgida</i> (Ehrenberg) Kützing	8
20.3½.27.12	<i>Nitzschia romana</i> Grunow	8,9
	See also Plate 20 Figure 31	
18.5.15.9	<i>Nitzschia amphibia</i> Grunow	8,9
	A short form but within specific dimensions. See also Plate 27 Figure 17/22/4/16/8	
56½.6.17.8	<i>Nitzschia amphibia</i> Grunow	8,9
	A long form but within specific dimensions See also Plate 27 Figure 17/22/4/16/8	
330.10.27.5/6	<i>Nitzschia sigmoidea</i> (Ehrenberg) W.Smith	11,12,13
	See also Plate 4 Figure 180.6.30+.10 & Plate 20 Figure 2	
330.10.27.6	<i>Nitzschia</i> sp.	
14.4.X.7	<i>Nitzschia dissipata</i> (Kützing) Grunow	9,11
	See also Plate 4 Figure 30.5.X.8	
32.4.X.7	<i>Nitzschia dissipata</i> (Kützing) Grunow	9,11
	See also Plate 4 Figure 30.5.X.8	
100.6.X.8	<i>Nitzschia capitellata?</i> Hustedt	11
70½.8.X.6	<i>Nitzschia</i> sp.	7
	Near to <i>Nitzschia stagnorum</i> Rabenhorst	
33.6.20.20	<i>Nitzschia apiculata</i> (W.Gregory) Grunow	11
100.5.28.9	<i>Nitzschia linearis</i> W.Smith	5,17

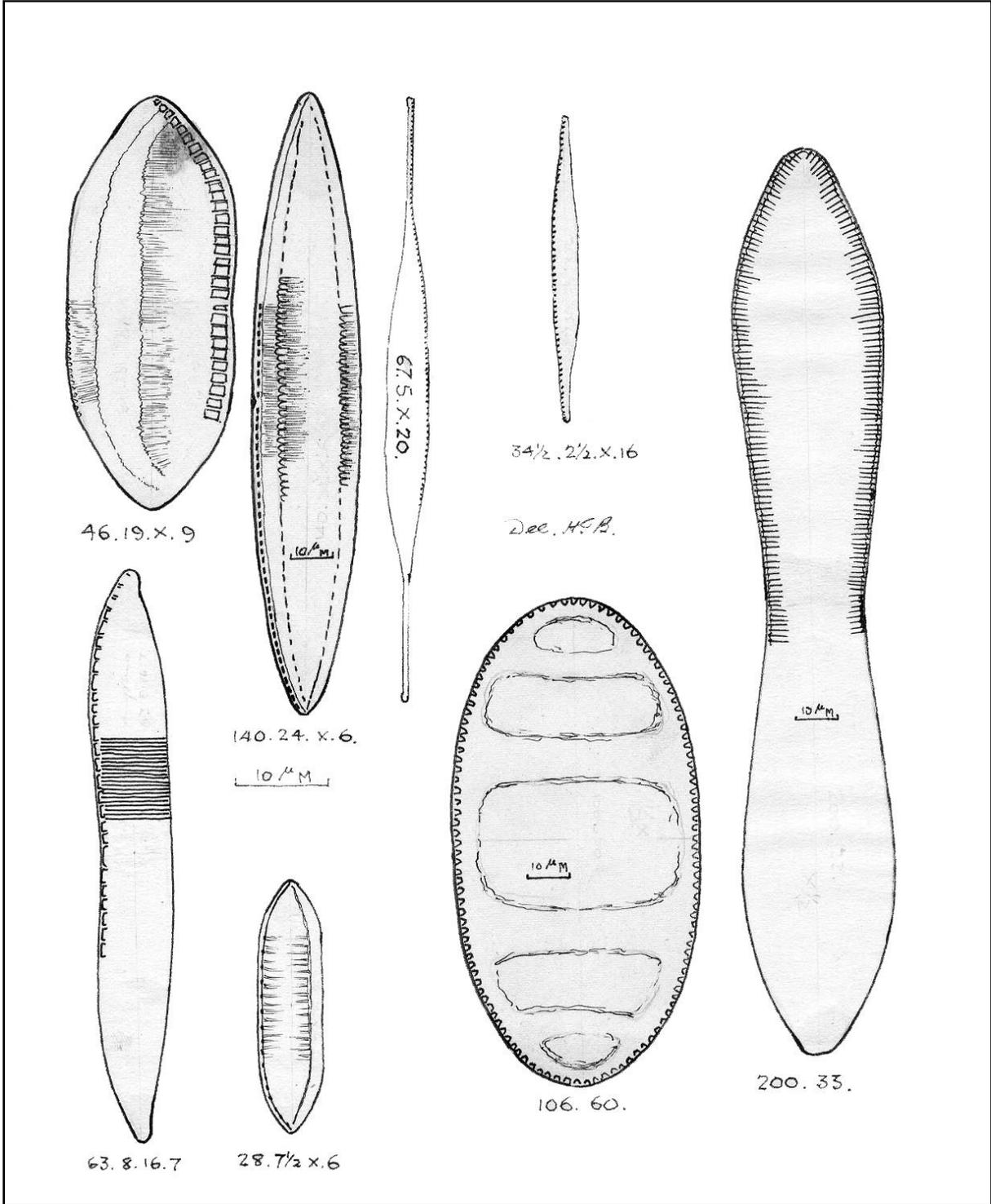
# Plate 13



## Plate 14 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
46.19.X.9	<i>Nitzschia tryblionella</i> var. <i>victoriae</i> Grunow	13
	See also Plate 4 Figure 32.12.8.8	
140.24.X.6	<i>Nitzschia tryblionella</i> Hantzsch	13
	See also Plate 20 Figure 4 & Plate 28 Figure 4/93.24.6.7	
28.7½.X.6	<i>Nitzschia tryblionella</i> var. <i>levidensis</i> (W.Smith) Grunow	13
	The <i>tryblionella</i> are a complex group and I am sure there is intergrading amongst some of the smaller forms, also the stria presentation alters considerably according to the grouping.	
63.8.16.7	<i>Nitzschia amphioxys</i> (Ehrenberg) Grunow	7,8,16
	This form is normally known as <i>Hantzschia amphioxys</i> (Ehrenberg) Grunow, but recent SEM research makes the genus <i>Nitzschia</i> . See also Plate 24 Figure 10/83.8.16.8 & Plate 26 Figure 4	
34½.2½.X.16	<i>Nitzschia admissa</i> Hustedt	11
67.5.X.20	<i>Nitzschia acicularis</i> W.Smith	8.9
	See also Plate 4 Figure 47.3.X.17	
200.33.	<i>Cymatopleura solea</i> var. <i>gracilis</i> Grunow	7,13
106.60	<i>Cymatopleura solea</i> var. <i>elliptica</i> (Brébisson) W.Smith	7

# Plate 14



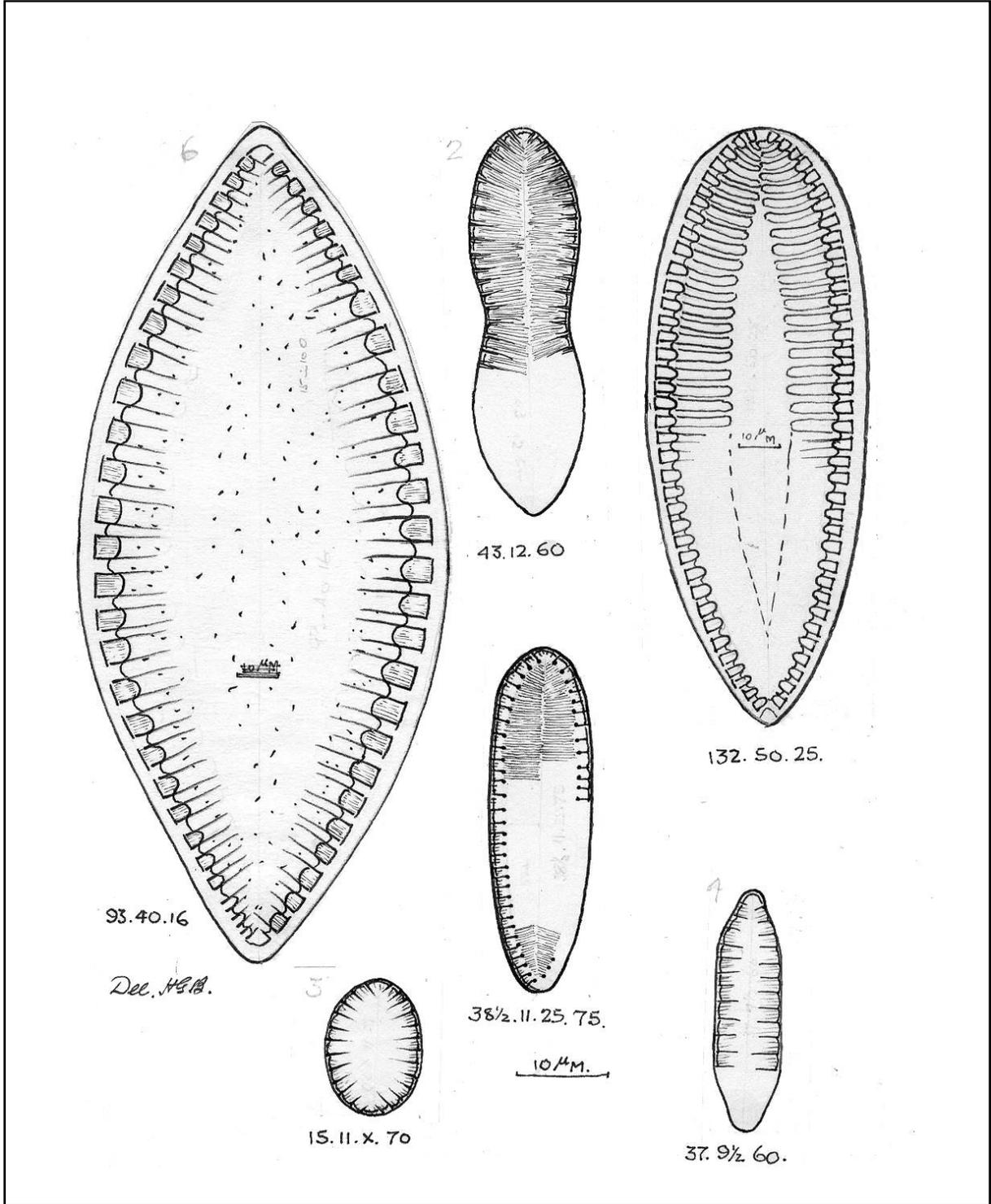
## Plate 15 - Various Leicestershire Sites (continued)

Figure/dimensions	Name	Location/s
43.12.60 in 100μ	<i>Surirella ovata</i> ? var. <i>constricta</i>	5
18.11.X.70 in 100μ	<i>Surirella ovata</i> fa.	6
	This is close to <i>Surirella ovulum</i> Hustedt	
37.9½.60 in 100μ	<i>Surirella angustata</i> Kützing	5,6,17
	See also Plate 29 Figure 23	
93.40.16 in 100μ	<i>Surirella turgida</i> W.Smith	7,11,13
38½.11.25.75 in 100μ	<i>Surirella</i> sp.	5
	I am unable to identify this form from literature.	
132.50.25 in 100μ	<i>Surirella</i> ?near <i>elegans</i>	
	X½	



Hafan, 91 Mancetter Road  
Nuneaton  
July 1976

Plate 15



## An Illustrated Account of the Diatom Flora taken from a Small Pond on Charnwood Lodge Nature Reserve, Leicestershire



### Editor's Notes:

OS map ref: SK 458155 (Sheet 129)

Significant areas of this important and sensitive nature reserve have no public access. Other areas have limited access to Leicestershire and Rutland Wildlife Trust (LRWT) members and other permit holders only. LRWT members can use their membership cards as permits for the restricted areas.

There are several marked paths around the reserve and all visitors are requested to keep to these.

The reserve lies 1¾ miles (3km) east of Whitwick and 1¾ miles (3km) north of Copt Oak, to the west of the M1.

LRWT members and other permit holders can access the reserve from Abbey Road (on the east side about ½ mile (0.5km) from the Forest Rock Public House junction). Cars should be parked on the side of the farm track.

Other visitors can access the reserve from the Warren Hills Road where there is limited parking in the lay-by.

Possibly referring to Colony Reservoir or a smaller water body on the reserve itself. Many parts of the reserve, particularly to the south-west of Abbey Road, are covered with rushes and extremely waterlogged.



During April 1976 Mr. D. Williamson of Oadby when making collections of desmids was able to notice the presence of many diatoms. A small portion of the collected material has been examined by me and I append in the following pages the flora found therein.

Due to the amount of material it was not practical to clean same by the usual methods for fear of losing any minute forms. Consequently incinerated mounts were made.

This latter process has some disadvantages i.e. accompanying detritus, failure to part the frustules into the valve components and consequent air locked within the frustules, appearing black under the microscope.

Accompanying each species I have quoted the dimensions in  $\mu$  such as:-

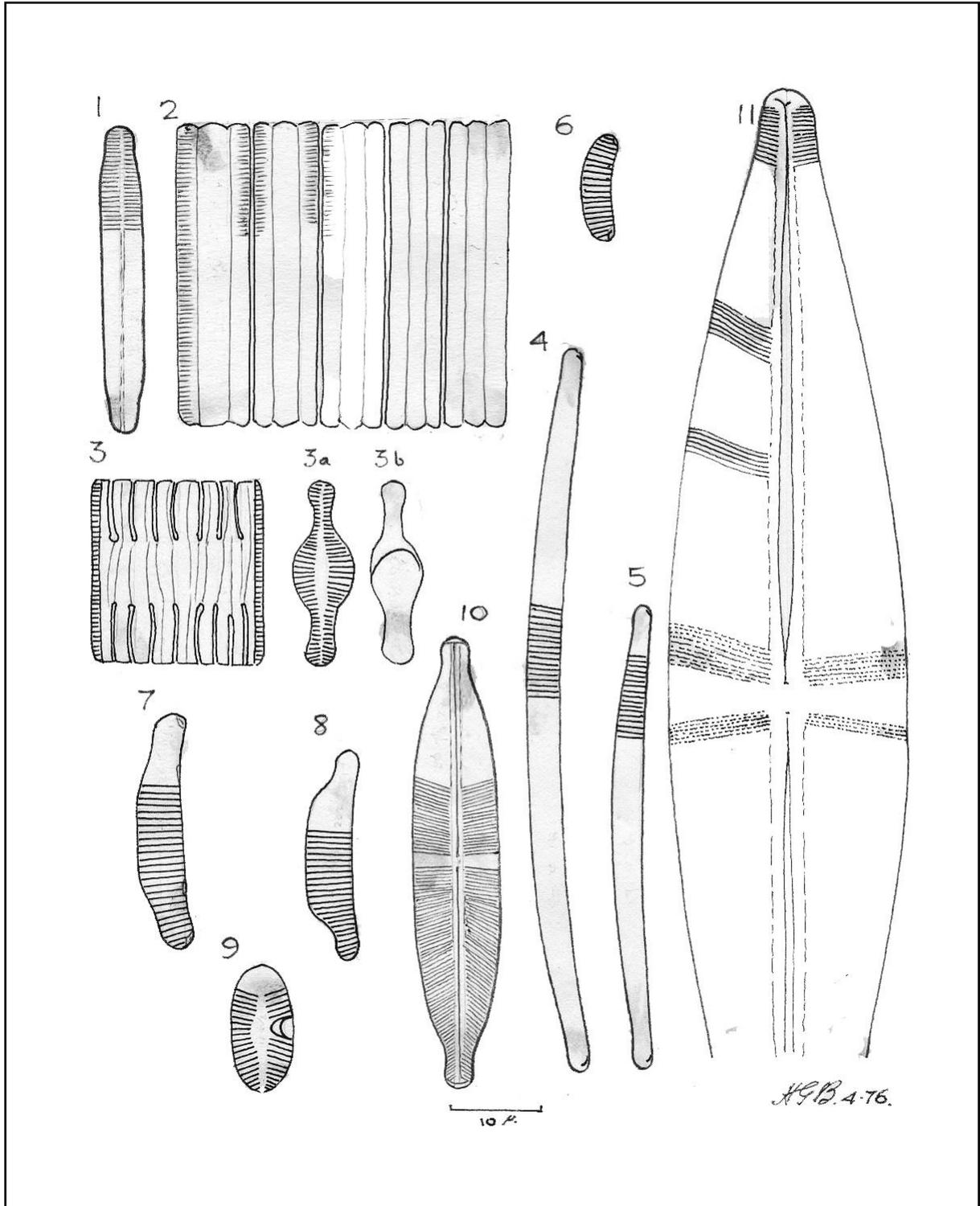
Length 38 Breadth 9 and Stria rate 16 in  $10\mu$

Where four measurements are given then the last figure is the keel puncta rate per  $10\mu$ , as in the genus *Nitzschia*.

## Plate 16 – Charnwood Lodge

Figure/dimensions	Name
1/33.5.18	<i>Fragilaria virescens</i> Ralfs Valve view. See also Plate 6 Figure 28½.5.18
2	<i>Fragilaria virescens</i> Ralfs Frustules in girdle view. Often forming long bands – not frequent in the material gathered. See also Plate 6 Figure 28½.5.18
3/30.6½.18	<i>Tabellaria flocculosa</i> (Roth) Kützing Girdle view. Frequent and typical of acidic alpine site. Frustules generally found in long chains, adhering by opposite corners of valve.
3a	<i>Tabellaria flocculosa</i> (Roth) Kützing Valve View
3b	<i>Tabellaria flocculosa</i> (Roth) Kützing Septa
4/80.4.16	<i>Eunotia lunaris</i> (Ehrenberg) Grunow The predominant taxon in the gathering and typical of habitat. See also Plate 7 Figure 37.4.17 & Plate 20 Figure 26
5/51.4.16	<i>Eunotia lunaris</i> (Ehrenberg) Grunow See also Plate 7 Figure 37.4.17 & Plate 20 Figure 26
6/12.3½.16	<i>Eunotia lunaris</i> var. <i>subarcuata</i> (Nägeli) Grunow Rare in gathering.
7/26.5.14	<i>Eunotia pectinalis</i> var. <i>minor</i> (Kützing) Rabenhorst Stria rate a little high but reasonably acceptable. Rare in gathering.
8/23½.5½.17	<i>Eunotia septentrioalis</i> Oestrup Rare in gathering
9/14.6½.15	<i>Achnanthes lanceolata</i> Brébisson This is the pseudo-raphé valve of the frustule. Only one noted and I have not been able to record the raphe bearing valve. Work done on this taxon recently would suggest the form as depicted to be re-classified as <i>Achnanthes sublanceolata</i> by virtue of the complex central cavity. See also Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 29 Figure 12
10/50.9½.22	<i>Stauroneis anceps</i> Ehrenberg Rare in the material See also Plate 8 Figure 52.13.20 & Plate 10 & Plate 20 Figure 20
11/134.26.18	<i>Stauroneis phoenicentron</i> Ehrenberg Frequent in the material. See also Plate 8 Figure 86½.16.16 & Plate 20 Figure 24

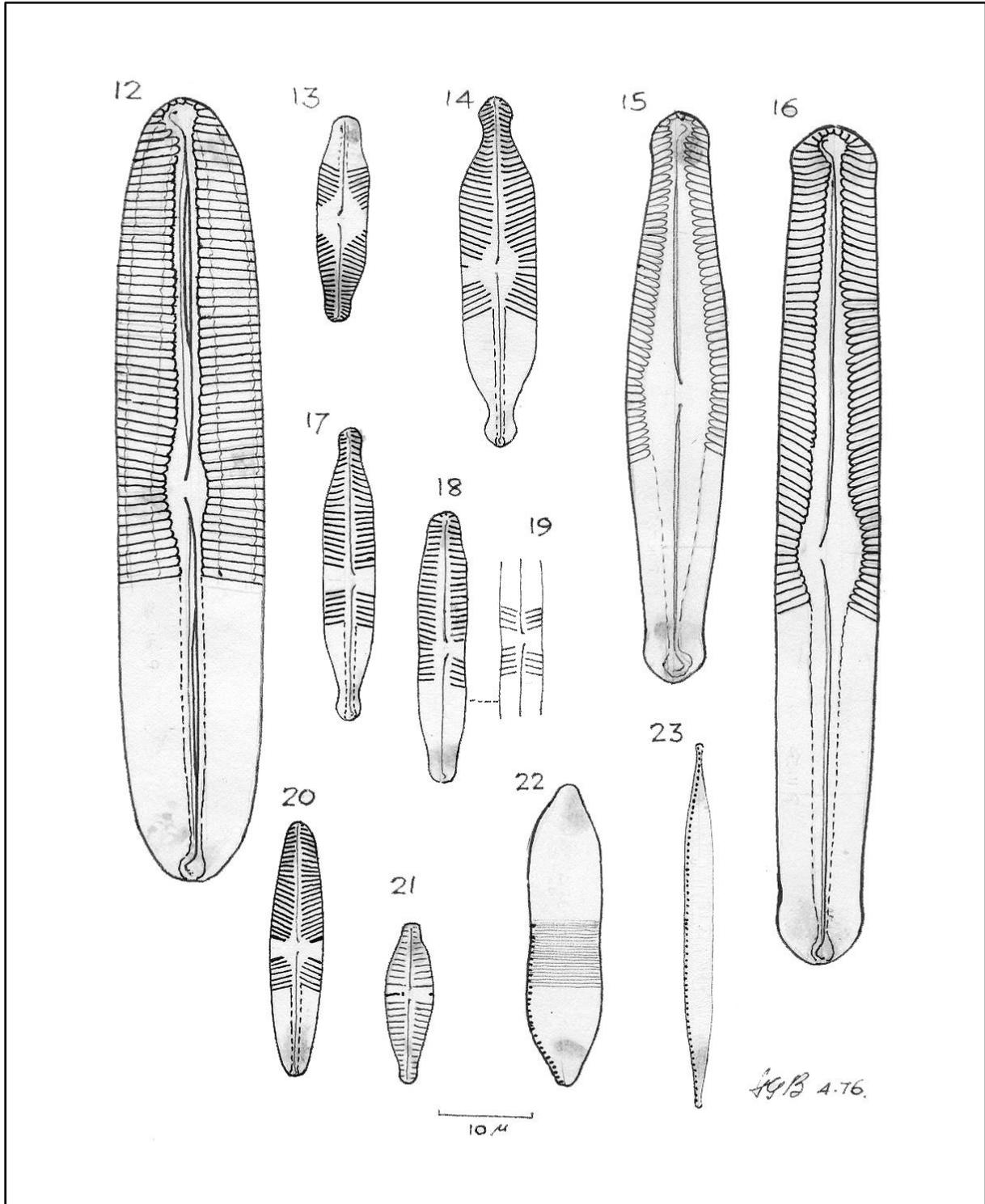
Plate 16



## Plate 17 – Charnwood Lodge (continued)

Figure/dimensions	Name
12/86.16.9	<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
	Rare in the material. This taxon is complex and exhibits many troublesome variation but the form under note is reasonably within the accepted cycle. (Langsbands somewhat wide) See also Plate 10 Figure 100.26½.7 & Plate 21 Figure 6 & Plate 29 Figure 18
13/22½.5½.15	<i>Pinnularia Brebissonii</i> var. <i>producta</i> A.Cleve-Euler.
	Rare in the material.
14/39.8.12	<i>Pinnularia interrupta</i> W.Smith
	Rare in the material.
15/63.11.9	<i>Pinnularia abaugensis</i> (Pantocsek) Ross
	Rare in the material. The form depicted is transitional to var. <i>parva</i> .
16/93.11.9	<i>Pinnularia abaugensis</i> (Pantocsek) Ross
	Reasonably frequent in the material.
17/32½.6.13	<i>Pinnularia subcapitata</i> W.Gregory
	Frequent in the material. According to Hustedt (1930) this form would be <i>Pinnularia subcapitata</i> var. <i>Hilseana</i> (Janisch) O.Muller, but transitional forms to <i>Pinnularia subcapitata</i> W.Gregory, are constantly found and it is questionable whether the variety should be given separate status.
18/30.6.12	<i>Pinnularia subcapitata</i> W.Gregory
	Frequent in the material
19	<i>Pinnularia subcapitata</i> W.Gregory
	Note: Central stria may or may not be interrupted on one or both sides also each valve of a frustule can have variation in central stria interruption.
20/28.6.17	<i>Pinnularia acoricola</i> Hustedt
	Rare in the material. This plant is only found in high acid or minerally charged waters and extensive examination elsewhere reveals the taxon has considerable variation.
21/18.5½.14	<i>Gomphonema intricatum</i> Kützing
	Frequent in the material. The form shews variation in Length/ Breadth ratio, a usual feature. See also Plate 20 Figure 9
22/33.5½.25 at centre.12-15	<i>Nitzschia</i> sp.
	Rare in the material. I cannot be sure of this form. Could be of the <i>Nitzschia panduriformis</i> W.Gregory, group.
23/40.3½.X.12	<i>Nitzschia palea</i> (Kützing) W.Smith
	See also Plate 4 Figure 33.5.X.15 & Plate 5 Figure 48.4.X.15

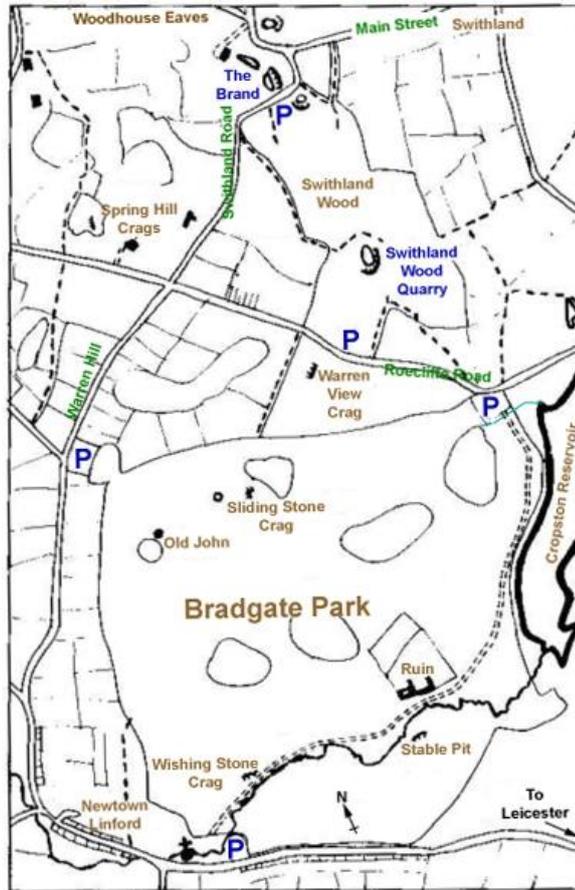
Plate 17



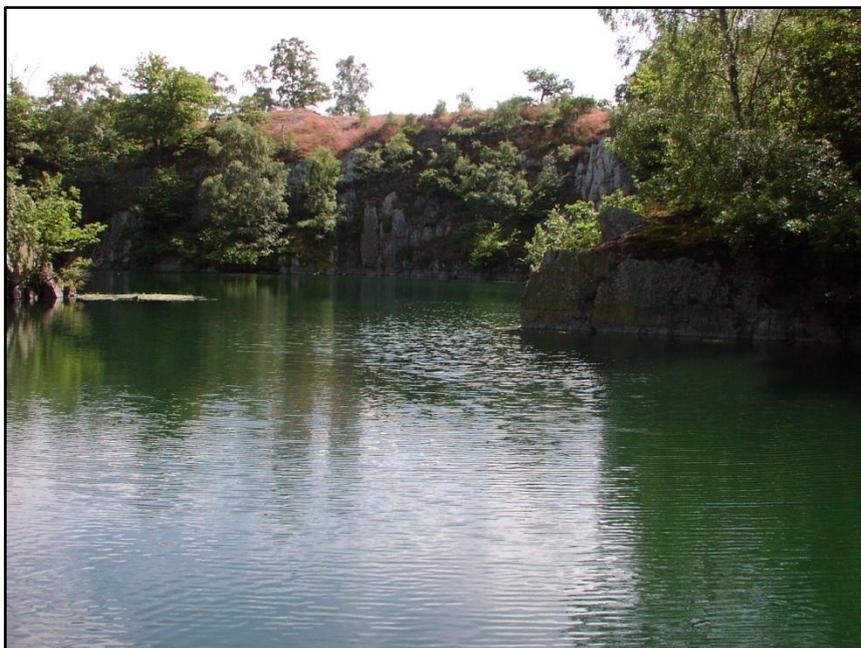
## An Account of Diatoms from a very deep Quarry situated in Swithland Woods, Leicestershire

[52.704462,-1.203518] – Swithland Wood Quarry

Swithland Woods is the site of an old Slate quarry owned by the Charnwood Forestry Commission, and is situated North of Anstey village, Leicestershire. Prior permission to access needs to be obtained from Charnwood Forestry Warden.



*Based on a map reproduced on [www.leicesterclimbs.f9.co.uk](http://www.leicesterclimbs.f9.co.uk)*



*Photograph courtesy of "Shrewsbury Divers" ([www.shrewsburydivers.co.uk](http://www.shrewsburydivers.co.uk))*

At the end of September 1976 I was able to visit the above site during which time the Aqua-lung Diving Club were making descents to various depths. The quarry is reputed to be about 250ft deep (76 metres), too deep for normal compressed air aqua-lung diving but by the kindness of one of the divers a quantity of sediment was obtained from a place about 100ft (30 metres) deep.

A large proportion of the species was composed of planktonic forms, *Asterionella* etc.

The material was not acid cleaned but incinerated mounts made for certain technical reasons.

**Quarry – Swithland Woods, Leicestershire**

Species figured on Plates in other sections or not figured at all.

<b>Name</b>
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Fragilaria construens</i> (Ehrenberg) Grunow
See Plate 6 Frequent
<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck
See Plate 6 Figure 14.4.15 & Figure 6.4.15 Frequent
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Cocconeis placentula</i> var. <i>euglypta</i> (Ehrenberg) Cleve
See Plate 7 Figure 20.14.19
<i>Cocconeis pediculus</i> Ehrenberg
See Plate 7 Figure 28.22.16 & Plate 29 Figure 7 & 7A
<i>Achnanthes microcephala</i> (Kützing) Grunow
Not illustrated
<i>Achnanthes lanceolata</i> (Brébisson) Grunow
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Rhoicosigma curvata</i> (Kützing) Grunow
See Plate 1 Figure 36.5½.10 Quite frequent.
<i>Gyrosigma acuminatum</i> (Kützing) Rabenhorst
See Plate 29 Figure 16
<i>Gyrosigma Kützingii</i> (Grunow) Cleve
See Plate 2 Figure 100.14.18
<i>Diploneis oculata</i> (Brébisson) Cleve
See Plate 8 Figure 16.6.22 Many of the taxa in this gathering are only lightly built, possibly due to restricted silica and as a result this group of forms are difficult to differentiate as to what varieties or even species are present.
<i>Stauroneis phoenicentron</i> Ehrenberg
See Plate 8 Figure 86½.16.16 & Plate 16 Figure 11/134.26.18 & Plate 20 Figure 24
<i>Stauroneis anceps</i> fa. <i>gracilis</i> (Ehrenberg) Cleve
Not figured
<i>Navicula radiosa</i> Kützing
See Plate 9 Figure 86.12.11 & Plate 29 Figure 17
<i>Navicula radiosa</i> var. <i>parva</i> Wallace
Not figured.
<i>Navicula tenella</i> Brébisson ex Kützing
See Plate 8 Figure 20.4.16
<i>Navicula gracilis</i> Ehrenberg
See Plate 3 Figure 35.8.10 & Figure 42.8.10 & Plate 9 Figure 48.9½.9
<i>Navicula cryptocephala</i> var. <i>veneta</i> (Kützing) Rabenhorst
See Plate 3 & Plate 8 Figure 13½.4.15
<i>Navicula oblonga</i> Kützing
See Plate 9 Figure 120.13½.7 & Plate 20 Figure 6

**Quarry – Swithland Woods, Leicestershire**

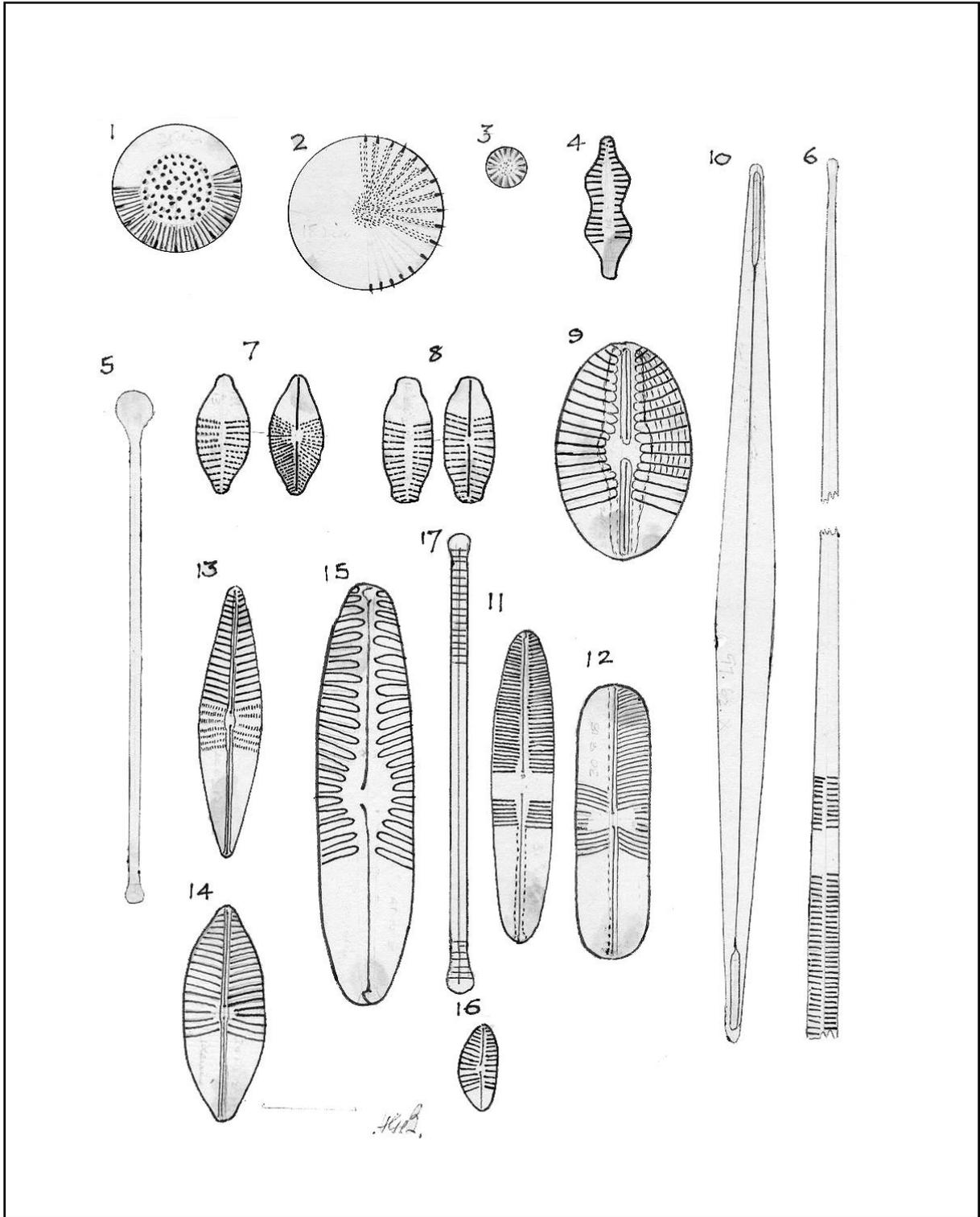
Species figured on Plates in other sections or not figured at all. (continued)

Name
<i>Pinnularia</i> sp.
Not figured. I think this form is a short version of <i>Pinnularia appendiculata</i> (C.Agardh) Cleve. Normally has a greater length range than is present here.
<i>Gomphonema acuminatum</i> var. <i>Brebissonii</i> (Kützing) Cleve
See Plate 12 Figure 44.12.12
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith
See Plate 12/Figure 40.12.10
<i>Gomphonema parvulum</i> (Kützing) Grunow
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25
<i>Cymbella cistula</i> Hemprich
See Plate 11 Figure 53.16.8 & Plate 12 Figure 42.14.9 & Plate 29 Figure 19
<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
See Plate 3 Figure 10.3.15
<i>Cymatopleura solea</i> var. <i>gracilis</i> Grunow
See Plate 20 Figure 7
<i>Cymatopleura elliptica</i> (Brébisson) W.Smith
See Plate 14 & Plate 29 Figure 9
<i>Nitzschia linearis</i> (C.Agardh) W.Smith
See Plate 13 Figure 100.5.28.9

## Plate 18 – Quarry – Swithland Woods, Leicestershire

Figure/dimensions	Name
1/21 diameter	<i>Cyclotella Kützingii</i>
3/5 diameter	<i>Cyclotella</i> sp.
2/18 diameter	<i>Stephanodiscus tenuis</i> Hustedt
17/50.2.9	<i>Diatoma elongatum</i> C.Agardh See Plate 29 Figure 5
5/56.4½	<i>Asterionella formosa</i> Hassall A very common planktonic form in the material
4/16.4.14	<i>Fragilaria construens</i> var. <i>binodis</i> (Ehrenberg) Grunow
6/290.3½.12	<i>Synedra acus</i> Nitzsch Frequent
8/13½.5½.13	<i>Achnanthes laterostrata</i> Hustedt Quite frequent. Variable in outline to non-rostrate.
7/13½.6.13	<i>Achnanthes</i> sp. ? Clevei The raphe bearing valve of this form is not <i>Achnanthes laterostrata</i> Hustedt, because of the stria type and rate per 10µ. The rest of the features are acceptable.
11/34½.6½.18	<i>Caloneis bacillum</i> (Grunow) Cleve
9/24.15.9	<i>Diploneis ovalis</i> (Hilse) Cleve
10/97.6½.X	<i>Amphipleura pellucida</i> Kützing This taxon has a very high stria rate usually about 40 in 10µ and is often used for testing the resolution of high grade equipment.
13/20.6½.12	<i>Navicula lanceolata</i> (C.Agardh) Kützing
14/24.8½.12	<i>Navicula menisculus</i> Schumann
12/30.8.18	<i>Navicula Wittrockii</i> (Lagerstedt) A.Cleve-Euler
16/9½.4.15	<i>Cymbella</i> sp. This could be a small <i>Cymbella ventricosa</i> C.Agardh, but is not typical. Ventral edge over convex! <i>Cymbella ventricosa</i> C.Agardh, is usually straight or concave ventral edge.
15/47.10.5	<i>Pinnularia borealis</i> Ehrenberg

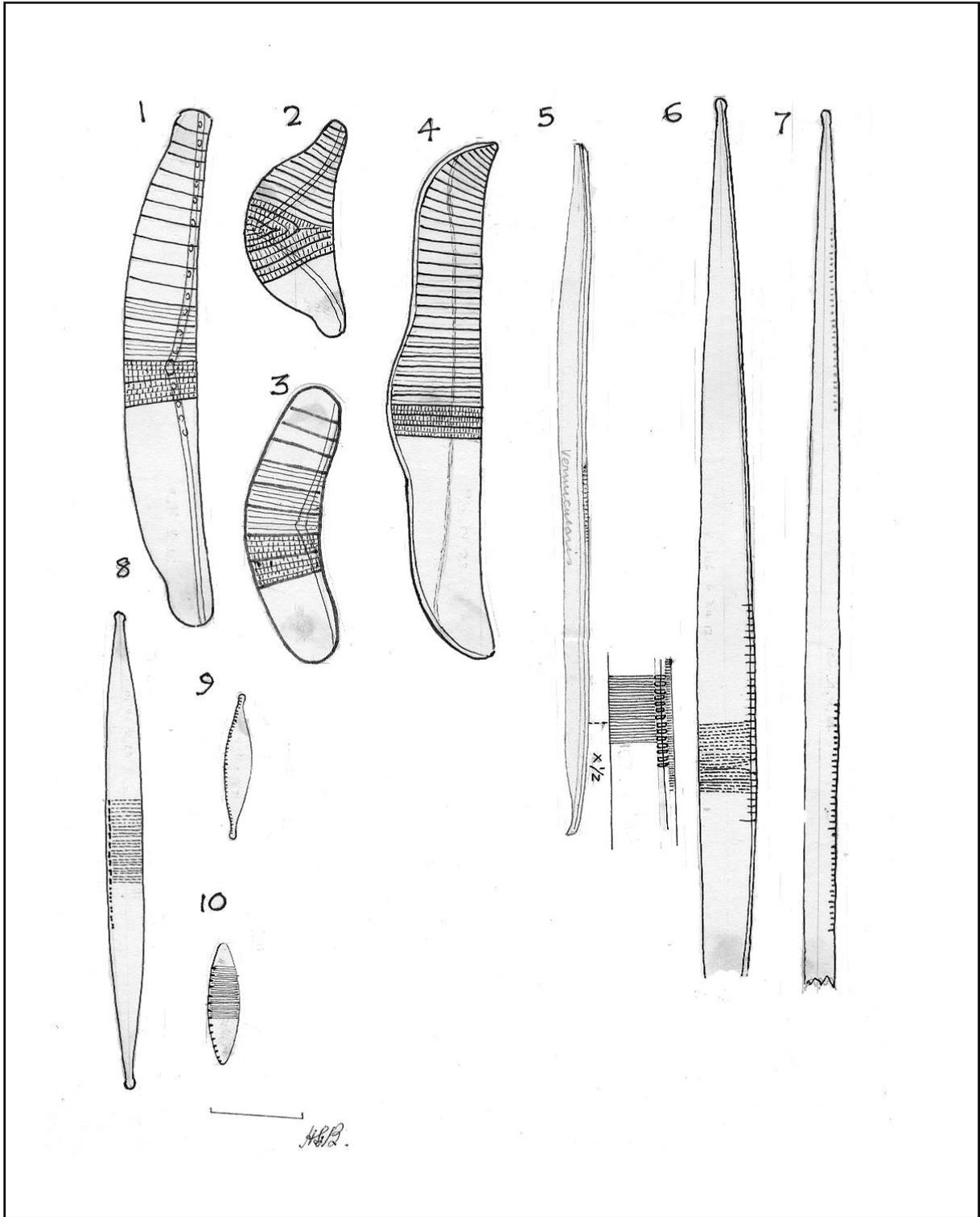
# Plate 18



**Plate 19 – Quarry – Swithland Woods, Leicestershire (continued)**

Figure/dimensions	Name
1/57.8.15.4	<i>Epithemia zebra</i> var. <i>saxonica</i> (Kützing) Grunow
3/30.8.15.4	<i>Epithemia zebra</i> (Ehrenberg) Kützing
	Not a typical form
2/24.10.15.7	<i>Epithemia sorex</i> Kützing
	See also Plate 29 Figure 15
The group of forms which fall within <i>Epithemia zebra</i> (Ehrenberg) Kützing, and <i>Epithemia sorex</i> Kützing, are very variable in outline and would possibly inter-grade were it not for the raphe positions and inter-costal stria.	
4/5.10.8/16	<i>Rhopalodia parallela</i> (Grunow) O.Müller
	Variable in length in the collection.
10/14.3½.26.11	<i>Nitzschia fonticola</i> var. <i>subsalina</i> (??)
9/16.3.X.18	<i>Nitzschia Kutzingiana</i> Hilse
5/153.10.24.10	<i>Nitzschia vermicularis</i> (Kützing) Ralfs
	See also Plate 4 Figure 180.6.30+.10 & Plate 29 Figure 10
6/106.6.24.12	<i>Nitzschia ?dissipata</i>
	See also Plate 4 Figure 30.5.X.8 & Plate 13 Figure 14.4.X.7 & Figure 32.4.X.7
7/160.4.X.14	<i>Nitzschia</i> sp.
8/52.4.20.10	<i>Nitzschia</i> sp.

# Plate 19



# An Account of a Gathering of Diatoms made in Mallory Park, Leicestershire

## Spring – 1963 by H. G. Barber

Editor's Note: Mallory Park, near Kirkby Mallory, has been a racing circuit venue for some considerable time. Quite which area within Mallory Park estate the collection site refers to I'm not sure. Much of the 'boggy ground' that once existed there has been excavated to create a lake for Mallory Park Fisheries.



During May 1963 whilst visiting Mallory Park algae and fine weed floating in an area of boggy ground was noticed to be well coloured with diatoms. Consequently a collection was made of some of the floating material. After suitable chemical cleaning by the Sulphuric Acid, Bichromate of Potash and Peroxide of Hydrogen, the cleaned diatoms were mounted in Naphrax, a synthetic resin mountant of the necessary high refractive index.

A slide searched by a  $\frac{1}{12}$  inch Oil immersion objective revealed some 18 genera present, represented by 48 species, varieties or forms.

The variety of forms recorded is average but an extended search of the processed material would possibly reveal others. Also it must not be assumed that the list is a full flora of the site, for no doubt a more varied collection from the water would reveal further forms.

The genus *Fragilaria*, represented by *Fragilaria capucina* var. *mesolepta* Descartes, and *Fragilaria bidens* Heiberg, was in peak of production, for prior to the material being cleaned the former could be noted in long chains up to 3mm and consisting of hundreds of frustules adhering side by side as is their habit.

It was interesting to note the occurrence of *A. lanceolata* var. *bimaculata* Hustedt, as this form is not frequent being the first personal record in this part of the country. The form *Suirella ovalis* Brébisson, Fig.12 is quite common in the counties of Caernarvonshire and Anglesey, particularly where influence of brackish or saline water is made, but in this part of the country the form is rarely met.

**Mallory Park**

Species figured on Plates in other sections or not figured at all.

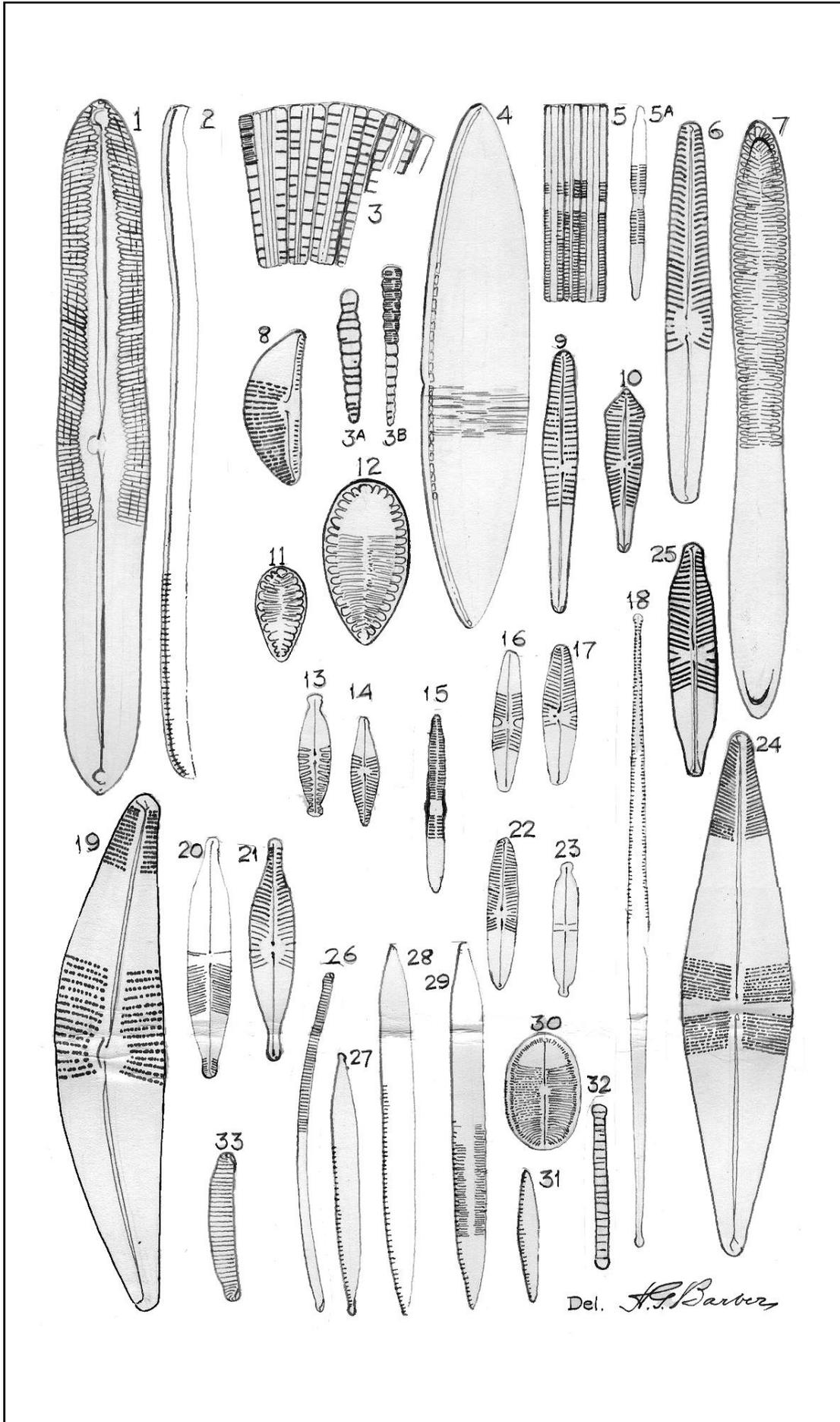
<b>Name</b>
<i>Achnanthes lanceolata</i> Brébisson
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Cymbella ventricosa</i> Kützing
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Diatoma elongatum</i> C.Agardh
See Plate 18 Figure 17/50.2.9 & Plate 29 Figure 5
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith
See Plate 12/Figure 40.12.10
<i>Gomphonema angustatum</i> var. <i>producta</i> Grunow
See Plate 3 Figure 22.6.13
<i>Gomphonema constrictum</i> Ehrenberg
See Plate 12 Figure 30.10.10 & Plate 29 Figure 26
<i>Gomphonema parvulum</i> (Kützing) Grunow
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25
<i>Gyrosigma acuminatum</i> (Kützing) Rabenhorst
See Plate 29 Figure 16
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Navicula pupula</i> var. <i>elliptica</i> Hustedt
See Plate 5 Figure 18½.6.16
<i>Navicula radiosa</i> Kützing
See Plate 9 Figure 86.12.11 & Plate 29 Figure 17
<i>Nitzschia tenuis</i> Grunow
See Plate 4 Figure 146.5.25.10
<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
See Plate 10 Figure 100.26½.7 & Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6 & Plate 29 Figure 18
<i>Surirella angustata</i> Kützing
See Plate 15 Figure 37.9½.60 in 100µ & Plate 29 Figure 23
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11

## Plate 20 – Mallory Park

Figure/dimensions	Name
16	<i>Achnanthes lanceolata</i> var. <i>bimaculata</i> Hustedt
8	<i>Amphora ovalis</i> Kützing
	See also Plate 11 Figure 37.10½.12
30	<i>Cocconeis placentula</i> (Ehrenberg) Hustedt
	See also Plate 1 Figure 12.7½.25/30 & Plate 7
7	<i>Cymatopleura solea</i> fa. <i>gracilis</i> Grunow
19	<i>Cymbella aspera</i> (Ehrenberg) Cleve
32	<i>Diatoma anceps</i> (Ehrenberg) Grunow
26	<i>Eunotia lunaris</i> (Ehrenberg) Grunow
	See also Plate 7 Figure 37.4.17 & Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16
33	<i>Eunotia pectinalis</i> var. <i>minor</i> fa. <i>intermedia</i> Krasske
5 & 5A	<i>Fragilaria capucina</i> var. <i>mesolepta</i> (Rabenhorst) Rabenhorst
15	<i>Fragilaria bidens</i> Heiberg
10	<i>Gomphonema acuminatum</i> W.Smith
9	<i>Gomphonema intricatum</i> Kützing
	See also Plate 17 Figure 21/18.5½.14
3 & 3B	<i>Meridion circulare</i> C.Agardh
	See also Plate 1 Figure 34½.6.15
3A	<i>Meridion circulare</i> var. <i>constricta</i> (Ralfs) H.v.Heurck
22	<i>Navicula cincta</i> (Ehrenberg) Kützing
14	<i>Navicula cryptocephala</i> Kützing
	See also Plate 5 Figure 33.10.15 & Figure 44.10.15
13	<i>Navicula Hungarica</i> var. <i>capitata</i> (Ehrenberg) Cleve
	See also Plate 3 Figure 22.6.8
17	<i>Navicula mutica</i> Kützing
	See also Plate 5 Figure 14.6.15
6	<i>Navicula oblonga</i> Kützing
	See also Plate 9 Figure 120.13½.7
21	<i>Navicula rhyncocephala</i> Kützing
	See also Plate 9 Figure 38.11.10 & Plate 29 Figure 30
25	<i>Navicula viridula</i> var. <i>sclesvicensis</i> (Grunow) Cleve
27	<i>Nitzschia capitellata</i> Hustedt
	See also Plate 28 Figure 9/33.5.X.9
29	<i>Nitzschia Hungarica</i> Grunow
	See also Plate 4 Figure 67.8.17.10
31	<i>Nitzschia romana</i> Grunow
	See also Plate 13 Figure 20.3½.27.12
2	<i>Nitzschia sigmoidea</i> (Ehrenberg) Grunow
	See also Plate 4 Figure 180.6.30+.10 & Plate 13 Figure 330.10.27.5/6
28	<i>Nitzschia thermalis</i> Kützing
4	<i>Nitzschia tryblionella</i> Hantzsch
	See also Plate 14 Figure 140.24.X.6 & Plate 28 Figure 4/93.24.6.7
1	<i>Pinnularia major</i> (Kützing) Cleve
	See also Plate 10 Figure 166.30.6½
20	<i>Stauroneis anceps</i> Ehrenberg
	See also Plate 8 Figure 52.13.20 & Plate 10 & Plate 16 Figure 10/50.9½.22
24	<i>Stauroneis phoenicentron</i> Ehrenberg
	See also Plate 8 Figure 86½.16.16 & Plate 16 Figure 11/134.26.18

**Plate 20 – Mallory Park (continued)**

<b>Figure/dimensions</b>	<b>Name</b>
<b>23</b>	<i>Stauroneis pygmaea</i> Kreiger
	See also Plate 8 Figure 23.5.30
<b>11 &amp; 12</b>	<i>Surirella ovalis</i> Brébisson
	See also Plate 25 Figure 1/71.35.57 & Figure 2/90.29.60
<b>18</b>	<i>Synedra affinis</i> Kützing
	See also Plate 7 Figure 113.5.14 & Plate 23 Figure 5/196.5.12



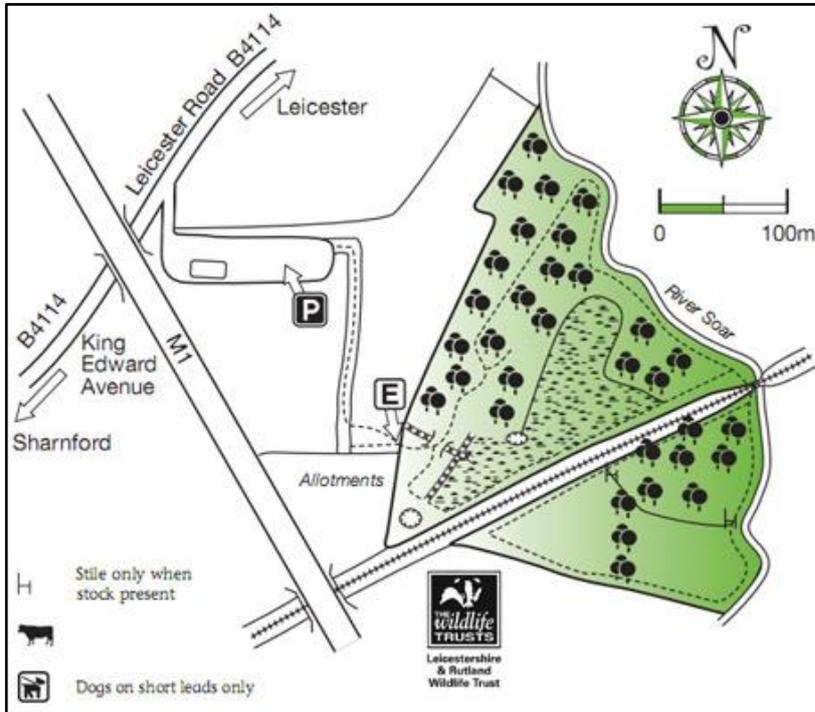
# Diatoms from Narborough Bog, Leicestershire

## Narborough Bog

OS map ref: SP 549979 (Sheet 140)

[52.57575,-1.19133]

The reserve lies between the River Soar and the M1 motorway, 5 miles (8km) south of Leicester. From the city, turn left off the B4114 immediately before going under the motorway, and drive down the track to the sports club. You should park near the club-house and walk across the recreation ground to the reserve entrance, which is just where the allotments and the nature reserve meet.



**Leicestershire & Rutland Wildlife Trust**  
**Narborough Bog Nature Reserve**

**Welcome**  
 Narborough Bog, lying in the River Soar floodplain, consists of a mosaic of wet woodland, reedbed and herb-rich wet meadows. This unique and diverse site supports a range of interesting wildlife from Kingfishers, which hunt along the River to moths that inhabit the reedbed.

**Reedbed**  
 This reserve contains one of the largest natural reedbeds in Leicestershire and Rutland beneath which is a substantial deposit of peat. Analysis of pollen within the peat shows that the bog system began to form soon after the last ice age, about 11,000 years ago, probably in the channel of a glacial river. A number of notable moths closely associated with reed have been recorded in this area, including Brown-veined Wainscot and Fen Wainscot.

**Meadows**  
 South of the railway line lie two of the last remaining flood meadows of the Soar Valley. One of the meadows is especially species-rich, as it has not been altered significantly by modern agricultural practices. This meadow contains Meadowweet, Meadow Saxifrage, Marsh Thistle and Meadow-rue.

**Butterflies & Moths**  
 A good variety of butterflies occur on the nature reserve, including Common Blue, Speckled Wood, Large and Small Skippers, Small Heath and Gatekeeper. As many as 90 moth species have been recorded in one night, including Gold Spot, Drinker, Burnished Brass and Beautiful Golden Y.

**Grass Snakes** are also seen around the reedbed and railway embankment.

**Wet Woodland**  
 Surrounding the reedbed is an area of wet woodland, dominated by Willow with Alder, Ash and Oak. Great-spotted Woodpeckers, Sparrowhawks and Treecreepers are often seen in the wood, and in winter large flocks of Siskin and Redpoll feed on the Alder cones. Woodland flowers include Red Campion, Skullcap, Herb Robert, Wood Aven, Angelica and Moschatel.

**Wildlife Illustrations:** Red Campion, Goat Willow, Small Skippers on Marsh Thistle, Kingfisher, Cuckooflower, Gold Spot Moth.

**Conservation & Visitor Information:**  
 Leicestershire and Rutland Wildlife Trust is working for the protection and enhancement of the county's wildlife and wild places. We care for 37 nature reserves covering over 2,300 acres. As a Site of Special Scientific Interest Narborough Bog is protected by law. To preserve this special place please:  
 • Shut all gates  
 • Keep to the paths  
 • Take your litter home  
 • Do not bring vehicles on the site, camp or light fires  
 • Do not remove or damage any plants or animals.  
 Thank You  
 With a growing membership, we are achieving great things. With your help we can do so much more. Please contact us for membership information.  
 The Leicestershire and Rutland Wildlife Trust is a registered charity no. 210511.  
 Suggested by the Heritage Lottery Fund  
 Illustrated by John Wright

In early 1977 Mr. David Williamson who was collecting Desmids at this site kindly sent along material which was quite rich in diatoms.

The gathering was made from filamentous algae and contained in the main *Pinnularia*, *Stauroneis* and *Synedra*, particularly *Synedra minuscula* Grunow in H.v.Heurck, in great profusion.

The *Pinnularia* were separated by gravitation for these proved to be of considerable interest by their variation and complexity. Some of the forms of this genus can be identified with certainty but there are others which are quite indeterminate this mostly being due to poor illustrations and mis-identification in literature.



## Narborough Bog

Species figured on Plates in other sections or not figured at all.

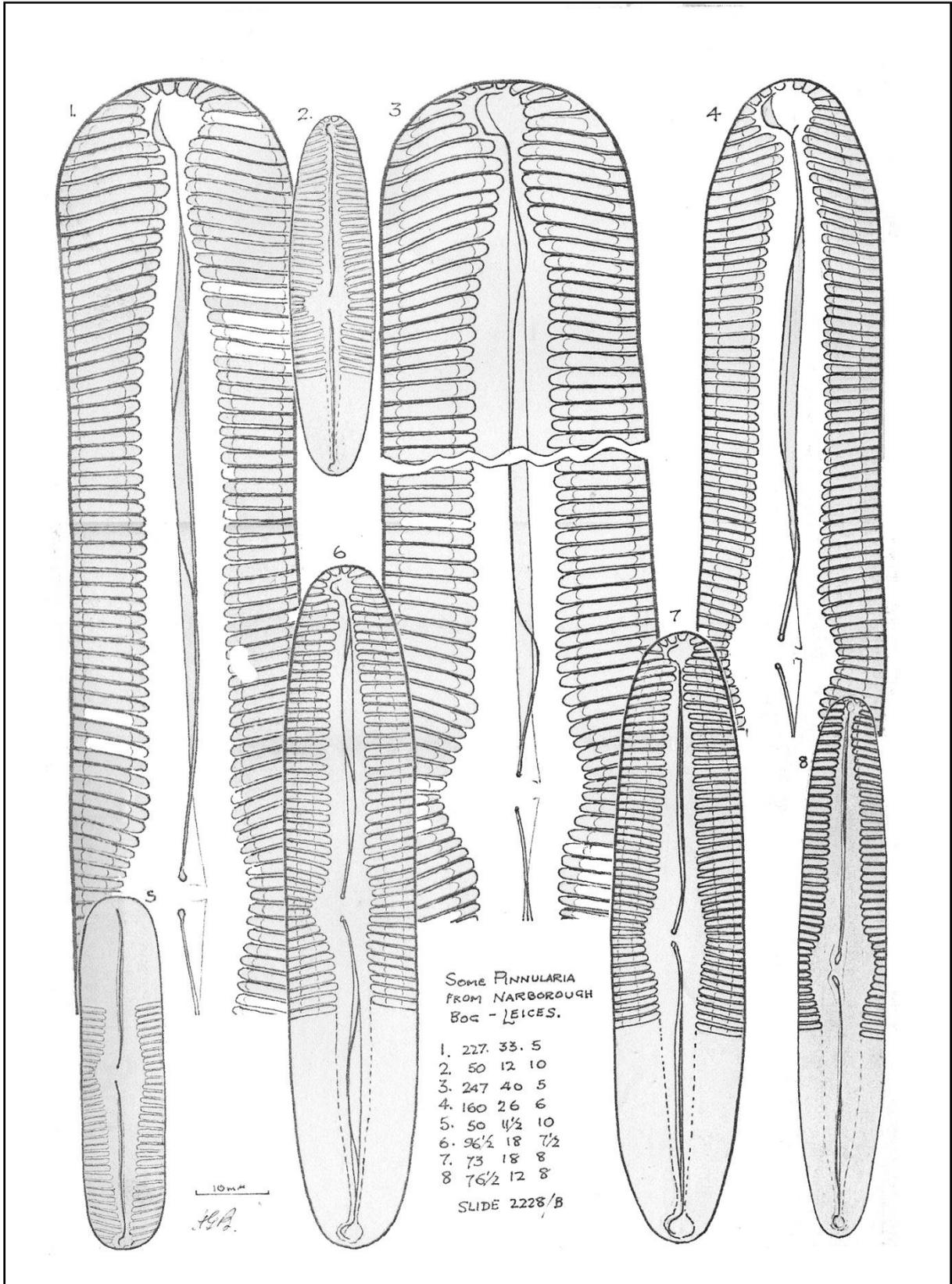
Name
<i>Stephanodiscus astraea</i> (Ehrenberg) Grunow ? <i>rotula</i> (Kützing) Hendeby
See Plate 5 Figure 1 & 6 & Plate 6
<i>Synedra minuscula</i> Grunow in H.v.Heurck
See Plate 22 Figure 5/23.2.15/16.2½.15 This form has variation in the central area. The central area may be absent or reduced to a narrow lanceolate form.
<i>Meridion circulare</i> (Greville) C.Agardh
Plate 1 Figure 34½.6.15 & Plate 20 Figure 3 & 3B
<i>Stauroneis anceps</i> Ehrenberg
See Plate 8 Figure 52.13.20 & Plate 10 & Plate 16 Figure 10/50.9½.22 & Plate 20 Figure 20 The outline of this taxon is variable from rostrate to practically lanceolate.
<i>Navicula oblonga</i> Kützing
See Plate 9 Figure 120.13½.7 & Plate 20 Figure 6 The forms here are rather shorter than normal and occasionally have an irregular central stauros.
<i>Navicula viridula</i> var. <i>sclesvisensis</i>
See Plate 3, Plate 9 & Plate 20 Figure 25
<i>Caloneis ventricosa</i> var. <i>peisonis</i> Hustedt
See Plate 8 Figure 66.14.16
<i>Cymbella lanceolata</i> (Ehrenberg) H.v.Heurck
See Plate 12 Figure 140.25.9 (Note name corrected on Plate 12 to <i>Cymbella lanceolata</i> (C.Agardh) Kirchner)
<i>Pinnularia subcapitata</i> fa.
See Plate 17

**Plate 21 – Narborough Bog**

Figure/dimensions	Name
1	<i>Pinnularia nobilis</i> (Ehrenberg) Ehrenberg
	A form nearer <i>Pinnularia nobilis</i> (Ehrenberg) Ehrenberg, than <i>Pinnularia gentilis</i> (Donkin) Cleve by virtue of stria rates. Raphe system not typical.
2	<i>Pinnularia viridis</i> var. <i>Mayeri</i> A.Cleve-Euler
3	<i>Pinnularia nobilis</i> (Ehrenberg) Ehrenberg
	A typical form.
4	<i>Pinnularia</i> sp.
	A form near to <i>Pinnularia cuneata</i> of A.Cleve-Euler.
5	<i>Pinnularia viridis</i> var. <i>Mayeri</i> A.Cleve-Euler.
6	<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
	I consider a good type form. See also Plate 10 Figure 100.26½.7 & Plate 17 Figure 12/86.16.9 & Plate 29 Figure 18
7	<i>Pinnularia viridis</i> var.
	The nearest I can suggest is Cleve's var. <i>intermedia</i>
8	<i>Pinnularia</i> sp.
	An indeterminate form.

Note: Dimensions to forms 1-8 are shown on the plate.

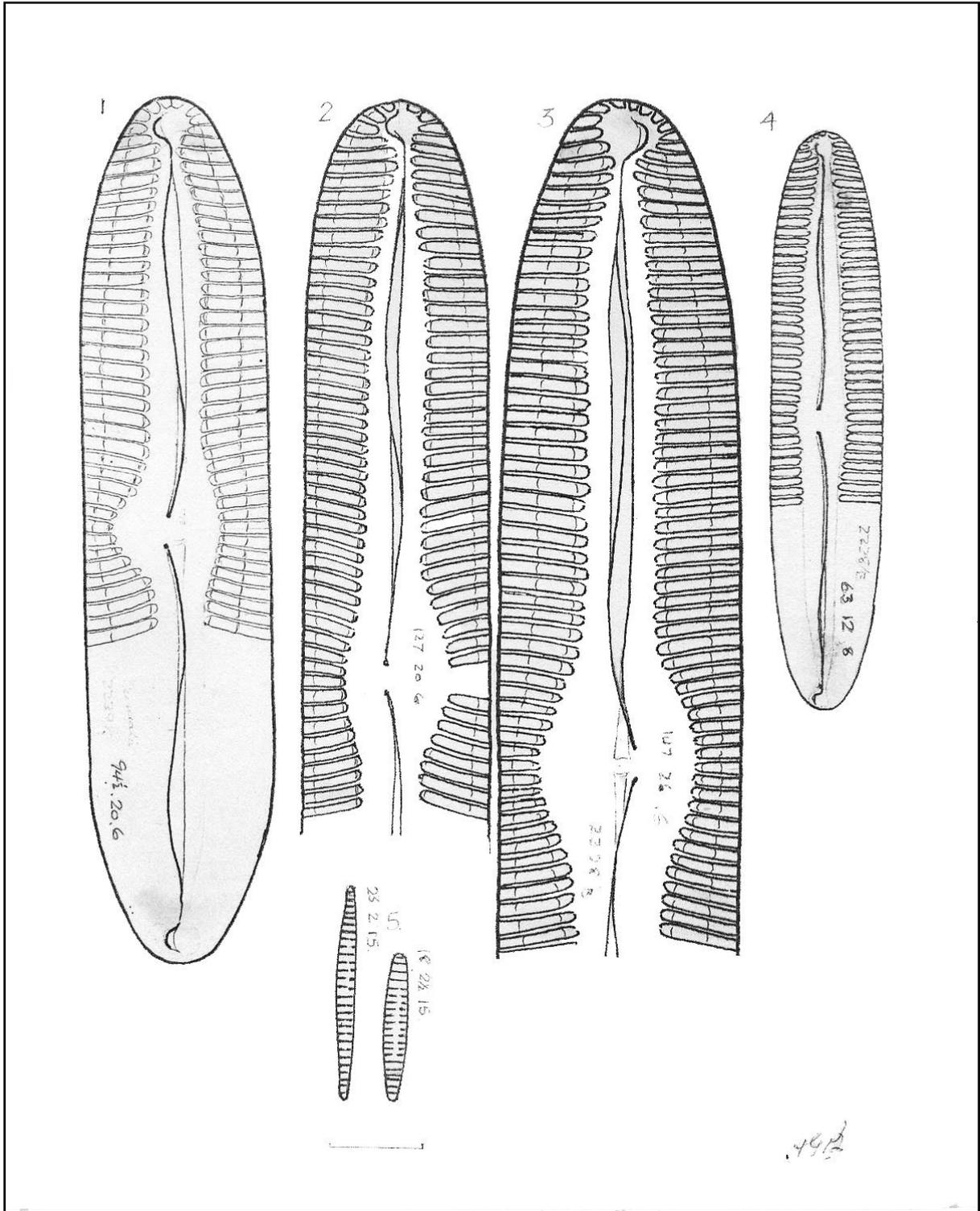
Plate 21



**Plate 22 – Narborough Bog (continued)**

<b>Figure/dimensions</b>	<b>Name</b>
1/94½.20.6	<i>Pinnularia cuneata</i> A.Cleve-Euler.
2/129.20.6	<i>Pinnularia</i> sp.
3/149.26.6	<i>Pinnularia</i> sp.
4/63.12.8	<i>Pinnularia</i> ? <i>viridis</i> fa.
5/23.2.15 & 16.2½.15	<i>Synedra minuscula</i> Grunow in H.v.Heurck

# Plate 22



## The Diatom Flora of an Oxbow (formerly the River Sence) within the wooded area of Narborough Bog, Leicestershire.

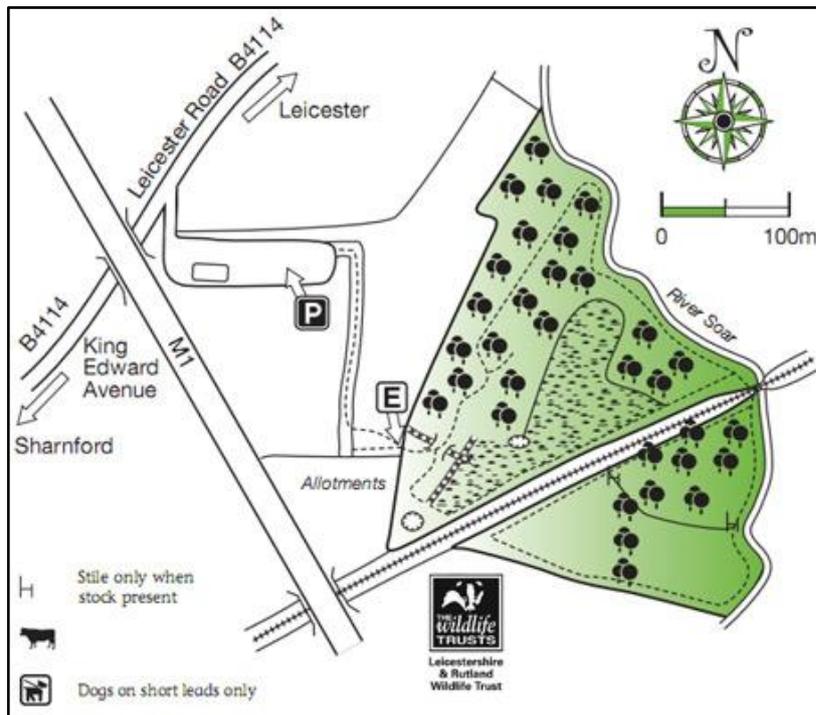


[Editor's Note: I believe the river referred to should be the River Soar and not the Sence. Plaque attached to bridge over river at Narborough Bog Nature Reserve.

OS map ref: SP 549979 (Sheet 140)  
[52.57575,-1.19133]

The reserve lies between the River Soar and the M1 motorway, 5 miles (8km) south of Leicester. From the city, turn left off the B4114 immediately before going under the motorway, and drive down the track to the sports club. You should park near the club-house and walk across the recreation ground to the reserve entrance, which is just where the allotments and the nature reserve meet.

At the time of my visit the wooded area was unfortunately inaccessible due to the instability of the Crack Willows (*Salix fragilis*) on the site. Crack willows, left to do their own thing, have a tendency to shed branches.]



During June 1977 a visit was made to Narborough Bog along with Mr. D. Williamson of Oadby for the purpose of collecting Desmids and Diatoms. Very few, if any, of the former organisms were collected but at the above mentioned site a very prolific collection (of diatoms) was made.

Although the Oxbow was practically devoid of water, at the lowest point a surface scrape of mud was secured and subsequently cleaned by one of the normal acid treatments i.e. Permanganate of Potash, Sulphuric Acid and oxidised with Hydrogen Peroxide, thence to subsequent washings to clear.

As will be noted the flora was most extensive and some hundred odd species etc. recorded. The range of forms is most diverse, no doubt due to the change of habitat from the original water through to somewhat acid conditions of the present.

Within some genera some forms are most difficult to identify with certainty. Many what may be called indeterminate or my literature does not cover. Consequently, I am only able to illustrate and designate to generic status.

Along with previous practice many forms have not been illustrated but reference to previous illustrations made (per plate number). It should of course be appreciated that dimensions to some degree will differ within the usual specific limits.  
As with previous records the list is in Taxonomical order.

**Oxbow – Narborough Bog**

Species figured on Plates in other sections or not depicted at all.

<b>Name</b>
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Cyclotella Meneghiniana</i> Kützing
See Plate 1 Figure 14 $\mu$ diameter & Plate 6 Figure 28 $\frac{1}{2}$ diameter
<i>Stephanodiscus <del>astraea</del> ? rotula</i> (Kützing) Hendey
See Plate 5 Figures 1 & 6
<i>Diatoma vulgare</i> Bory
See Plate 6 Figure 52.10.7
<i>Diatoma vulgare</i> var. <i>elongatum</i>
See Plate 18
<i>Diatom vulgare</i> var. <i>producta</i> Grunow
See Plate 1 Figure 50.10.5 & Figure 50.10.6 & Plate 29 Figure 6
<i>Meridion circulare</i> (Greville) C.Agardh
See Plate 1 Figure 34 $\frac{1}{2}$ .6.15 & Plate 20 Figure 3 & 3B
<i>Fragilaria capucina</i> Desmazières
See Plate 6 Figure 26.4.15 & Figure 30.3.15
<i>Fragilaria brevistriata</i> Grunow in H.v.Heurck
See Plate 6 Figure 16.5.13
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6 $\frac{1}{2}$ .10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Synedra ulna</i> var. <i>spathulifera</i> (Grunow) Grunow in H.v.Heurck
See Plate 7 Figure 250.10.8
<i>Synedra pulchella</i> (Ralfs ex Kützing) Kützing
See Plate 7
<i>Synedra minuscula</i> Grunow in H.v.Heurck
See Plate 22 Figure 5
<i>Eunotia lunaris</i> (Ehrenberg) Grunow
See Plate 7 Figure 37.4.17 & Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16 & Plate 20 Figure 26
<i>Cocconeis euglypta</i> Ehrenberg
See Plate 7
<i>Cocconeis placentula</i> Ehrenberg
See Plate 1 Figure 12.7 $\frac{1}{2}$ .25/30 & Plate 7 & Plate 20 Figure 30
<i>Achnanthes lanceolata</i> (Brébisson ex Kützing) Grunow in H.v.Heurck
See Plate 1 Figure 15.5 $\frac{1}{2}$ .14 & Plate 5 Figure 24.6 $\frac{1}{2}$ .12 & Plate 16 Figure 9/14.6 $\frac{1}{2}$ .15 & Plate 29 Figure 12
<i>Achnanthes lanceolata</i> var. <i>rostrata</i> Hustedt
A rostrate form of above. The outline of this taxon is fluid ranging from elliptic to near subcapitate. See Plate 1
<i>Rhoicosphenia curvata</i> (Kützing) Grunow
See Plate 1 Figure 36.5 $\frac{1}{2}$ .10
<i>Gyrosigma Kützingii</i> (Grunow) Cleve
See Plate 2 Figure 100.14.18
<i>Frustulia vulgaris</i> (Thwaites) DeToni
See Plate 2 Figure 44.10.30 & Plate 29 Figure 22
<i>Amphipleura pellucida</i> (Kützing) Kützing
See Plate 18 Figure 10/97.6 $\frac{1}{2}$ .X

**Oxbow – Narborough Bog**

Species figured on Plates in other sections or not depicted at all. (continued)

Name
<i>Caloneis ventricosa</i> (Ehrenberg) F.Meister
See Plate 8 Figure 50.13½.16
<i>Caloneis ventricosa</i> var. <i>truncatula</i> (Grunow) F.Meister
See Plate 9
<i>Caloneis ventricosa</i> (variant)
See Plate 8
<i>Caloneis amphisbaena</i> (Bory de Saint Vincent) Cleve
See Plate 2 Figure 66.24.13
<i>Diploneis ovalis</i> (Hilse) Cleve
See Plate 18 Figure 9/24.15.9
<i>Diploneis elliptica</i> (Kützing) Cleve
Not figured
<i>Stauroneis phoenicentron</i> Ehrenberg
See Plate 8 Figure 86½.16.16 & Plate 16 Figure 11/134.26.18 & Plate 20 Figure 24
<i>Stauroneis anceps</i> Ehrenberg
See Plate 8 Figure 52.13.20 & Plate 10 & Plate 16 Figure 10/50.9½.22 & Plate 20 Figure 20
<i>Stauroneis Smithii</i> Grunow
See Plate 2 Figure 24½.6½.26
<i>Stauroneis pygmaea</i> Krieger
See Plate 8 Figure 23.5.30 & Plate 20 Figure 23
<i>Anomoeoneis sphaerophora</i> E.Pfitzer
See Plate 5 Figure 64.20.16
<i>Navicula gregaria</i> Donkin
See Plate 2 Figure 24.6.20
<i>Navicula cuspidata</i> (Kützing) Kützing
See Plate 2 Figure 73.17.16
<i>Navicula accomoda</i> Hustedt
See Plate 2 Figure 20.7.20/30
<i>Navicula Wittrockii</i> (Lagerstedt) A.Cleve-Euler
See Plate 18 Figure 12/30.8.18
<i>Navicula pupula</i> Kützing
See Plate 5 Figure 27.8.20 & Figure 27.8.5 & Plate 29 Figure 31
<i>Navicula pupula</i> var. <i>rostrata</i> Hustedt
Not figured
<i>Navicula pupula</i> var. <i>elliptica</i> Hustedt
See Plate 5 Figure 18½.6.16
<i>Navicula pupula</i> var. <i>capitata</i> Skvortzov & Meyer
<i>Navicula pupula</i> Kützing, is very fluid in outline and many intermediates can be recorded. Not figured
<i>Navicula oblonga</i> Kützing
See Plate 9 Figure 120.13½.7 & Plate 20 Figure 6
<i>Navicula viridula</i> Kützing
See Plate 9 Figure 68.14.9
<i>Navicula viridula</i> var. <i>sclesvicensis</i>
See Plate 3, Plate 9 & Plate 20 Figure 25

**Oxbow – Narborough Bog**

Species figured on Plates in other sections or not depicted at all. (continued)

<b>Name</b>
<i>Navicula viridula</i> var. <i>avenacea</i> (Brébisson) H.v.Heurck
See Plate 3
<i>Navicula cryptocephala</i> var. <i>veneta</i> (Kützing) Rabenhorst
See Plate 3 & Plate 8 Figure 13½.4.15
<i>Navicula gracilis</i> Ehrenberg
See Plate 3 Figure 35.8.10 & Figure 42.8.10 & Plate 9 Figure 48.9½.9
<i>Navicula rhyncocephala</i> Kützing
See Plate 9 Figure 38.11.10 & Plate 20 Figure 21 & Plate 29 Figure 30
<i>Navicula radiosa</i> Kützing
See Plate 9 Figure 86.12.11 & Plate 29 Figure 17
<i>Navicula radiosa</i> var. <i>tenella</i> (Brébisson ex Kützing) H.v.Heurck
See Plate 8
<i>Navicula umida</i> Bock(?)
See Plate 3 & Plate 5. Figure 18.5.11
<i>Navicula pusilla</i> W.Smith
See Plate 26 Figure 7
<i>Navicula mutica</i> Kützing
See Plate 5 Figure 14.6.15 & Plate 20 Figure 17
<i>Pinnularia aestuari</i> Cleve
Not figured
<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
See Plate 10 Figure 100.26½.7 & Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6 & Plate 29 Figure 18
<i>Pinnularia major</i> (Kützing) Rabenhorst
See Plate 10 Figure 166.30.6½ & Plate 20 Figure 1
<i>Pinnularia subcapitata</i> W.Gregory
See Plate 17 Figure 17/32½.6.13 & Figure 18/30.6.12 & Figure 19
<i>Pinnularia borealis</i> Ehrenberg
See Plate 18 Figure 15/47.10.5
<i>Amphora ovalis</i> (Kützing) Kützing
See Plate 11 Figure 37.10½.12 & Plate 20 Figure 8
<i>Amphora ovalis</i> var. <i>libyca</i> (Ehrenberg) Cleve
See Plate 3 Figure 30.10.15 & Plate 11 Figure 28.6½.12
<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
See Plate 3 Figure 10.3.15
<i>Amphora veneta</i> Kützing
See Plate 11 Figure 22.5.20
<i>Cymbella cistula</i> (Ehrenberg) O.Kirchner
See Plate 11 Figure 53.16.8 & Plate 12 Figure 42.14.9 & Plate 29 Figure 19
<i>Cymbella lanceolata</i> (C.Agardh) O.Kirchner
See Plate 12 Figure 140.25.9
<i>Cymbella ventricosa</i> C.Agardh
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Cymbella affinis</i> Kützing
See Plate 27 Figure 13 & Plate 29 Figure 20
<i>Gomphonema constrictum</i> Ehrenberg
See Plate 12 Figure 30.10.10 & Plate 29 Figure 26

**Oxbow – Narborough Bog**

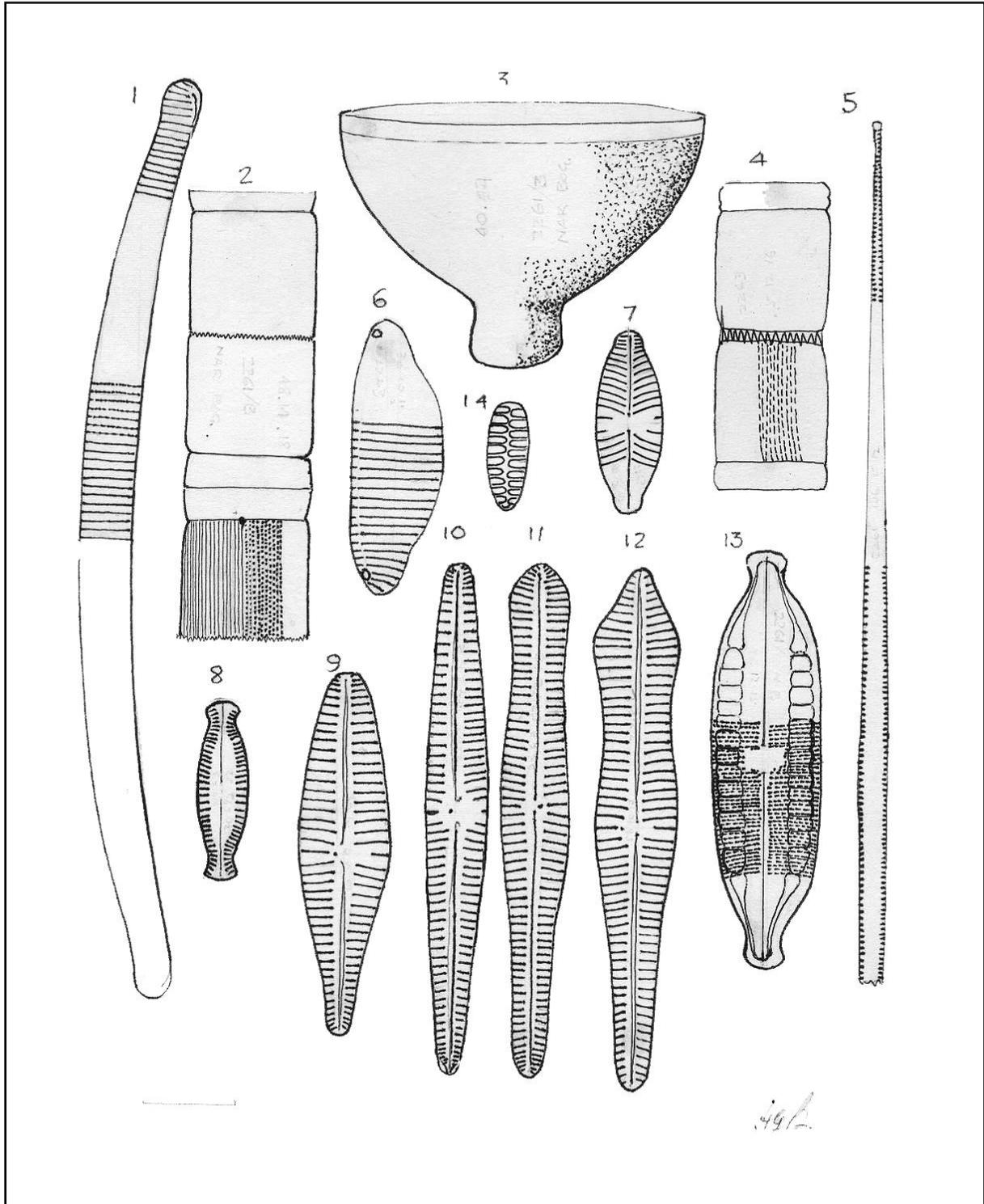
Species figured on Plates in other sections or not depicted at all. (continued)

<b>Name</b>
<i>Gomphonema intricatum</i> Kützing
See Plate 17 Figure 21/18.5½.14 & Plate 20 Figure 9
<i>Gomphonema intricatum</i> var. <i>pumila</i> ( <i>pumilum</i> Grunow in H.v.Heurck?)
Not figured
<i>Gomphonema olivaceum</i> (Hornemann) Brébisson
See Plate 3 Figure 22.7½.10
<i>Gomphonema acuminatum</i> var. <i>Brebissonii</i> (Grunow) Cleve
See Plate 12 Figure 44.12.12
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith
See Plate 12/Figure 40.12.10
<i>Gomphonema longiceps</i> var. <i>subclavata</i> Grunow ex Cleve & Moller
See Plate 12 Figure 33.6½.12
<i>Epithemia zebra</i> (Ehrenberg) Kützing
See Plate 19/Figure 3/30.8.15.4
<i>Epithemia turgida</i> (Ehrenberg) Kützing
See Plate 13 Figure 50.12.5
<i>Epithemia sorex</i> var. <i>gracilis</i> Hustedt
Not figured
<i>Nitzschia sigmoidea</i> (Nitzsch) W.Smith
See Plate 4 Figure 180.6.30+.10 & Plate 13 Figure 330.10.27.5/6 & Plate 20 Figure 2
<i>Nitzschia linearis</i> (C.Agardh) W.Smith
See Plate 13 Figure 100.5.28.9
<i>Nitzschia palea</i> (Kützing) W.Smith
See Plate 4 Figure 33.5.X.15 & Plate 5 Figure 48.4.X.15 & Plate 17 Figure 23/40.3½.X.12
<i>Nitzschia amphioxys</i> (Ehrenberg) W.Smith
See Plate 4 & Plate 14 Figure 63.8.16.7 & Plate 24 Figure 10/83.8.16.8 & Plate 26 Figure 4
<i>Nitzschia frustulum</i> (Kützing) Grunow in Cleve & Grunow
Not figured
<i>Nitzschia amphibia</i> Grunow
See Plate 13 Figure 18.5.15.9 & Figure 56½.6.17.8 & Plate 27 Figure 17/22/4/16/8
<i>Nitzschia parvula</i> Lewis
Not figured
<i>Nitzschia Hungarica</i> Grunow
See Plate 4 Figure 67.8.17.10 & Plate 20 Figure 29
<i>Cymatopleura solea</i> (Brébisson) W.Smith
See Plate 3 Figure 67.21.9 & Figure 73.20.9 & Plate 29 Figure 8
<i>Cymatopleura solea</i> var. <i>gracilis</i> Grunow
See Plate 14 Figure 200.33
<i>Surirella ovata</i> Kützing
See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60
<i>Surirella angustata</i> Kützing
See Plate 15 Figure 37.9½.60 in 100µ & Plate 29 Figure 23

## Plate 23 - Oxbow, Narborough Bog

Figure/dimensions	Name
3/(40x24)	<i>Melosira varians</i> C.Agardh
	This illustrates the particular reproductive stage. See also Plate 1 Figure 18 diameter & Plate 29 Figure 2 & 2A
4/35.12.16	<i>Melosira italica</i> (Ehrenberg) Kützing
2/48.14.18	<i>Melosira islandica</i> subsp. <i>Helvetica</i> O.F.Müller
14	<i>Opephora Martyi</i> Héribaud-Joseph
5/196.5.12	<i>Synedra affinis</i> Kützing
	See also Plate 7 Figure 113.5.14 & Plate 20 Figure 18
6	<i>Eunotia pectinalis</i> fa.
1/101.6.11	<i>Eunotia valida</i> Hustedt
13/46.12.15	<i>Mastogloia Smithii</i> var. <i>amphicephala</i> Grunow in H.v.Heurck
8/20.5½.22	<i>Navicula Schmassmannii</i> Hustedt
7/20.7½.12	<i>Navicula</i> sp.
9/40.10.9	<i>Gomphonema lanceolatum</i> fa. ?
10/57.6½.9	<i>Gomphonema intricatum</i> fa. ?
11/57.7½.10	<i>Gomphonema intricatum</i> var <i>Brebissonii</i> (? <i>acuminatum</i> )
12/58.10.10	<i>Gomphonema longiceps</i> var <i>montana</i> fa. <i>suecica</i>

Plate 23

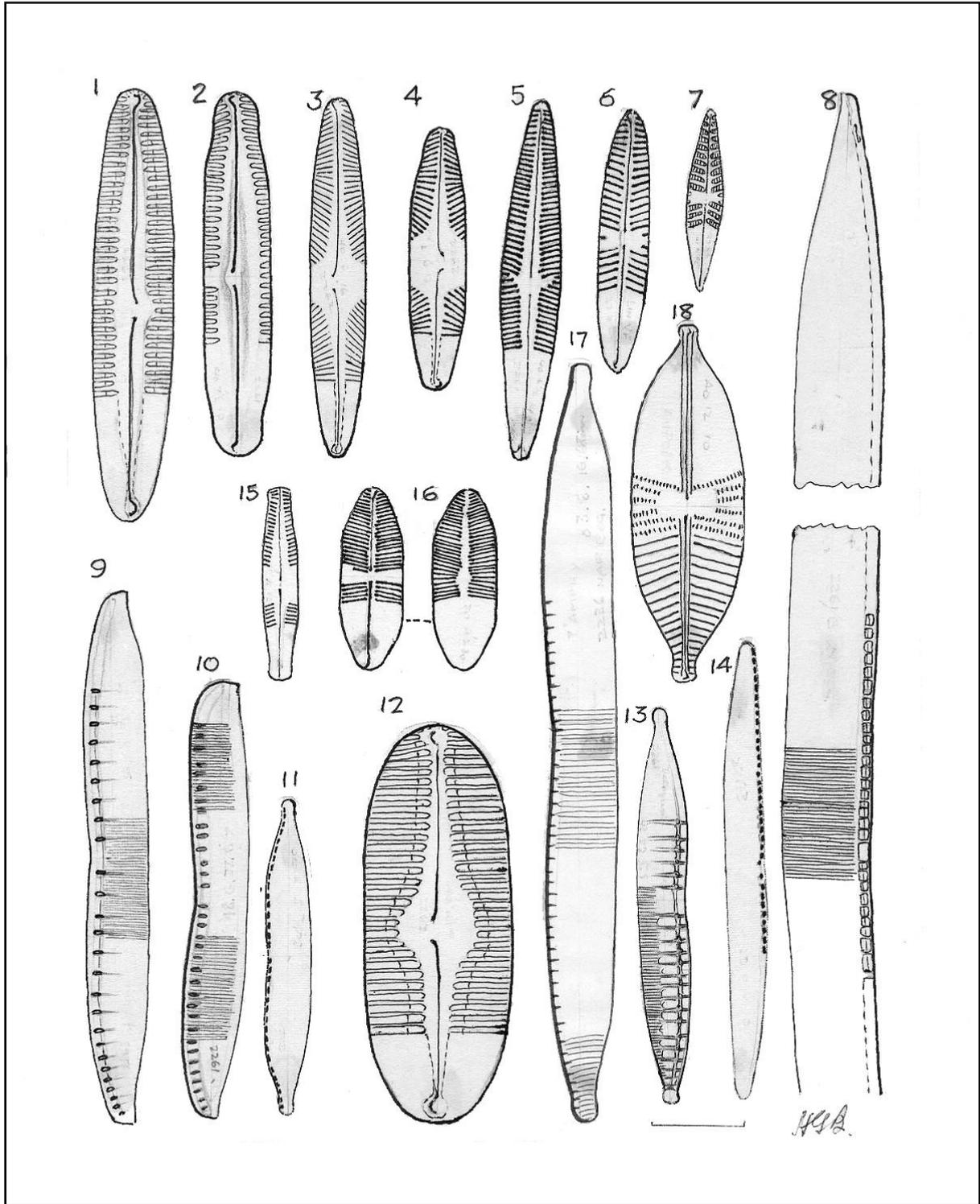


## Plate 24 - Oxbow, Narborough Bog (continued)

Figure/dimensions	Name
<b>16</b>	<i>Achnanthes Hungarica</i> (Grunow) Grunow in Cleve & Grunow See also Plate 5 Figure 16.6.18 & Plate 7 Figure 27.6.18
<b>7/20.4.10</b>	<i>Navicula costulata</i> Grunow in Cleve & Grunow
<b>1/48.8½.9</b>	<i>Pinnularia</i> sp.
<b>2/40.7½.10</b>	<i>Pinnularia nodosa</i> fa.
<b>12/44.16.9</b>	<i>Pinnularia</i> sp. ?
<b>3</b>	<i>Pinnularia microstauron</i> var. <i>Brebissonii</i> fa. <i>diminuta</i>
<b>4</b>	<i>Pinnularia microstauron</i> var. <i>Brebissonii</i> fa. <i>diminuta</i>
<b>11/34½.5.X.9</b>	<i>Nitzschia</i> sp. ?
<b>10/48.6.27.6-7</b>	<i>Nitzschia recta</i> ?
<b>9/56.6½.25.5</b>	<i>Nitzschia</i> sp. ?
<b>14/50.4.X.10</b>	<i>Nitzschia ignorata</i> Krasske
<b>13/43.5½.30.5</b>	<i>Nitzschia delognei</i> Grunow
<b>8/300.9½.26.8</b>	<i>Nitzschia elongata</i> Hantzsch
<b>10/83.8.16.8</b>	<i>Nitzschia amphioxys</i> (Ehrenberg) W.Smith See also Plate 4 & Plate 14 Figure 63.8.16.7 & Plate 26 Figure 4

Figures 5 & 6 are not mentioned.

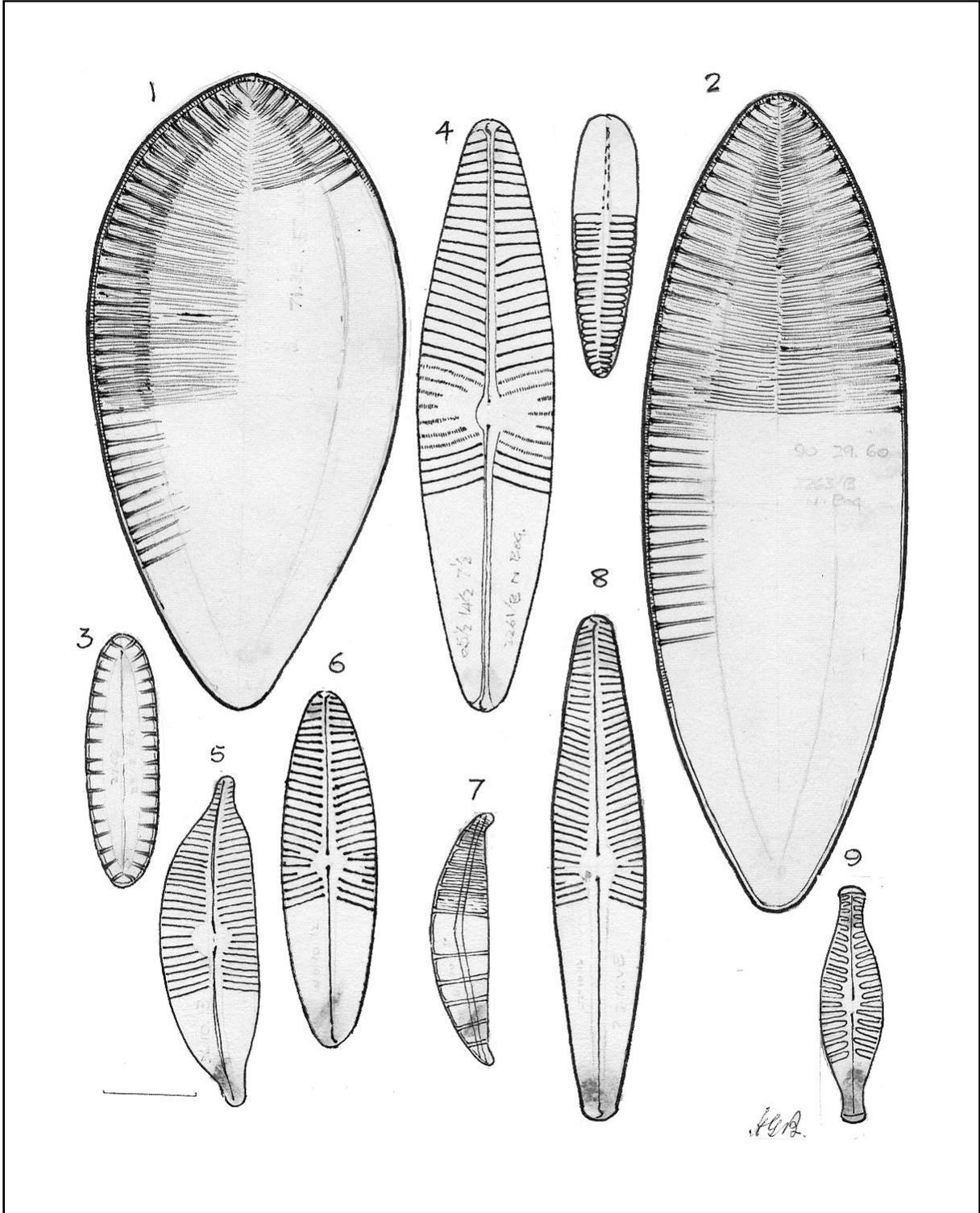
# Plate 24



## Plate 25 - Oxbow, Narborough Bog (continued)

Figure/dimensions	Name
9	<i>Navicula Hungarica</i> Grunow
6/40.10.12	<i>Navicula digito-radiata</i> var. <i>elliptica</i> (W.Gregory) Ralfs
8/55.10.12	<i>Navicula digito-radiata</i> var. <i>elliptica</i> (W.Gregory) Ralfs
4/65½.14½.7½	<i>Navicula meniscus</i> J.Schumann
	Although this taxon is not rare the nearest I can nominate is <i>Navicula meniscus</i> J.Schumann, but it is an unusual form for this habitat. It is normally a marine/brackish form.
5	<i>Cymbella naviculiformis</i> Auerswald ex Heiberg
7/28.6.20.5	<i>Rhopalodia gibberula</i> (Ehrenberg) Otto Müller
3/28.8.60	<i>Surirella ovata</i> var. <i>pinnata</i> (W.Smith) Brun
2/90.29.60	<i>Surirella ovalis</i> Brébisson
	See also Plate 20 Figure 11 & 12
1/71.35.57	<i>Surirella ovalis</i> Brébisson
	See also Plate 20 Figure 11 & 12

Plate 25

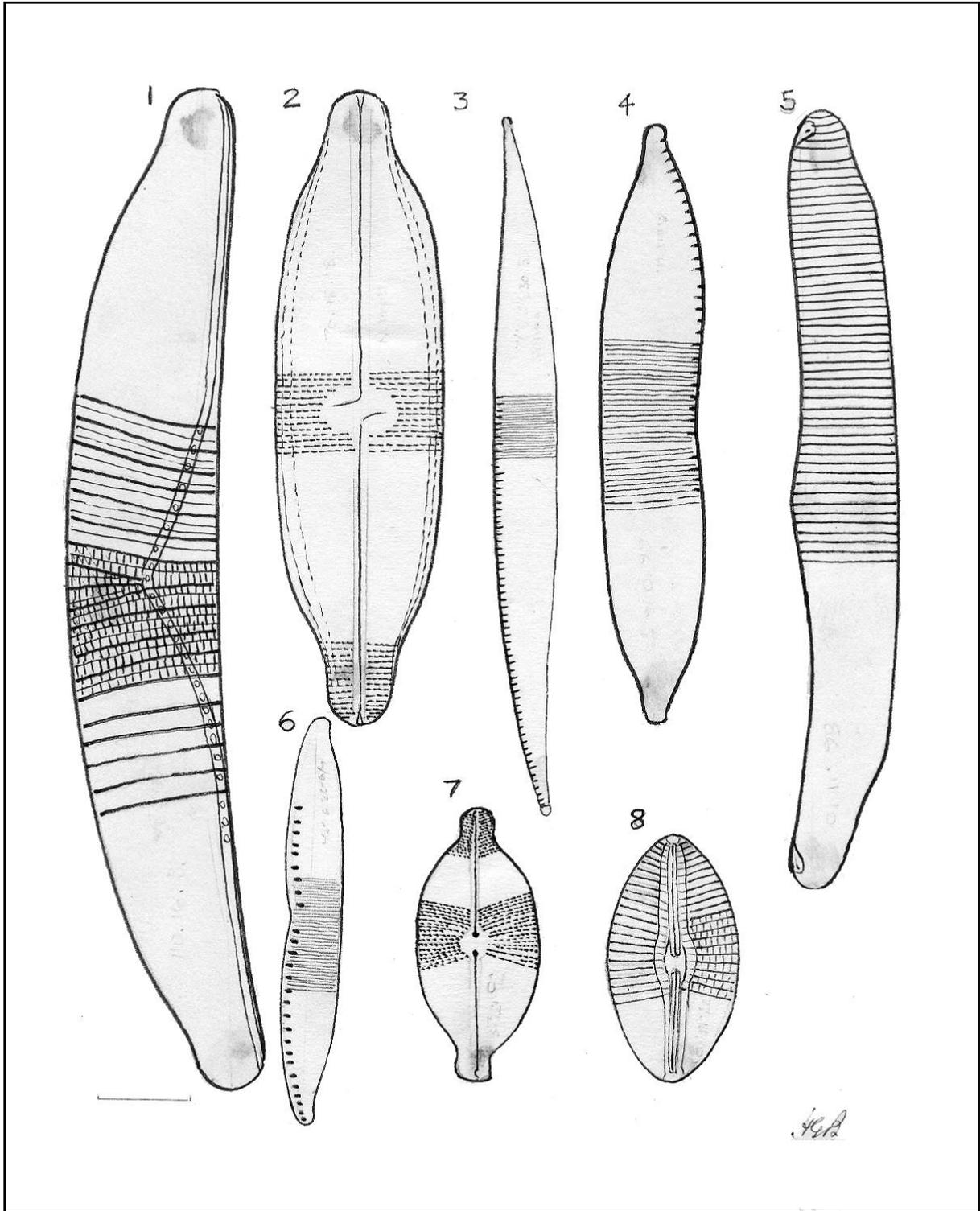


**Plate 26 - Oxbow, Narborough Bog (continued)**

<b>Figure/dimensions</b>	<b>Name</b>
<b>2/70.18.18</b>	<i>Neidium productum</i> (W.Smith) Cleve
<b>1/110.16.3</b>	<i>Epithemia turgida</i> var. <i>granulata</i> (Ehrenberg) Brun
<b>7</b>	<i>Navicula pusilla</i> W.Smith
<b>3/76½.6½.30.13</b>	<i>Nitzschia sigma</i> (Kützing) W.Smith
<b>4</b>	<i>Nitzschia amphioxys</i> (Ehrenberg) W.Smith
	See also Plate 4 & Plate 14 Figure 63.8.16.7 & Plate 24 Figure 10/83.8.16.8
<b>5</b>	<i>Eunotia pectinalis</i> var. <i>ventralis</i> (Ehrenberg) Hustedt
<b>6/45.6.25.6-7</b>	<i>Nitzschia</i> sp.
	Although the form falls within the dimensions of <i>amphioxys</i> (Ehrenberg) W.Smith, I have some doubts.

Figure 8 not mentioned.

Plate 26

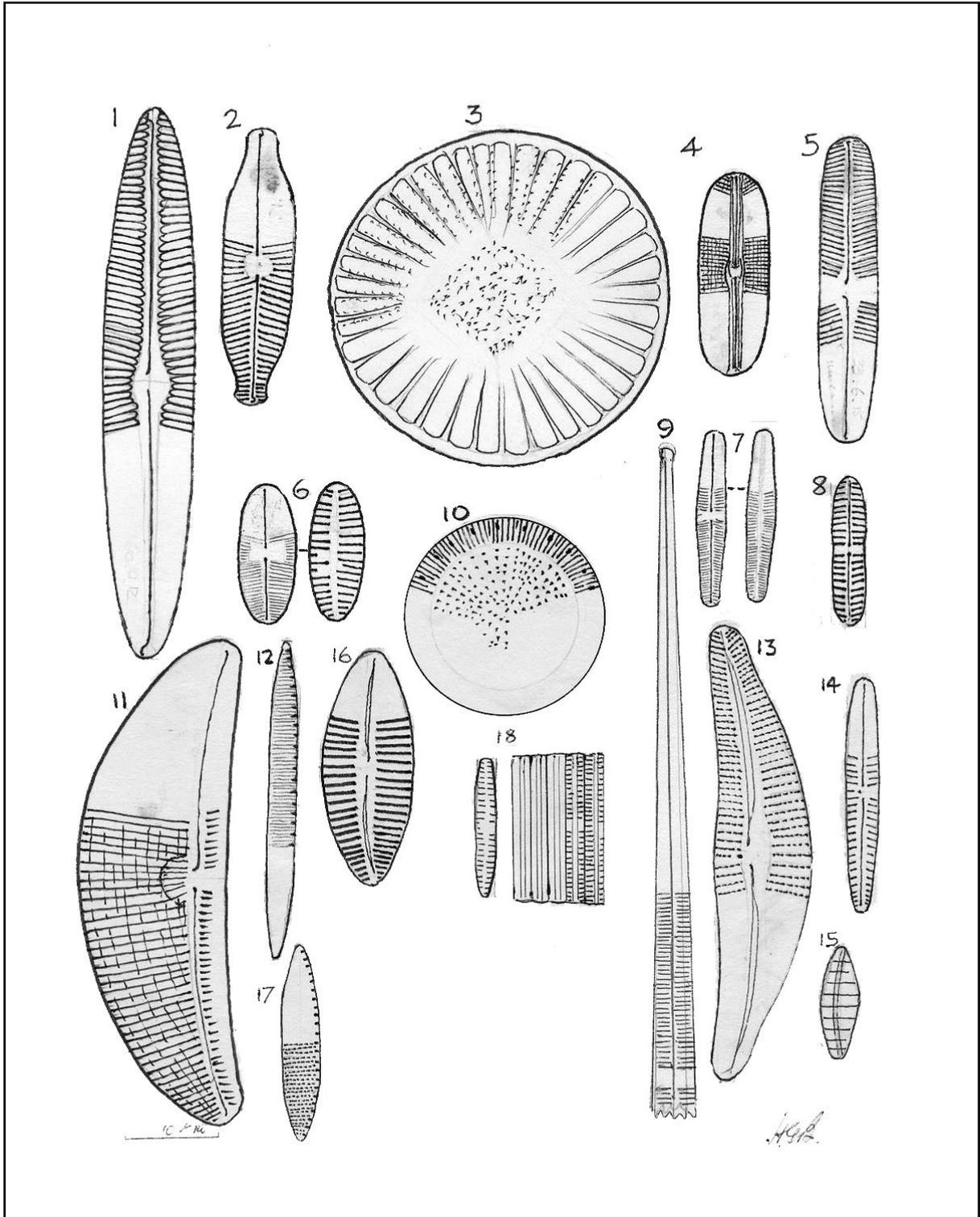


**Plate 27 - Oxbow, Narborough Bog (continued)**

Figure/dimensions	Name
9/140.5.18	<i>Synedra ulna</i> var. <i>Danica</i> (Kützing) Grunow
7/18½.3.28	<i>Achnanthes affinis</i> Grunow in Cleve & Grunow
	See also Plate 5 & Plate 7 Figure 12.3.27
6/15½.6.9-18	<i>Achnanthes saxonica</i> Krasske ex Hustedt
4	<i>Diploneis ovalis</i> var. <i>oblongella</i> (Nägeli) Cleve
2	<i>Navicula elginensis</i> (W.Gregory) Ralfs in Pritchard
8	<i>Pinnularia intermedia</i> (Lagerstedt) Cleve
1/60.10.10	<i>Pinnularia sudetica</i> (Hilse) Hilse in Rabenhorst
5	<i>Pinnularia molaris</i> (Grunow) Cleve (?)
3/36½.36½.3	<i>Campylodiscus noricus</i> var. <i>hibernica</i> (Ehrenberg) Grunow
18/16.2-3.12	<i>Fragilaria intermedia</i> (Grunow) Grunow in H.v.Heurck
11 & 16	<i>Cymbella Hustedtii</i> Krasske
12	<i>Nitzschia Hantziana</i> Rabenhorst
	See also Plate 28 Figure 7/23½.4.24.12
17/22.4.16.8	<i>Nitzschia amphibia</i> Grunow
	See also Plate 13 Figure 18.5.15.9 & Figure 56½.6.17.8

Figures 10,13,14 & 15 not mentioned.

Plate 27

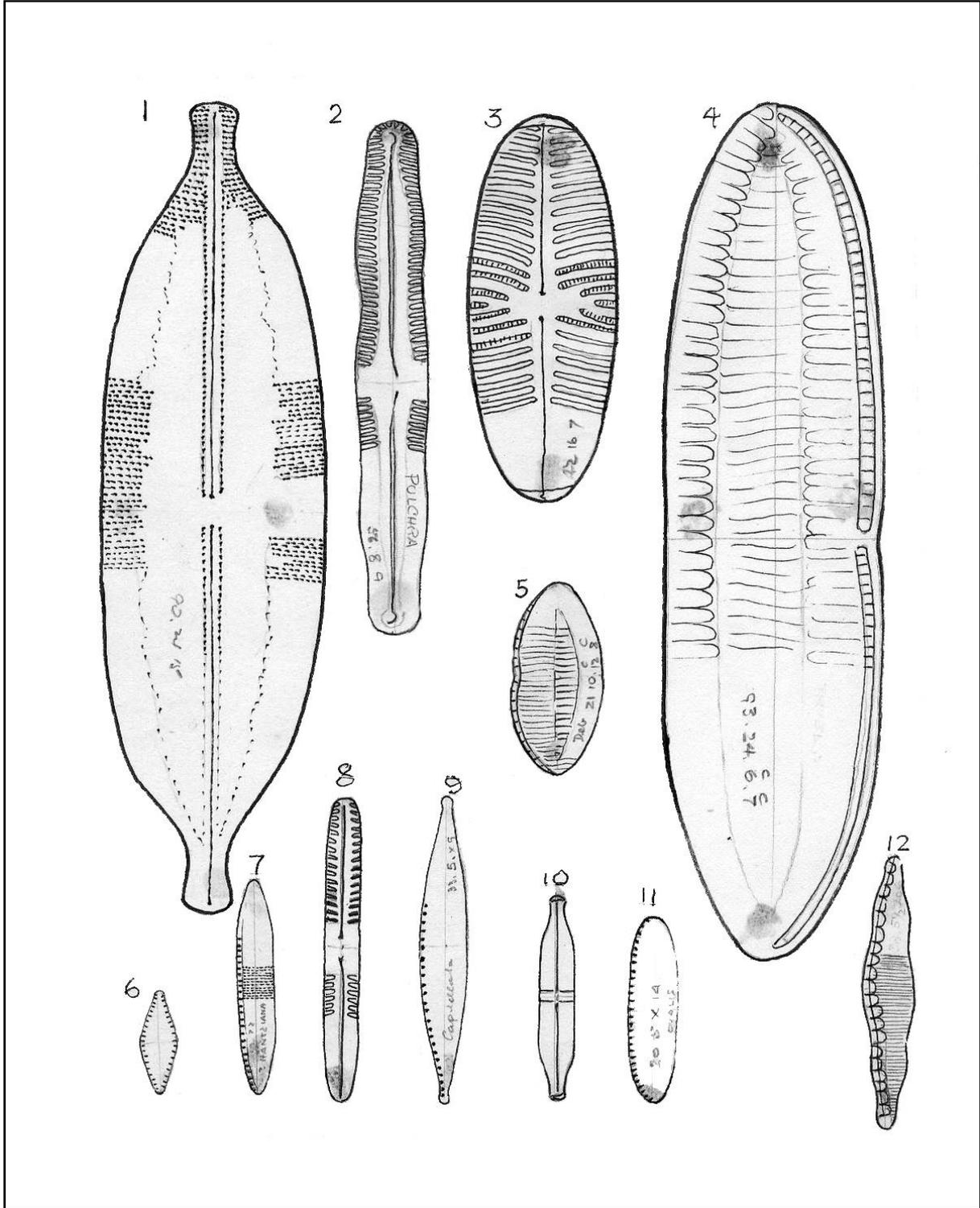


**Plate 28 - Oxbow, Narborough Bog (continued)**

Figure/dimensions	Name
10/22½.4.X	<i>Stauroneis Kreigeri?</i>
3	<i>Navicula Reinhardtii</i> Grunow
5/21.10.12.8	<i>Nitzschia tryblionella</i> var. <i>debilis</i> (Arnott) Grunow in A.Schmidt. Atlas.
12/30.5½.20.6	<i>Nitzschia sinuata</i> (Thwaites) Grunow in Cleve & Grunow
4/93.24.6.7	<i>Nitzschia tryblionella</i> Hantzsch in Rabenhorst
	See also Plate 14 Figure 140.24.X.6 & Plate 20 Figure 4
11/20.5.X.14	<i>Nitzschia ovalis</i> H.J.Arnott
7/23½.4.24.12	<i>Nitzschia Hantziana</i> Rabenhorst
	See also Plate 27 Figure 12
9/33.5.X.9	<i>Nitzschia capitellata</i> Hustedt in Schmidt
	See also Plate 20 Figure 27 and ?Plate 13 Figure 100.6.X.8

Figures 1,2,6 & 8 not mentioned.

Plate 28



**Pool at the culvert from lake, Great Bowden, Leicestershire**  
**Gathering made by Mr. D. Williamson**  
**April 1977**

[Editor's Note: The only significant water body in this locale is associated with the water treatment plant to the north-east of the village next to the River Welland. On a trip there I was unable to locate any significant water body, though the Langton Brook runs through low-lying flood plain.]



(Material not cleaned so as to shew growth method of certain forms)

**Pool at the culvert from lake, Great Bowden, Leicestershire.**

<b>Name</b>
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Eunotia lunaris</i> (Ehrenberg) Grunow
See Plate 7 Figure 37.4.17 & Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16 & Plate 20 Figure 26
<i>Diatoma vulgare</i> Bory
See Plate 1 & Plate 6 Figure 52.10.7
<i>Fragilaria capucina</i> Desmazières
See Plate 6 Figure 26.4.15 & Figure 30.3.15
<i>Fragilaria virescens</i> Ralfs
See Plate 6 Figure 28½.5.18 & Plate 16 Figure 1/33.5.18 & Figure 2
<i>Meridion circulare</i> (Greville) C.Agardh
See Plate 1 Figure 34½.6.15 & Plate 20 Figure 3 & 3B
<i>Rhoicosphenia curvata</i> (Kützing) Grunow
See Plate 7 Figure 48.6½.12 & Plate 1 Figure 36.5½.10 ( <i>Rhoicosigma curvata</i> )
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Achnanthes affinis</i> Grunow in Cleve & Grunow
See Plate 5 & Plate 7 Figure 12.3.27 & Plate 27 Figure 7/18½.3.28
<i>Achnanthes lanceolata</i> (Brébisson ex Kützing) Grunow in H.v.Heurck
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Navicula gregaria</i> Donkin
See Plate 2 Figure 24.6.20
<i>Navicula sclesvicensis</i> Grunow
See Plate 3 Figure 33.9½.8 & Figure 43.10.8
<i>Navicula veneta</i> Kützing
See Plate 8
<i>Cymbella ventricosa</i> C.Agardh
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Gomphonema parvulum</i> (Kützing) Kützing
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25
<i>Nitzschia Kutzingiana</i> Hilse
See Plate 19/Figure 9/16.3.X.18
<i>Nitzschia acicularis</i> (Kützing) W.Smith
See Plate 4 Figure 47.3.X.17 & Plate 14 Figure 67.5.X.20
<i>Nitzschia fonticola</i> (Grunow) Grunow in H.v.Heurck
Not figured
<i>Nitzschia dissipata</i> (Kützing) Grunow
See Plate 4 Figure 30.5.X.8 & Plate 13 Figure 14.4.X.7 & Figure 32.4.X.7
<i>Surirella ovata</i> Kützing
See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60
<i>Surirella angustata</i> Kutzing
See Plate 15 Figure 37.9½.60 in 100µ & Plate 29 Figure 23

## Quarry in clearing – Lawn Wood (Groby), Leicestershire

[Editor's Notes: Lawn Wood, Groby, Leicestershire is the site of several small quarries hidden by the wood itself. Lawn Wood Quarry (on the A50) is now a landfill site.

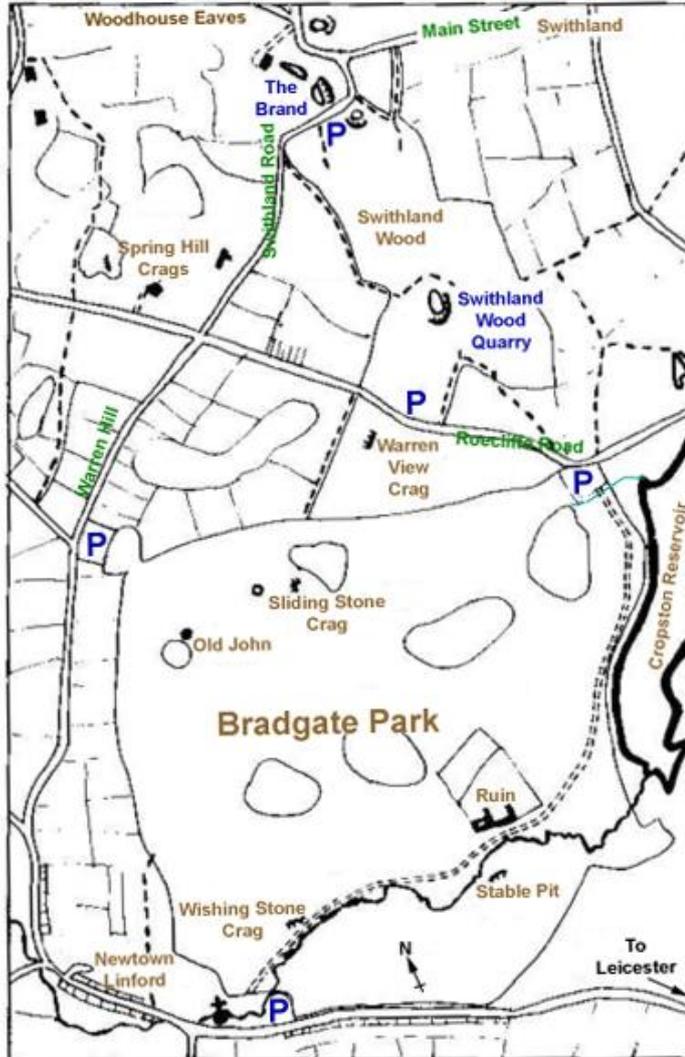
Quite which quarry this collection refers to is unknown.]

The flora here was recorded from a small gathering made by Mr. Williamson May 1977. The material was not acid cleaned but a lighter fraction burned on the coverglass, this of course results in a dirty slide but I wanted to preserve the growth method of *Eunotia lunaris* (Ehrenberg) Grunow.

Name
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Eunotia lunaris</i> (Ehrenberg) Grunow
See Plate 7 Figure 37.4.17 & Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16 & Plate 20 Figure 26 Profuse & not method of growth
<i>Meridion circulare</i> (Greville) C.Agardh
See Plate 1 Figure 34½.6.15 & Plate 20 Figure 3 & 3B
<i>Achnanthes lanceolata</i> (Brébisson ex Kützing) Grunow in H.v.Heurck
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Achnanthes affinis</i> Grunow in Cleve & Grunow
See Plate 5 & Plate 7 Figure 12.3.27 & Plate 27 Figure 7/18½.3.28
<i>Navicula anglica</i> Ralfs in Pritchard
See Plate 5 Figure 24.8½.12 & Plate 8 Figure 14.6½.12
<i>Pinnularia borealis</i> Ehrenberg
See Plate 18 Figure 15/47.10.5
<i>Pinnularia subcapitata</i> W.Gregory
See Plate 17 Figure 17/32½.6.13 & Figure 18/30.6.12 & Figure 19
<i>Pinnularia viridis</i> fa. ?
See Plate 22 Figure 4
<i>Cymbella ventricosa</i> C.Agardh
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Nitzschia dissipata</i> (Kützing) Grunow
See Plate 4 Figure 30.5.X.8 & Plate 13 Figure 14.4.X.7 & Figure 32.4.X.7
<i>Surirella ovata</i> Kützing
See Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60

# Diatom Flora of the 'Boat Pond' situate in the property of 'The Brand', Swithland, Leicestershire Collected by D. Williamson

[Editor's Note: 'The Brand' is the name given to an area of woodland separated from Swithland Wood by Swithland Road and lies north of Swithland Wood. It contains a number of small water bodies – the remains of early slate quarrying. The whole area has been designated Swithland Wood and The Brand SSSI. The land is strictly private but any reasonable approach to the owners (the Martin family) is usually accommodated.]



*Based on a map reproduced on [www.leicesterclimbs.f9.co.uk](http://www.leicesterclimbs.f9.co.uk)*

## Diatom Flora of the 'Boat Pond' situate in the property of 'The Brand', Swithland, Leicestershire

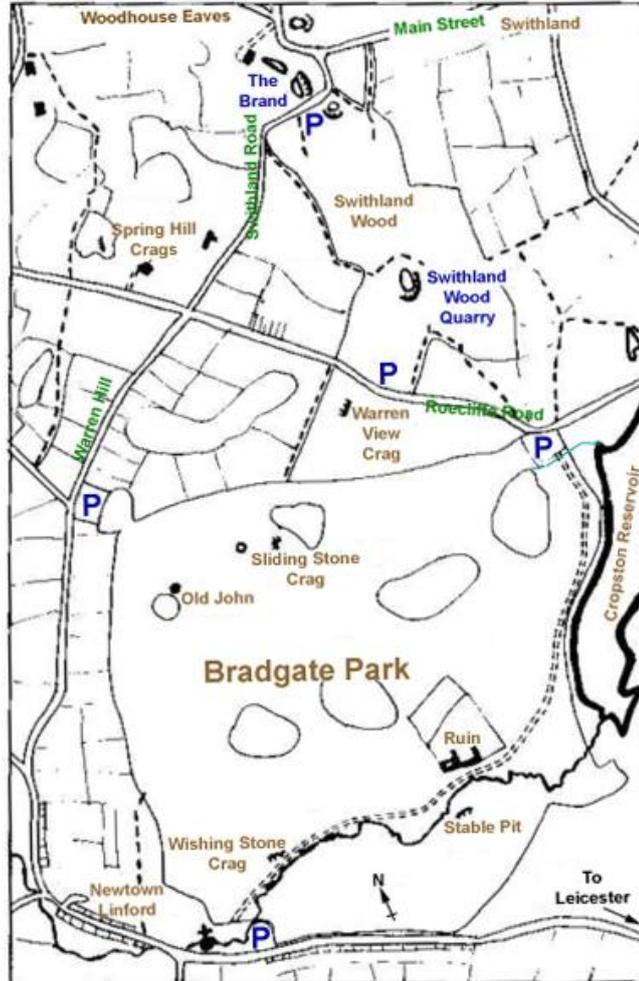
Name
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Synedra ulna</i> var. <i>Danica</i> (Kützing) Grunow in H.v.Heurck
See Plate 27 Figure 9/140.5.18
<i>Synedra parasitica</i> (W.Smith) Hustedt
See Plate 3
<i>Fragilaria intermedia</i> (Grunow) Grunow in H.v.Heurck
See Plate 27 Figure 18/16.2-3.12
<i>Fragilaria construens</i> var. <i>binodis</i> (Ehrenberg) Grunow
See Plate 18 Figure 4/16.4.14
<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck
See Plate 6
<i>Cyclotella comta</i> (Ehrenberg) Kützing
See Plate 27 Figure 10
<i>Diatoma elongatum</i> (Lyngbye) C.Agardh
See Plate 18 Figure 17/50.2.9 & Plate 29 Figure 5
<i>Cocconeis placentula</i> Ehrenberg
See Plate 1 Figure 12.7½.25/30 & Plate 7 & Plate 20 Figure 30
<i>Cocconeis pediculus</i> Ehrenberg
See Plate 7 Figure 28.22.16 & Plate 29 Figure 7 & 7A
<i>Achnanthes affinis</i> Grunow in Cleve & Grunow
See Plate 5 & Plate 7 Figure 12.3.27 & Plate 27 Figure 7/18½.3.28
<i>Navicula radiosa</i> Kützing
See Plate 9 Figure 86.12.11 & Plate 29 Figure 17
<i>Navicula gracilis</i> Ehrenberg
See Plate 3 Figure 35.8.10 & Figure 42.8.10 & Plate 9 Figure 48.9½.9
<i>Navicula oblonga</i> (Kützing) Kützing
See Plate 9 Figure 120.13½.7 & Plate 20 Figure 6
<i>Gomphonema parvulum</i> (Kützing) Kützing
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W. Smith
See Plate 12/figure 40.12.10
<i>Gomphonema bohemicum</i> Reichelt & Fricke in Schmidt
See Plate 27 Figure 14
<i>Cymbella ventricosa</i> C.Agardh
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Cymbella affinis</i> Kützing
See Plate 27 Figure 13 & Plate 29 Figure 20
<i>Cymbella helvetica</i> Kützing
See Plate 12
<i>Cymbella lanceolata</i> (C.Agardh) O.Kirchner
See Plate 12 Figure 140.25.9
<i>Cymbella cistula</i> (Ehrenberg) O.Kirchner
See Plate 11 Figure 53.16.8 & Plate 12 Figure 42.14.9 & Plate 29 Figure 19

**Diatom Flora of the 'Boat Pond' situate in the property of 'The Brand',  
Swithland, Leicestershire (continued)**

Name
<i>Cymbella turgida</i> W.Gregory
See Plate 11 & Plate 12 Figure 30.8.10
<i>Cymbella prostrata</i> (Berkeley) Grunow
See Plate 11 Figure 46.18.10 & Plate 27 Figure 16
<i>Cymbella Hustedtii</i> Krasske
See Plate 27 Figure 11 & Figure 16
<i>Denticula tenuis</i> var. <i>crassula</i> (Nägeli) Hustedt
See Plate 27 Figure 15 & Plate 29 Figure 13
<i>Nitzschia Hantziana</i> Rabenhorst
See Plate 27 Figure 12 & Plate 28 Figure 7/23½.4.24.12

## 'The Brand', Swithland, Leicestershire (Pond near house) Gathered by D. Williamson

[Editor's Note: 'The Brand' is the name given to an area of woodland separated from Swithland Wood by Swithland Road and lies north of Swithland Wood. It contains a number of small water bodies – the remains of early slate quarrying. The whole area has been designated Swithland Wood and The Brand SSSI. The land is strictly private but any reasonable approach to the owners (the Martin family) is usually accommodated.]



Based on a map reproduced on [www.leicesterclimbs.f9.co.uk](http://www.leicesterclimbs.f9.co.uk)

## 'The Brand', Swithland, Leicestershire (Pond near house)

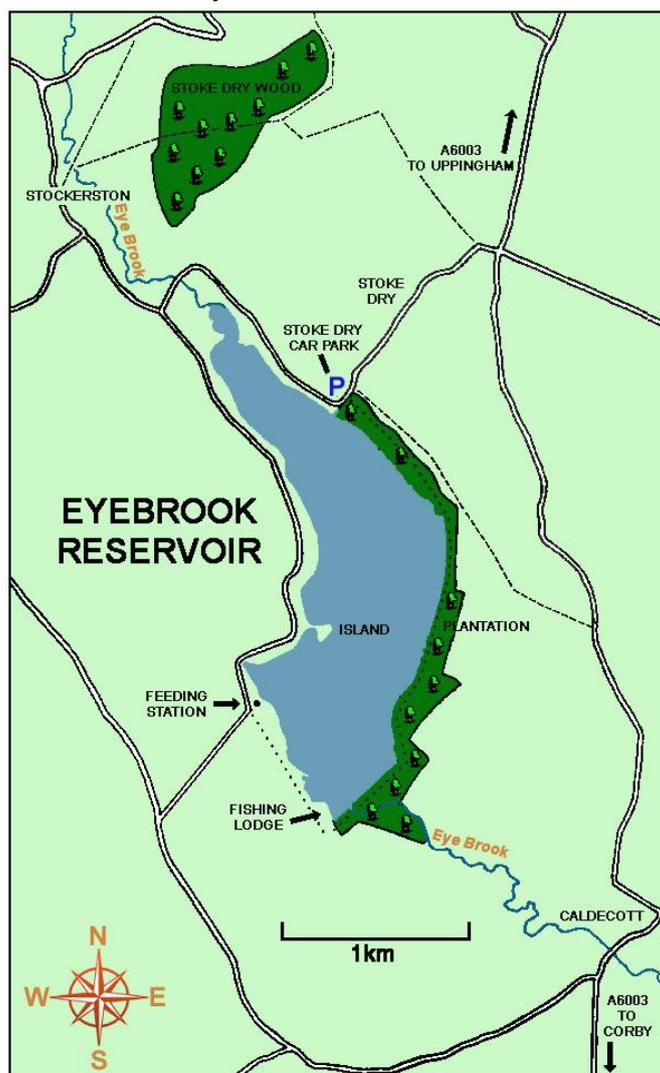
(Material incinerated on coverglass.)

Name
<i>Melosira varians</i> C.Agardh
See Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24) & Plate 29 Figure 2 & 2A
<i>Fragilaria intermedia</i> (Grunow) Grunow in H.v.Heurck
See Plate 27 Figure 18/16.2-3.12
<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow in H.v.Heurck
See Plate 6
<i>Synedra ulna</i> (Nitzsch) Ehrenberg
See Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Diatoma elongata</i> (Lyngbye) C.Agardh
See Plate 18
<i>Eunotia lunaris</i> (Ehrenberg) Grunow
See Plate 7 Figure 37.4.17 & Plate 16 Figure 4/80.4.16 & Figure 5/51.4.16 & Plate 20 Figure 26
<i>Achnanthes affinis</i> Grunow in Cleve & Grunow
See Plate 5 & Plate 7 Figure 12.3.27 & Plate 27 Figure 7/18½.3.28
<i>Achnanthes lanceolata</i> (Brébisson ex Kützing) Grunow in H.v.Heurck
See Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15 & Plate 29 Figure 12
<i>Cocconeis placentula</i> Ehrenberg
See Plate 1 Figure 12.7½.25/30 & Plate 7 & Plate 20 Figure 30
<i>Cocconeis pediculus</i> Ehrenberg
See Plate 7 Figure 28.22.16 & Plate 29 Figure 7 & 7A
<i>Rhoicosigma curvata</i>
See Plate 1 Figure 36.5½.10
<i>Navicula gracilis</i> Ehrenberg
See Plate 3 Figure 35.8.10 & Figure 42.8.10 & Plate 9 Figure 48.9½.9
<i>Navicula intermedia</i> Lagerstedt
See Plate 9 Figure 36½.8.17
<i>Gomphonema acuminatum</i> var. <i>coronata</i> (Ehrenberg) W. Smith
See Plate 12/Figure 40.12.10
<i>Gomphonema parvulum</i> (Kützing) Kützing
See Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12 & Plate 29 Figure 25
<i>Gomphonema constrictum</i> Ehrenberg
See Plate 12 Figure 30.10.10 & Plate 29 Figure 26
<i>Gomphonema augur</i> Ehrenberg
See Plate 12 Figure 40.14.10
<i>Amphora ovalis</i> (Kützing) Kützing
See Plate 11 Figure 37.10½.12 & Plate 20 Figure 8
<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
See Plate 3 Figure 10.3.15
<i>Cymbella ventricosa</i> C.Agardh
See Plate 12 Figure 22.8.12 & Plate 29 Figure 21
<i>Cymbella Hustedtii</i> Krasske
See Plate 27 Figure 11 & Figure 16
<i>Cymbella cistula</i> (Ehrenberg) O.Kirchner
See Plate 11 Figure 53.16.8 & Plate 12 Figure 42.14.9 & Plate 29 Figure 19

**'The Brand', Swithland, Leicestershire (Pond near house)**  
(continued)

Name
<i>Cymbella helvetica</i> Kützing
See Plate 12
<i>Nitzschia Kutzingiana</i> Hilse
See Plate 19/Figure 9/16.3.X.18
<i>Nitzschia amphibia</i> Grunow
See Plate 13 Figure 18.5.15.9 & Figure 56½.6.17.8 & Plate 27 Figure 17/22/4/16/8

## An Account of a Gathering of Diatoms taken from Eyebrook Reservoir, Leicestershire – 1963



Based on a map of Leicestershire & Rutland Ornithological Society ([www.iros.org.uk/eyebrook.htm](http://www.iros.org.uk/eyebrook.htm))

During the summer of 1963 the Leicester Microscopical Society members made a visit to Eyebrook Reservoir and amongst the varying materials collected was an amount of sediment from the reservoir bed. On later examination of the material by the Secretary, Mr. D. Williamson, it was realised the material was very rich in diatoms and that gentleman suggested a detailed examination should be made.

Slides were made of the material using the mountant, Naphrax, a synthetic resin to give a necessary high refractive index.

The main flora is the type to be expected from a large stretch of water but the forms would suggest a tendency to alkalinity.

The record comprises 21 genera present and a total of 41 species and varieties. The diatom *Stephanodiscus astrea* (Ehrenberg) Grunow, is very frequent and a typical form from large bodies of open water, being planktonic in habit. Many of the forms depicted are of common occurrence and may be found in local waters ranging from lake to roadside ditch.

The accompanying sketches have in many cases been left purposely incomplete to leave clear varying structure.

Not all forms have been depicted, and the following points to be noted: some of the larger forms reduced in size and the smaller sketched larger, as an aid to portraying specific features.

**Eyebrook Reservoir**

Species figured on Plates in other sections or not figured at all.

<b>Name</b>
<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
See Plate 3/Figure 10.3.15
<i>Caloneis silicula</i> var. <i>truncatula</i> Grunow
<i>Caloneis Schumanniana</i> var. <i>biconstricta</i> Grunow
<i>Cyclotella Meneghiniana</i> Kützing
See Plate 1 Figure 14 $\mu$ diameter & Plate 6 Figure 28 $\frac{1}{2}$ diameter
<i>Cymbella laevis</i> (C.Agardh) Cleve
<i>Diploneis puella</i> (Schumann) Cleve
<i>Gomphonema angustata</i> var. <i>producta</i> Grunow
For <i>Gomphonema angustatum</i> var. <i>producta</i> see Plate 3 Figure 22.6.13
<i>Gomphonema parvulum</i> var. <i>subelliptica</i> Cleve
<i>Nitzschia Kutzingiana</i> Hilse
See Plate 19/Figure 9/16.3.X.18
<i>Nitzschia pseudoamphioxys</i> Hustedt
<i>Pinnularia subcapitata</i> var. <i>Hilseana</i> (Janisch) O.Müller
<i>Synedra vaucheria</i> var. <i>capitellata</i> Grunow

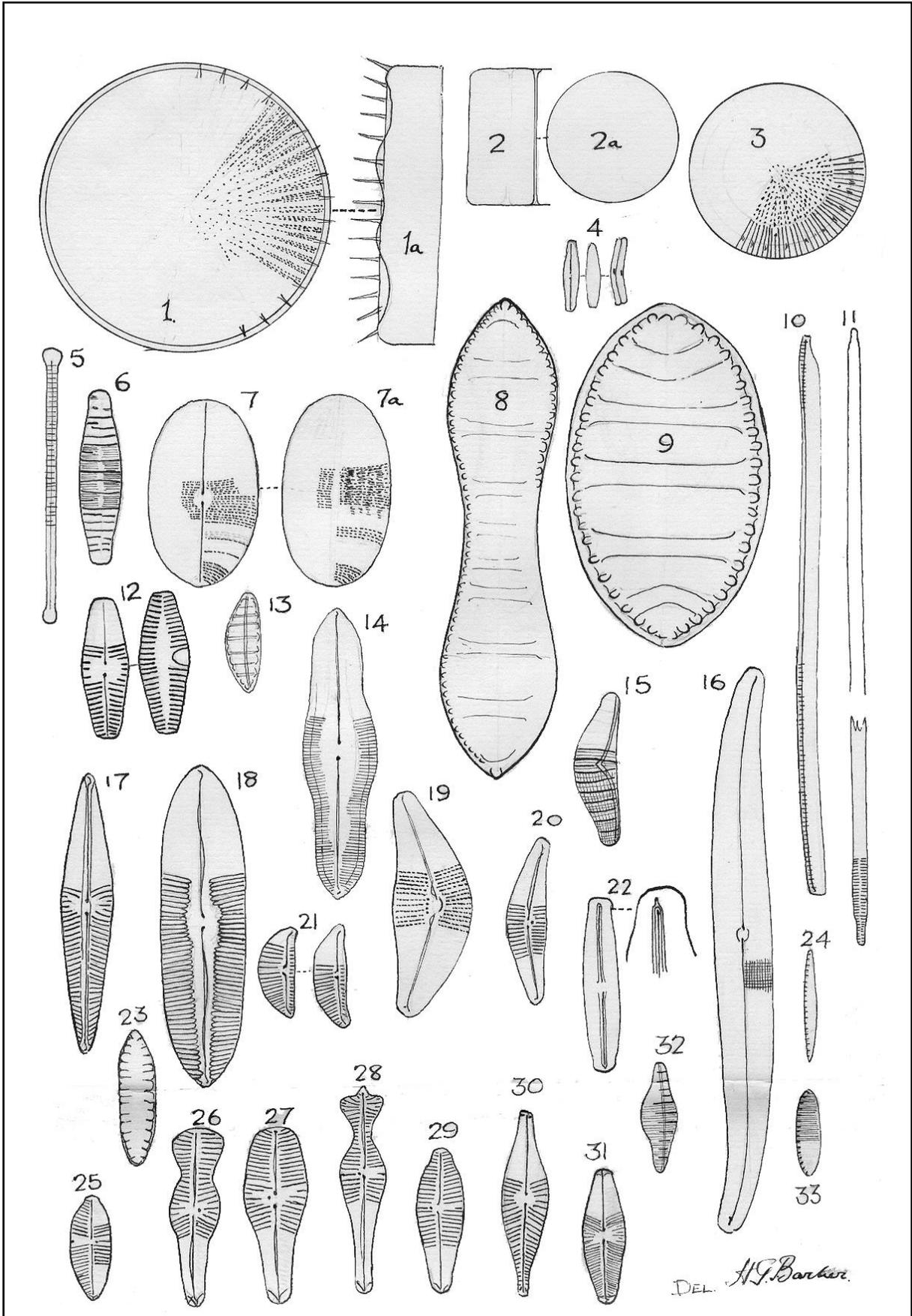
## Plate 29 – Eyebrook Reservoir

Figure/dimensions	Name
12	<i>Achnanthes lanceolata</i> Brébisson See also Plate 1 Figure 15.5½.14 & Plate 5 Figure 24.6½.12 & Plate 16 Figure 9/14.6½.15
4	<i>Achnanthes minutissima</i> Kützing
14	<i>Caloneis silicula</i> (Ehrenberg) Cleve
7 & 7A	<i>Cocconeis pediculus</i> Ehrenberg This genus carries the raphe on one valve only. See also Plate 7 Figure 28.22.16
3	<i>Cyclotella compta</i> (Ehrenberg) Kützing
8	<i>Cymatopleura solea</i> (Brébisson) W.Smith See also Plate 3 Figure 67.21.9 & Figure 73.20.9
9	<i>Cymatopleura elliptica</i> (Brébisson) W.Smith
19	<i>Cymbella cistula</i> (Hemprich) Grunow See also Plate 11 Figure 53.16.8 & Plate 12 Figure 42.14.9
21	<i>Cymbella ventricosa</i> Kützing A form rather variable in outline See also Plate 12 Figure 22.8.12
20	<i>Cymbella affinis</i> Kützing See also Plate 27 Figure 13
13	<i>Denticula tenuis</i> var. <i>crassula</i> (Nägeli) Hustedt See also Plate 27 Figure 15
5	<i>Diatoma elongatum</i> C.Agardh See also Plate 18 Figure 17/50.2.9
6	<i>Diatoma vulgare</i> var. <i>producta</i> Grunow See also Plate 1 Figure 50.10.5 & Figure 50.10.6
15	<i>Epithmia sorex</i> Kützing See also Plate 19 Figure 2/24.10.15.7
22	<i>Frustulia vulgaris</i> Thwaites See also Plate 2 Figure 44.10.30
26	<i>Gomphonema constrictum</i> Ehrenberg See also Plate 12 Figure 30.10.10
27	<i>Gomphonema constrictum</i> var. <i>capitata</i> (Ehrenberg) Cleve
25	<i>Gomphonema parvulum</i> Kützing See also Plate 3 Figure 14.6½.15 & Figure 20.6.12 & Figure 22.6.13 & Plate 12
29	<i>Gomphonema parvulum</i> var. <i>micropus</i> Kützing
28	<i>Gomphonema acuminatum</i> var. <i>coronatum</i> (Ehrenberg) W.Smith
16	<i>Gyrosigma acuminatum</i> (Kützing) Rabenhorst
2 & 2A	<i>Melosira varians</i> C.Agardh This diatom is devoid of any surface markings See also Plate 1 Figure 18 diameter & Plate 23 Figure 3(40x24)
31	<i>Navicula pupula</i> Kützing See also Plate 5 Figure 27.8.20 & Figure 27.8.5
17	<i>Navicula radiosa</i> Kützing See also Plate 9 Figure 86.12.11
30	<i>Navicula rhyncocephala</i> Kützing See also Plate 9 Figure 38.11.10 & Plate 20 Figure 21
33	<i>Nitzschia frustulum</i> var. <i>subsalina</i> Hustedt
24	<i>Nitzschia holsatica</i> Hustedt

## Plate 29 – Eyebrook Reservoir (continued)

Figure/dimensions	Name
32	<i>Nitzschia sinuata</i> var. <i>tabularia</i> Grunow
10	<i>Nitzschia vermicularis</i> (Kützing) Grunow See also Plate 4 Figure 180.6.30+.10 & Plate 19 Figure 5/153.10.24.10
18	<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg See also Plate 10 Figure 100.26½.7 & Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6
1 & 1A	<i>Stephanodiscus astrea</i> (Ehrenberg) Grunow This form was depicted quite large to illustrate the point of rows of doubled puncta.
23	<i>Suirella angustata</i> Kützing See also Plate 15 Figure 37.9½.60 in 100µ
11	<i>Synedra ulna</i> (Nitzsch) Ehrenberg See also Plate 1 Figure 100.6½.10 & Figure 133.5.12

Plate 29



## Appendix A

### Species in Alphabetical Order by Location

**Charnwood Lodge****Page 55**

<i>Achnanthes lanceolata</i>	<i>Pinnularia abaugensis</i>
<i>Eunotia lunaris</i>	<i>Pinnularia acoricola</i>
<i>Eunotia lunaris</i> var. <i>subarcuata</i>	<i>Pinnularia Brebissonii</i> var. <i>producta</i>
<i>Eunotia pectinalis</i> var. <i>minor</i>	<i>Pinnularia interrupta</i>
<i>Eunotia septentrioivalis</i>	<i>Pinnularia subcapitata</i>
<i>Fragilaria virescens</i>	<i>Pinnularia viridis</i>
<i>Gomphonema intricatum</i>	<i>Stauroneis anceps</i>
<i>Nitzschia palea</i>	<i>Stauroneis phoenicentron</i>
<i>Nitzschia</i> sp.	<i>Tabellaria flocculosa</i>

**Cosby****Page 2**

<i>Achnanthes Hungarica</i>	<i>Navicula pygmaea</i>
<i>Achnanthes lanceolata</i>	<i>Navicula radiosa</i>
<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Navicula rhyncocephala</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Navicula salinarum</i>
<i>Anomooneis sphaerophora</i>	<i>Navicula sclesvicensis</i>
<i>Caloneis amphisbaena</i>	<i>Navicula</i> sp.
<i>Caloneis ventricosa</i>	<i>Navicula umida</i>
<i>Cocconeis placentula</i>	<i>Nitzschia</i> ? <i>ignorata</i>
<i>Cyclotella Meneghiniana</i>	<i>Nitzschia</i> ? <i>sp.</i>
<i>Cymatopleura solea</i>	<i>Nitzschia acicularis</i>
<i>Cymatopleura solea</i> var. <i>apiculata</i>	<i>Nitzschia amphioxys</i>
<i>Cymatopleura solea</i> var. <i>gracilis</i>	<i>Nitzschia apiculata</i>
<i>Diatoma vulgare</i> var. <i>linearis</i>	<i>Nitzschia dissipata</i>
<i>Diatoma vulgare</i> var. <i>producta</i>	<i>Nitzschia dubia</i>
<i>Fragilaria construens</i> var. <i>venter</i>	<i>Nitzschia gracile</i>
<i>Frustulia Kutzingii</i>	<i>Nitzschia Hungarica</i>
<i>Frustulia vulgaris</i>	<i>Nitzschia linearis</i>
<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Nitzschia palea</i>
<i>Gomphonema angustatum</i> var. <i>producta</i>	<i>Nitzschia sigmoidea</i>
<i>Gomphonema olivaceum</i>	<i>Nitzschia</i> sp.
<i>Gomphonema parvulum</i>	<i>Nitzschia tenuis</i>
<i>Gyrosigma Kutzingii</i>	<i>Nitzschia tryblionella</i> var. <i>debilis</i>
<i>Melosira varians</i>	<i>Nitzschia tryblionella</i> var. <i>victoriae</i>
<i>Meridion circulare</i>	<i>Nitzschia vermicularis</i>
<i>Navicula accomoda</i>	<i>Pinnularia borealis</i>
<i>Navicula anglica</i>	<i>Rhoicosigma curvata</i>
<i>Navicula avenaceae</i>	<i>Rhoicosphenia curvata</i>
<i>Navicula cryptocephala</i>	<i>Stauroneis anceps</i> fa. <i>linearis</i>
<i>Navicula cuspidata</i>	<i>Stauroneis Smithii</i>
<i>Navicula gracilis</i>	<i>Stephanodiscus rotula</i>
<i>Navicula gregaria</i>	<i>Surirella angustata</i>
<i>Navicula Hungarica</i> var. <i>capitata</i>	<i>Surirella ovalis</i>
<i>Navicula mutica</i>	<i>Surirella ovata</i>
<i>Navicula neoventricosa</i>	<i>Synedra ulna</i>
<i>Navicula pupula</i>	<i>Thalassiosira fluviatilis</i>
<i>Navicula pupula</i> var. <i>elliptica</i>	

**Ditch - Fenny Drayton (Location 5 of Various Leicestershire Sites)****Page 25**

<i>Achnanthes lanceolata</i>	<i>Stauroneis phoenicentron</i>
<i>Cymbella turgida</i>	<i>Surirella angustata</i>
<i>Navicula sclesvicensis</i>	<i>Surirella ovata</i> ? var. <i>constricta</i>
<i>Nitzschia linearis</i>	<i>Surirella</i> sp.
<i>Stauroneis anceps</i>	

**Eyebrook Reservoir****Page 108**

<i>Achnanthes lanceolata</i>	<i>Gomphonema constrictum</i>
<i>Achnanthes minutissima</i>	<i>Gomphonema constrictum</i> var. <i>capitata</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Gomphonema parvulum</i>
<i>Caloneis Schumanniana</i> var. <i>biconstricta</i>	<i>Gomphonema parvulum</i> var. <i>micropus</i>
<i>Caloneis silicula</i>	<i>Gomphonema parvulum</i> var. <i>subelliptica</i>
<i>Caloneis silicula</i> var. <i>truncatula</i>	<i>Gyrosigma acuminatum</i>
<i>Cocconeis pediculus</i>	<i>Melosira varians</i>
<i>Cyclotella compta</i>	<i>Navicula pupula</i>
<i>Cyclotella Meneghiniana</i>	<i>Navicula radiosa</i>
<i>Cymatopleura elliptica</i>	<i>Navicula rhyncocephala</i>
<i>Cymatopleura solea</i>	<i>Nitzschia frustulum</i> var. <i>subsalina</i>
<i>Cymbella affinis</i>	<i>Nitzschia holsatica</i>
<i>Cymbella cistula</i>	<i>Nitzschia Kutzingiana</i>
<i>Cymbella laevis</i>	<i>Nitzschia pseudoamphioxys</i>
<i>Cymbella ventricosa</i>	<i>Nitzschia sinuata</i> var. <i>tabularia</i>
<i>Denticula tenuis</i> var. <i>crassula</i>	<i>Nitzschia vermicularis</i> .
<i>Diatoma elongatum</i>	<i>Pinnularia subcapitata</i> var. <i>Hilseana</i>
<i>Diatoma vulgare</i> var. <i>producta</i>	<i>Pinnularia viridis</i>
<i>Diploneis puella</i>	<i>Stephanodiscus astrea</i>
<i>Epithmia sorex</i>	<i>Surirella angustata</i>
<i>Frustulia vulgaris</i>	<i>Synedra ulna</i>
<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Synedra vaucheria</i> var. <i>capitellata</i>
<i>Gomphonema angustata</i> var. <i>producta</i>	

**Great Bowden****Page 99**

<i>Achnanthes affinis</i>	<i>Navicula sclesvicensis</i>
<i>Achnanthes lanceolata</i>	<i>Navicula veneta</i>
<i>Cymbella ventricosa</i>	<i>Nitzschia acicularis</i>
<i>Diatoma vulgare</i>	<i>Nitzschia dissipata</i>
<i>Eunotia lunaris</i>	<i>Nitzschia fonticola</i>
<i>Fragilaria capucina</i>	<i>Nitzschia Kutzingiana</i>
<i>Fragilaria virescens</i>	<i>Rhoicosphenia curvata</i>
<i>Gomphonema parvulum</i>	<i>Surirella angustata</i>
<i>Melosira varians</i>	<i>Surirella ovata</i>
<i>Meridion circulare</i>	<i>Synedra ulna</i>
<i>Navicula gregaria</i>	

**Groby Pool (Location 12 of Various Leicestershire Sites)****Page 30**

<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Navicula Hungarica</i> var. <i>capitata</i>
<i>Amphora veneta</i>	<i>Navicula intermedia</i>
<i>Cocconeis pediculus</i>	<i>Navicula lanceolata</i>
<i>Cocconeis placentula</i>	<i>Navicula pupula</i>
<i>Cyclotella Meneghiniana</i>	<i>Navicula radiosa</i>
<i>Cymatopleura solea</i>	<i>Navicula salinarum</i>
<i>Cymbella ventricosa</i>	<i>Nitzschia sigmoidea</i>
<i>Diploneis oculata</i>	<i>Rhoicosphenia curvata</i>
<i>Fragilaria capucina</i>	<i>Surirella ovata</i>
<i>Gomphonema angustatum</i> var. <i>producta</i>	<i>Synedra ulna</i>
<i>Navicula cryptocephala</i> var. <i>veneta</i>	

**Lawn Wood Quarry****Page 101**

<i>Achnanthes affinis</i>	<i>Navicula anglica</i>
<i>Achnanthes lanceolata</i>	<i>Nitzschia dissipata</i>
<i>Cymbella ventricosa</i>	<i>Pinnularia borealis</i>
<i>Eunotia lunaris</i>	<i>Pinnularia subcapitata</i>
<i>Melosira varians</i>	<i>Pinnularia viridis</i> fa. ?
<i>Meridion circulare</i>	<i>Surirella ovata</i>

**Mallory Park****Page 69**

<i>Achnanthes lanceolata</i> var. <i>bimaculata</i>	<i>Navicula cryptocephala</i>
<i>Achnanthes lanceolata</i>	<i>Navicula Hungarica</i> var. <i>capitata</i>
<i>Amphora ovalis</i>	<i>Navicula mutica</i>
<i>Cocconeis placentula</i>	<i>Navicula oblonga</i>
<i>Cymatopleura solea</i> fa. <i>gracilis</i>	<i>Navicula pupula</i> var. <i>elliptica</i>
<i>Cymbella aspera</i>	<i>Navicula radiosa</i>
<i>Cymbella ventricosa</i>	<i>Navicula rhyncocephala</i>
<i>Diatoma anceps</i>	<i>Navicula viridula</i> var. <i>sclesvicensis</i>
<i>Diatoma elongatum</i>	<i>Nitzschia capitellata</i>
<i>Eunotia lunaris</i>	<i>Nitzschia Hungarica</i>
<i>Eunotia pectinalis</i> var. <i>minor</i> fa. <i>intermedia</i>	<i>Nitzschia romana</i>
<i>Fragilaria bidens</i>	<i>Nitzschia sigmoidea</i>
<i>Fragilaria capucina</i> var. <i>mesolepta</i>	<i>Nitzschia tenuis</i>
<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Nitzschia thermalis</i>
<i>Gomphonema acuminatum</i>	<i>Nitzschia tryblionella</i>
<i>Gomphonema angustatum</i> var. <i>producta</i>	<i>Pinnularia major</i>
<i>Gomphonema constrictum</i>	<i>Pinnularia viridis</i>
<i>Gomphonema intricatum</i>	<i>Stauroneis anceps</i>
<i>Gomphonema parvulum</i>	<i>Stauroneis phoenicentron</i>
<i>Gyrosigma accumniatum</i>	<i>Stauroneis pygmaea</i>
<i>Melosira varians</i>	<i>Surirella angustata</i>
<i>Meridion circulare</i>	<i>Surirella ovalis</i>
<i>Meridion circulare</i> var. <i>constricta</i>	<i>Synedra ulna</i>
<i>Navicula cincta</i>	<i>Synedra affinis</i>

**Melbourne Hall Pool (Location 7 of Various Leicestershire Sites)****Page 26**

<i>Amphora ovalis</i>	<i>Gomphonema constrictum</i>
<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Gomphonema longiceps</i> var. <i>subclavata</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Gyrosigma Kutzingii</i>
<i>Caloneis amphisbaena</i>	<i>Navicula gracilis</i>
<i>Caloneis ventricosa</i>	<i>Navicula Hungarica</i> var. <i>capitata</i>
<i>Cocconeis pediculus</i>	<i>Navicula intermedia</i>
<i>Cocconeis placentula</i>	<i>Navicula oblonga</i>
<i>Cymatopleura solea</i>	<i>Navicula radiosa</i>
<i>Cymatopleura solea</i> var. <i>elliptica</i>	<i>Navicula sclesvicensis</i>
<i>Cymatopleura solea</i> var. <i>gracilis</i>	<i>Navicula tenella</i> (?)
<i>Cymbella cistula</i>	<i>Navicula viridula</i>
<i>Cymbella lanceolata</i>	<i>Nitzschia amphioxys</i>
<i>Cymbella prostrata</i>	<i>Nitzschia</i> sp.
<i>Cymbella ventricosa</i>	<i>Pinnularia macilenta</i>
<i>Diatoma vulgare</i>	<i>Pinnularia mesolepta</i>
<i>Diatoma vulgare</i> var. <i>producta</i>	<i>Rhoicosphenia curvata</i>
<i>Gomphonema acuminatum</i> var. <i>Breissonii</i>	<i>Stauroneis Smithii</i>
<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Surirella turgida</i>
<i>Gomphonema angustatum</i> var. <i>producta</i>	<i>Synedra affinis</i>
<i>Gomphonema augur</i>	<i>Synedra ulna</i>

**Mill Pool - Sheepy Mill (Location 13 of Various Leicestershire Sites)****Page 30**

<i>Amphora ovalis</i>	<i>Navicula graciloides</i>
<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Navicula gregaria</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Navicula Hungarica</i> var. <i>capitata</i>
<i>Caloneis amphisbaena</i>	<i>Navicula phyllepta</i>
<i>Caloneis ventricosa</i>	<i>Navicula rhynchocephala</i>
<i>Caloneis ventricosa</i> var. <i>peisonis</i>	<i>Navicula salinarum</i>
<i>Caloneis ventricosa</i> var. <i>trunculata</i>	<i>Nitzschia sigmoidea</i>
<i>Cocconeis pediculus</i>	<i>Nitzschia tryblionella</i>
<i>Cocconeis placentula</i>	<i>Nitzschia tryblionella</i> var. <i>levidensis</i>
<i>Cyclotella Meneghiniana</i>	<i>Nitzschia tryblionella</i> var. <i>victoriae</i>
<i>Cymatopleura solea</i>	<i>Pinnularia gentilis</i>
<i>Cymatopleura solea</i> var. <i>gracilis</i>	<i>Pinnularia major</i>
<i>Cymbella Ehrenbergii</i>	<i>Pinnularia viridis</i>
<i>Fragilaria brevistriata</i>	<i>Stephanodiscus Hantzshii</i>
<i>Gyrosigma Kutzingii</i>	<i>Surirella ovata</i>
<i>Navicula avenaceae</i>	<i>Surirella turgida</i>
<i>Navicula cuspidata</i>	<i>Synedra ulna</i>

**Narborough Bog****Page 74**

<i>Caloneis ventricosa</i> var. <i>peisonis</i>	<i>Pinnularia</i> sp.
<i>Cymbella lanceolata</i>	<i>Pinnularia subcapitata</i> fa.
<i>Meridion circulare</i>	<i>Pinnularia viridis</i>
<i>Navicula oblonga</i>	<i>Pinnularia viridis</i> var.
<i>Navicula viridula</i> var. <i>sclesvisensis</i>	<i>Pinnularia viridis</i> var. <i>Mayeri</i>
<i>Pinnularia ?viridis</i> fa.	<i>Stauroneis anceps</i>
<i>Pinnularia cuneata</i>	<i>Stephanodiscus astraea</i> ? <i>rotula</i>
<i>Pinnularia nobilis</i>	<i>Synedra minuscula</i>

**Narborough Road - Littlethorpe (Location 17 of Various Leicestershire Sites)****Page 32**

<i>Diatoma vulgare</i>	<i>Stauroneis Smithii</i>
<i>Meridion circulare</i>	<i>Surirella angustata</i>
<i>Navicula avenaceae</i>	<i>Surirella gracilis</i>
<i>Navicula pupula</i>	<i>Surirella ovalis</i>
<i>Nitzschia linearis</i>	

**Oxbow: Narborough Bog****Page 81**

<i>Achnanthes affinis</i>	<i>Gomphonema constrictum</i>
<i>Achnanthes Hungarica</i>	<i>Gomphonema intricatum</i>
<i>Achnanthes lanceolata</i>	<i>Gomphonema intricatum</i> fa. ?
<i>Achnanthes lanceolata</i> var. <i>rostrata</i>	<i>Gomphonema intricatum</i> var. <i>Brebissonii</i> ?
<i>Achnanthes saxonica</i>	<i>Gomphonema intricatum</i> var. <i>pumila</i>
<i>Amphipleura pellucida</i>	<i>Gomphonema lanceolatum</i> fa. ?
<i>Amphora ovalis</i>	<i>Gomphonema longiceps</i> var. <i>subclavata</i>
<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Gomphonema longiceps</i> var. <i>montana</i> fa. <i>suecica</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Gomphonema olivaceum</i>
<i>Amphora veneta</i>	<i>Gyrosigma Kutzingii</i>
<i>Anomoeoneis sphaerophora</i>	<i>Mastogloia Smithii</i> var. <i>amphicephala</i>
<i>Caloneis amphisbaena</i>	<i>Melosira islandica</i> subsp. <i>Helvetica</i>
<i>Caloneis ventricosa</i>	<i>Melosira italica</i>
<i>Caloneis ventricosa</i> (variant)	<i>Melosira varians</i>
<i>Caloneis ventricosa</i> var. <i>truncatula</i>	<i>Meridion circulare</i>
<i>Campylodiscus noricus</i> var. <i>hibernica</i>	<i>Navicula accomoda</i>
<i>Cocconeis euglypta</i>	<i>Navicula costulata</i>
<i>Cocconeis placentula</i>	<i>Navicula cryptocephala</i> var. <i>veneta</i>
<i>Cyclotella Meneghiniana</i>	<i>Navicula cuspidata</i>
<i>Cymatopleura solea</i>	<i>Navicula digito-radiata</i> var. <i>elliptica</i>
<i>Cymatopleura solea</i> var. <i>gracilis</i>	<i>Navicula elginensis</i>
<i>Cymbella affinis</i>	<i>Navicula gracilis</i>
<i>Cymbella cistula</i>	<i>Navicula gregaria</i>
<i>Cymbella lanceolata</i>	<i>Navicula Hungarica</i>
<i>Cymbella naviculiformis</i>	<i>Navicula meniscus</i>
<i>Cymbella ventricosa</i>	<i>Navicula mutica</i>
<i>Diatom vulgare</i> var. <i>producta</i>	<i>Navicula oblonga</i>
<i>Diatoma vulgare</i>	<i>Navicula pupula</i>
<i>Diatoma vulgare</i> var. <i>elongatum</i>	<i>Navicula pupula</i> var. <i>capitata</i>
<i>Diploneis elliptica</i>	<i>Navicula pupula</i> var. <i>elliptica</i>
<i>Diploneis ovalis</i>	<i>Navicula pupula</i> var. <i>rostrata</i>
<i>Diploneis ovalis</i> var. <i>oblongella</i>	<i>Navicula pusilla</i>
<i>Epithemia sores</i> var. <i>gracilis</i>	<i>Navicula radiosa</i>
<i>Epithemia turgida</i>	<i>Navicula radiosa</i> var. <i>tenella</i>
<i>Epithemia turgida</i> var. <i>granulata</i>	<i>Navicula Reinhardtii</i>
<i>Epithemia zebra</i>	<i>Navicula rhyncocephala</i>
<i>Eunotia lunaris</i>	<i>Navicula Schmassmannii</i>
<i>Eunotia pectinalis</i> fa.	<i>Navicula</i> sp.
<i>Eunotia pectinalis</i> var. <i>ventralis</i>	<i>Navicula umida</i> (?)
<i>Eunotia valida</i>	<i>Navicula viridula</i>
<i>Fragilaria brevistriata</i>	<i>Navicula viridula</i> var. <i>avenacea</i>
<i>Fragilaria capucina</i>	<i>Navicula viridula</i> var. <i>sclesvicensis</i>
<i>Frustulia vulgaris</i>	<i>Navicula Wittrockii</i>
<i>Gomphonema acuminatum</i> var. <i>Brebissoni</i>	<i>Neidium productum</i>
<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Nitzschia linearis</i>

**Oxbow: Narborough Bog (continued)****Page 81**

<i>Nitzschia amphibia</i>	<i>Pinnularia molaris</i> (?)
<i>Nitzschia amphioxys</i>	<i>Pinnularia nodosa</i> fa.
<i>Nitzschia capitellata</i>	<i>Pinnularia</i> sp.
<i>Nitzschia delognei</i>	<i>Pinnularia</i> sp. ?
<i>Nitzschia elongata</i>	<i>Pinnularia subcapitata</i>
<i>Nitzschia frustulum</i>	<i>Pinnularia sudetica</i>
<i>Nitzschia Hantziana</i>	<i>Pinnularia viridis</i>
<i>Nitzschia Hungarica</i>	<i>Rhoicosphenia curvata</i>
<i>Nitzschia ignorata</i>	<i>Rhopalodia gibberula</i>
<i>Nitzschia ovalis</i>	<i>Stauroneis anceps</i>
<i>Nitzschia palea</i>	<i>Stauroneis Kreigeri</i> ?
<i>Nitzschia parvula</i>	<i>Stauroneis phoenicentron</i>
<i>Nitzschia recta</i> ?	<i>Stauroneis pygmaea</i>
<i>Nitzschia sigma</i>	<i>Stauroneis Smithii</i>
<i>Nitzschia sigmoidea</i>	<i>Stephanodiscus astraea</i> ? <i>rotula</i>
<i>Nitzschia sinuata</i>	<i>Surirella angustata</i>
<i>Nitzschia</i> sp.	<i>Surirella ovalis</i>
<i>Nitzschia</i> sp. ?	<i>Surirella ovata</i>
<i>Nitzschia tryblionella</i>	<i>Surirella ovata</i> var. <i>pinnata</i>
<i>Nitzschia tryblionella</i> var. <i>debilis</i>	<i>Synedra affinis</i>
<i>Opephora Martyi</i>	<i>Synedra minuscula</i>
<i>Pinnularia aestuari</i>	<i>Synedra pulchella</i>
<i>Pinnularia borealis</i>	<i>Synedra ulna</i>
<i>Pinnularia intermedia</i>	<i>Synedra ulna</i> var. <i>Danica</i>
<i>Pinnularia major</i>	<i>Synedra ulna</i> var. <i>spathulifera</i>
<i>Pinnularia microstauron</i> var. <i>Brebissonii</i> fa. <i>diminuta</i>	

**Railway Embankment drain – Cosby****Page 12**

<i>Amphora ovalis</i>	<i>Pinnularia microstauron</i> var. <i>Brebissonii</i>
<i>Amphora ovalis</i> var. <i>libyca</i>	<i>Pinnularia nodosa</i>
<i>Caloneis ventricosa</i>	<i>Pinnularia rupestris</i> ?
<i>Cymatopleura solea</i> var. <i>apiculata</i>	<i>Pinnularia ruttneri</i>
<i>Eunotia pectinalis</i> fa.	<i>Pinnularia subnodosa</i>
<i>Gomphonema sarcophagus</i>	<i>Pinnularia viridis</i>
<i>Gyrosigma Kutzingii</i>	<i>Pinnularia viridis</i> var.
<i>Navicula cryptocephala</i>	<i>Pinnularia viridis</i> var. <i>sudetica</i> ?
<i>Navicula cryptocephala</i> var. <i>veneta</i>	<i>Stauroneis phoenicentron</i>
<i>Navicula gregaria</i>	<i>Surirella ovalis</i>
<i>Nitzschia amphioxys</i>	<i>Surirella ovata</i>
<i>Nitzschia apiculata</i>	<i>Surirella ovata</i> var. <i>angustata</i>
<i>Pinnularia major</i>	<i>Synedra ulna</i>

**River Sence (Location 15 of Various Leicestershire Sites)****Page 31**

<i>Cocconeis pediculus</i>	<i>Navicula gracilis</i>
<i>Cocconeis placentula</i>	<i>Navicula gregaria</i>
<i>Cocconeis placentula</i> var. <i>euglypta</i>	<i>Navicula intermedia</i>
<i>Cyclotella Meneghiniana</i>	<i>Navicula viridula</i>
<i>Gyrosigma Kutzingii</i>	<i>Rhoicosphenia curvata</i>
<i>Melosira varians</i>	<i>Synedra ulna</i>
<i>Navicula anglica</i>	<i>Thalassiosira fluviatilis</i>
<i>Navicula avenaceae</i>	

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**River Sence - Twycross (Location 6 of Various Leicestershire Sites)**

<i>Achnanthes affinis</i>	<i>Navicula gregaria</i>
<i>Achnanthes lanceolata</i>	<i>Navicula Hungarica</i> var. <i>capitata</i>
<i>Amphora delicatissima</i>	<i>Navicula rhynchocephala</i>
<i>Diatoma vulgare</i> var. <i>linearis</i>	<i>Navicula salinarum</i>
<i>Eunotia lunaris</i>	<i>Navicula sclesvicensis</i>
<i>Fragilaria virescens</i>	<i>Surirella angustata</i>
<i>Gyrosigma Kutzingii</i>	<i>Surirella ovata</i> fa.
<i>Melosira varians</i>	<i>Surirella ovata</i>
<i>Navicula avenaceae</i>	<i>Synedra pulchella</i> var. <i>naviculacea</i>
<i>Navicula cryptocephala</i>	<i>Synedra ulna</i>

**Saddington Reservoir (Location 16 of Various Leicestershire Sites)**

**Page 31**

<i>Achnanthes microcephala</i>	<i>Fragilaria intermedia</i>
<i>Amphora ovalis</i>	<i>Gomphonema olivaceum</i>
<i>Cocconeis pediculus</i>	<i>Gomphonema parvulum</i>
<i>Cyclotella Meneghiniana</i>	<i>Melosira varians</i>
<i>Cymbella affinis</i>	<i>Meridion circulare</i>
<i>Cymbella ventricosa</i>	<i>Navicula gracilis</i>
<i>Diatoma vulgare</i>	<i>Nitzschia amphioxys</i>
<i>Diatoma vulgare</i> var. <i>producta</i>	<i>Synedra ulna</i>

**Stream to Res. - Bradgate Park (Location 9 of Various Leicestershire Sites)**

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<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Navicula gracilis</i>
<i>Cocconeis pediculus</i>	<i>Navicula gregaria</i>
<i>Cymbella cistula</i>	<i>Navicula halophyla</i>
<i>Fragilaria construens</i> var. <i>venter</i>	<i>Navicula radiosa</i>
<i>Gomphonema longiceps</i> var. <i>subclavata</i>	<i>Nitzschia amphibia</i>
<i>Gomphonema parvulum</i>	<i>Nitzschia dissipata</i>
<i>Melosira varians</i>	<i>Nitzschia romana</i>
<i>Navicula cryptocephala</i> var. <i>veneta</i>	<i>Synedra ulna</i>

**Swithland Quarry**

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<i>Achnanthes lanceolata</i>	<i>Epithemia zebra</i> var. <i>saxonica</i>	<i>Navicula radiosa</i> var. <i>parva</i>
<i>Achnanthes laterostrata</i>	<i>Epithemia sores</i>	<i>Navicula tenella</i>
<i>Achnanthes microcephala</i>	<i>Fragilaria construens</i>	<i>Navicula Wittrockii</i>
<i>Amphipleura pellucida</i>	<i>Fragilaria construens</i> var. <i>binodis</i>	<i>Nitzschia ?dissipata</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Fragilaria construens</i> var. <i>venter</i>	<i>Nitzschia fonticola</i> var. <i>subsalina</i>
<i>Asterionella formosa</i>	<i>Gomphonema acuminatum</i> var. <i>Breissonii</i>	<i>Nitzschia Kutzingiana</i>
<i>Caloneis bacillum</i>	<i>Gomphonema acuminatum</i> var. <i>coronata</i>	<i>Nitzschia linearis</i>
<i>Cocconeis pediculus</i>	<i>Gomphonema parvulum</i>	<i>Nitzschia vermicularis</i>
<i>Cocconeis placentula</i> var. <i>euglypta</i>	<i>Gyrosigma acuminatum</i>	<i>Pinnularia borealis</i>
<i>Cyclotella Kutzingii</i>	<i>Gyrosigma Kutzingii</i>	<i>Rhoicosigma curvata</i>
<i>Cymatopleura elliptica</i>	<i>Melosira varians</i>	<i>Rhopalodia parallela</i>
<i>Cymatopleura solea</i> var. <i>gracilis</i>	<i>Navicula cryptocephala</i> var. <i>veneta</i>	<i>Stauroneis anceps</i> fa. <i>gracilis</i>
<i>Cymbella cistula</i>	<i>Navicula gracilis</i>	<i>Stauroneis phoenicentron</i>
<i>Diatoma elongatum</i>	<i>Navicula lanceolata</i>	<i>Stephanodiscus tenuis</i>
<i>Diploneis oculata</i>	<i>Navicula menisculus</i>	<i>Synedra ulna</i>
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<i>Epithemia zebra</i>	<i>Navicula radiosa</i>	

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<i>Achnanthes affinis</i>	<i>Fragilaria construens</i> var. <i>venter</i>
<i>Achnanthes lanceolata</i>	<i>Fragilaria intermedia</i>
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<i>Cymbella cistula</i>	<i>Navicula gracilis</i>
<i>Cymbella helvetica</i>	<i>Navicula intermedia</i>
<i>Cymbella Hustedtii</i>	<i>Navicula oblonga</i>
<i>Cymbella lanceolata</i>	<i>Navicula radiosa</i>
<i>Cymbella prostrata</i>	<i>Nitzschia amphibia</i>
<i>Cymbella turgida</i>	<i>Nitzschia Hantziana</i>
<i>Cymbella ventricosa</i>	<i>Nitzschia Kutzingiana</i>
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<i>Diatoma elongata</i>	<i>Synedra parasitica</i>
<i>Diatoma elongatum</i>	<i>Synedra ulna</i>
<i>Eunotia lunaris</i>	<i>Synedra ulna</i> var. <i>Danica</i>
<i>Fragilaria construens</i> var. <i>binodis</i>	

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<i>Achnanthes lanceolata</i>	<i>Navicula gregaria</i>
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<i>Cocconeis pediculus</i>	<i>Nitzschia apiculata</i>
<i>Cyclotella Kutzingiana</i> var. <i>planetophora</i>	<i>Nitzschia capitellata?</i>
<i>Cyclotella Meneghiniana</i>	<i>Nitzschia dissipata</i>
<i>Cymatopleura solea</i>	<i>Nitzschia palea</i>
<i>Gyrosigma Kutzingii</i>	<i>Nitzschia sigmoidea</i>
<i>Navicula cryptocephala</i> var. <i>veneta</i>	<i>Stephanodiscus minutula</i>
<i>Navicula cuspidata</i>	<i>Surirella turgida</i>

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<i>Achnanthes Hungarica</i>	<i>Gomphonema gracile</i> var. <i>lanceolata</i>
<i>Achnanthes lanceolata</i>	<i>Melosira varians</i>
<i>Amphora ovalis</i> var. <i>pediculus</i>	<i>Navicula cryptocephala</i> var. <i>veneta</i>
<i>Amphora veneta</i>	<i>Navicula gracilis</i>
<i>Cocconeis pediculus</i>	<i>Navicula gregaria</i>
<i>Cocconeis placentula</i>	<i>Navicula halophyla</i>
<i>Cymbella cistula</i>	<i>Navicula radiosa</i>
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<i>Fragilaria capucina</i>	<i>Nitzschia amphioxys</i>
<i>Fragilaria construens</i> var. <i>venter</i>	<i>Nitzschia romana</i>
<i>Fragilaria elliptica</i>	<i>Rhoicosphenia curvata</i>
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## Appendix B

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<i>Nitzschia tenuis</i>	Plate 4 Figure 146.5.25.10
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<i>Nitzschia tryblionella</i>	Plate 14 Figure 140.24.X.6 & Plate 20 Figure 4 & Plate 28 Figure 4/93.24.6.7
<i>Nitzschia tryblionella</i> var. <i>debilis</i>	Plate 28 Figure 5/21.10.12.8
<i>Nitzschia tryblionella</i> var. <i>levidensis</i>	Plate 14 Figure 28.7½.X.6
<i>Nitzschia tryblionella</i> var. <i>victoriae</i>	Plate 4 Figure 32.12.8.8 & Plate 14 Figure 46.19.X.9 & Figure 32.12.8.8
<i>Nitzschia vermicularis</i>	Plate 4 Figure 180.6.30+.10 & Plate 19 Figure 5/153.10.24.10 & Plate 29 Figure 10

**O**

<i>Opephora Martyi</i>	Plate 23 Figure 14
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**P**

<i>Pinnularia ?viridis</i> fa.	Plate 22 Figure 4/63.12.8
<i>Pinnularia abaugensis</i>	Plate 17 Figure 15/63.11.9 & Figure 16/93.11.9
<i>Pinnularia acoricola</i>	Plate 17 Figure 20/28.6.17
<i>Pinnularia borealis</i>	Plate 18 Figure 15/47.10.5
<i>Pinnularia Brebissonii</i> var. <i>producta</i>	Plate 17 Figure 13/22½.5½.15
<i>Pinnularia cuneata</i>	Plate 22 Figure 1/94½.20.6
<i>Pinnularia gentilis</i>	Plate 10 Figure 123.25.7
<i>Pinnularia intermedia</i>	Plate 27 Figure 8
<i>Pinnularia interrupta</i>	Plate 17 Figure 14/39.8.12
<i>Pinnularia macilenta</i>	Plate 11 Figure 194.33.6½
<i>Pinnularia major</i>	Plate 10 Figure 166.30.6½ & Plate 20 Figure 1
<i>Pinnularia mesolepta</i>	Plate 11 Figure 42½.10.13
<i>Pinnularia microstauron</i> var. <i>Brebissonii</i> fa. <i>diminuta</i>	Plate 24 Figure 3 & Figure 4
<i>Pinnularia molaris</i> (?)	Plate 27 Figure 5
<i>Pinnularia nobilis</i>	Plate 21 Figure 1 & Figure 3
<i>Pinnularia nodosa</i>	Plate 24
<i>Pinnularia nodosa</i> fa.	Plate 24 Figure 2/40.7½.10
<i>Pinnularia rupestris</i> ?	Plate 4A Figure 1/80.13½.9
<i>Pinnularia ruttneri</i>	Plate 4A Figure 3/146.18½.7
<i>Pinnularia</i> sp.	Plate 21 Figure 4 & Figure 8 & Plate 22 Figure 2/129.20.6 & Figure 3/149.26.6 & Plate 24 Figure 1/48.8½.9 & Figure 12/44.16.9
<i>Pinnularia subcapitata</i>	Plate 17 Figure 17/32½.6.13 & Figure 18/30.6.12 & Figure 19
<i>Pinnularia subcapitata</i> fa.	Plate 17
<i>Pinnularia subnodosa</i>	Plate 4A Figure 4/50.12½.8
<i>Pinnularia sudetica</i>	Plate 27 Figure 1/60.10.10
<i>Pinnularia viridis</i>	Plate 10 Figure 100.26½.7 & Plate 17 Figure 12/86.16.9 & Plate 21 Figure 6 & Plate 29 Figure 18
<i>Pinnularia viridis</i> fa. ?	Plate 22 Figure 4
<i>Pinnularia viridis</i> var.	Plate 12
<i>Pinnularia viridis</i> var.	Plate 21 Figure 7
<i>Pinnularia viridis</i> var. <i>Mayeri</i>	Plate 21 Figure 2 & Figure 5
<i>Pinnularia viridis</i> var. <i>sudetica</i> ?	Plate 4A Figure 2/50.8.10

## R

<i>Rhoicosigma curvata</i>	Plate 1 Figure 36.5½.10
<i>Rhoicosphenia curvata</i>	Plate 7 Figure 48.6½.12
<i>Rhopalodia gibberula</i>	Plate 25 Figure 7/28.6.20.5
<i>Rhopalodia parallela</i>	Plate 19 Figure 4/5.10.8/16

## S

<i>Stauroneis anceps</i>	Plate 8 Figure 52.13.20 & Plate 10 & Plate 16 Figure 10/50.9½.22 & Plate 20 Figure 20
<i>Stauroneis anceps</i> fa. <i>linearis</i>	Plate 5 Figure 52.12.22
<i>Stauroneis Kreigeri?</i>	Plate 28 Figure 10/22½.4.X
<i>Stauroneis phoenicentron</i>	Plate 8 Figure 86½.16.16 & Plate 16 Figure 11/134.26.18 & Plate 20 Figure 24
<i>Stauroneis pygmaea</i>	Plate 8 Figure 23.5.30 & Plate 20 Figure 23
<i>Stauroneis Smithii</i>	Plate 2 Figure 24½.6½.26
<i>Stephanodiscus <del>astrea</del> ? rotula</i>	Plate 5 Figure 1 & 6 & Plate 6
<i>Stephanodiscus astrea</i>	Plate 29 Figure 1 & 1A
<i>Stephanodiscus Hantzshii</i>	Plate 6 Figure 18 diameter
<i>Stephanodiscus minutula</i>	Plate 6 Figure 25 diameter
<i>Stephanodiscus rotula</i>	Plate 1 Figure 36µ diameter
<i>Stephanodiscus tenuis</i>	Plate 18 Figure 2/18 diameter
<i>Surirella ?near elegans</i>	Plate 15 Figure 132.50.25 in 100µ
<i>Surirella angustata</i>	Plate 15 Figure 37.9½.60 in 100µ & Plate 29 Figure 23
<i>Surirella ovalis</i>	Plate 20 Figure 11 & 12 & Plate 25 Figure 1/71.35.57 & Figure 2/90.29.60
<i>Surirella ovata</i>	Plate 4 Figure 18.12.9 & Figure 24.10½.50 in 100µ & Figure 24.10½.9 & Figure 24/10½.60
<i>Surirella ovata</i> ? var. <i>constricta</i>	Plate 15 Figure 43.12.60 in 100µ
<i>Surirella ovata</i> fa.	Plate 15 Figure 18.11.X.70 in 100µ
<i>Surirella ovata</i> var. <i>angustata</i>	Plate 15
<i>Surirella ovata</i> var. <i>pinnata</i>	Plate 25 Figure 3/28.8.60
<i>Surirella</i> sp.	Plate 15 Figure 38½.11.25.75 in 100µ
<i>Surirella turgida</i>	Plate 15 Figure 93.40.16 in 100µ
<i>Synedra acus</i>	Plate 18 Figure 6/290.3½.12
<i>Synedra affinis</i>	Plate 7 Figure 113.5.14 & Plate 20 Figure 18 & Plate 23 Figure 5/196.5.12
<i>Synedra minuscula</i>	Plate 22 Figure 5/23.2.15/16.2½.15
<i>Synedra parasitica</i>	Plate 3
<i>Synedra pulchella</i>	Plate 7
<i>Synedra pulchella</i> var. <i>naviculacea</i>	Plate 7 Figure 37.6.14
<i>Synedra ulna</i>	Plate 1 Figure 100.6½.10 & Figure 133.5.12 & Plate 29 Figure 11
<i>Synedra ulna</i> var. <i>Danica</i>	Plate 27 Figure 9/140.5.18
<i>Synedra ulna</i> var. <i>spathulifera</i>	Plate 7 Figure 250.10.8

## T

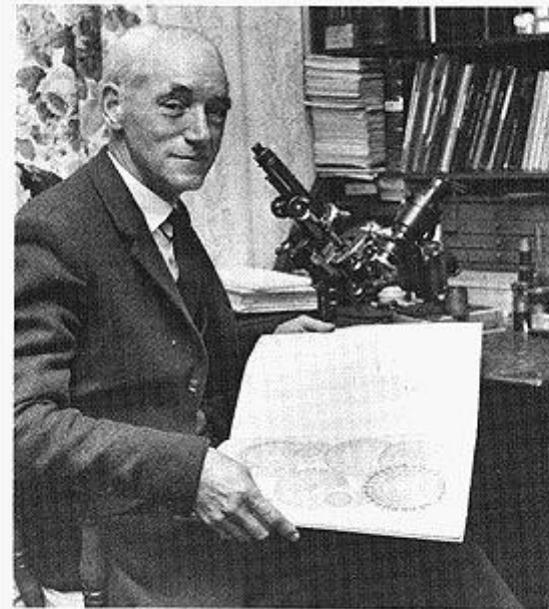
<i>Tabellaria flocculosa</i>	Plate 16 Figure 3/30.6½.18 & Figure 3a & Figure 3b
<i>Thalassiosira fluviatilis</i>	Plate 6 Figure 20 diameter



## Appendix C

Obituary notice from the Quekett Journal of Microscopy (34) June 1983

### OBITUARY



**Horace G. Barber**

(1908-1982)

THE UNTIMELY death of Horace Barber has left a gap in the ranks of microscopists which will be difficult, if not impossible, to fill. Particularly amongst the diatomists will his loss be felt for he represented the type of amateur worker, who, with unremitting zeal, studied his subject in great depth and produced work of an excellence seldom exceeded.

Born in Crewe, he joined the staff of the old London and Midland Railway in 1922 and remained with them until his retirement in 1966 having held various positions in their Control Office. In his younger days he was a keen long-distance cyclist and mountaineer and he retained his interest and activity in cycling until the day of his death when he was out riding in the morning. In 1930 he became a microscopist largely because of his interest in the local natural history society. Very quickly his work crystalized round the study of diatoms and he joined the Club in 1946.

After his retirement this study deepened and culminated in one of the most comprehensive Diatom Atlas's extant in the preparation of which he used his very considerable talents as an artist. The Atlas comprises at least 200 plates and several thousand individual drawings of British diatoms and, fortunately, this work will be available to all serious students at the British Museum (Natural History). Besides his many papers published in the Club Journal his latest contribution in association with Dr E. Y. Haworth and issued by the

Freshwater Biological Association as Scientific Publication No. 44, *A Guide to the Morphology of the Diatom Frustule with a Key to the British Freshwater Genera*, produced to help the non-specialist find his way in the diatomists world.

His interests were catholic and included membership of the Nuneaton Photographic Society of which he became President. He was a magnificent artist specialising in line drawing. He produced pottery of superlative beauty and in any spare time he had he cultivated a garden which was the admiration of his many friends.

He will be remembered as a diatomist, as an artist and, above all, as a generous friend. To his widow we extend our deepest sympathy.

H.H.G.

CONTRIBUTIONS TO THE JOURNAL

Series 4, Vol. 5, p. 365	A note on unusual diatom deformaties.
Series 4, Vol. 5, p. 387	The fossil freshwater diatoms from Ongarto Valley, New Zealand.
Vol. 29, p. 17	Freshwater diatoms from Cass, South Island, New Zealand.
Vol. 29, p. 21	The collection and preparation of recent freshwater diatoms.
Vol. 29, p. 144	A note on the genus <i>Mastogloia</i> in Anglesey.
Vol. 29, p. 193	Fossil freshwater diatoms from the Harper River, South Island, New Zealand.
Vol. 29, p. 238	A note on <i>Nitzschia sigmoidea</i> .
Vol. 31, p. 271	An account of fossil freshwater diatomaceous earth from New Zealand (in conjunction with J. R. Carter).
Vol. 32, p. 24	
Vol. 32, p. 82	
Vol. 32, p. 141	
Vol. 32, p. 156	
Vol. 33, p. 44	<i>Hantzschia marina</i> (Donkin), Grunow.
	Observations on the marine taxon known as <i>Pinnularia ambigua</i> (Cleave).
Vol. 33, p. 68	Observations of <i>Pinnularia nodosa</i> , Ehr.
Vol. 33, p. 242	A note on the taxon <i>Pinnularia microstauron</i> var- <i>brebissonii</i> (Kurtz) Hustedt.
Vol. 33, p. 305	<i>Pinnularia corminata</i> N Sp (in conjunction with J. R. Carter).
Vol. 33, p. 542	A note on epiphytic formation of a littoral marine diatom.
Vol. 34, p. 374	A gathering of diatoms from Malham Tarn.
Vol. 34, p. 214	Observations on some deformaties found in British diatoms (in conjunction with J. R. Carter).
Vol. 34, p. 500	An account of the diatom flora on a cooling tower, Central Electricity Generating Board.

## Appendix D

### Horace George Barber (1908 – 1982)

Horace George Barber was born on the 1<sup>st</sup> September 1908 in Nantwich Cheshire. He was the oldest child of Ernest George Barber and Florence Maud Amor (also known as Lily).



His father is recorded as a Railway Goods Checker and, as was common in those days, Horace followed his father into employment with the London, Midland and Scottish Railway Company, initially as a Clerk. He was later to climb the ranks to become Assistant Controller at Nuneaton Railway Station – at the time an important goods depot as well as providing passenger rail links.

In the 1911 census the family is recorded at 19, Somerville Street, Crewe, Cheshire.

On 25<sup>th</sup> August 1936 Horace married Gweneth Elizabeth Jones at Llangoed, Isle of Anglesey, Wales. In 1940 his only son Alan George Barber was born.

The first mention of Horace's interest in Diatoms is an entry in *The Microscope* Vol. VI No. 1 of 1945:

*'Mr. H. G. Barber, Bletchley, Bucks, writes to say that he is very interested in the study of Diatoms and wishes to correspond with someone of similar tastes who would also be willing and able to assist him in the identification of species.'*

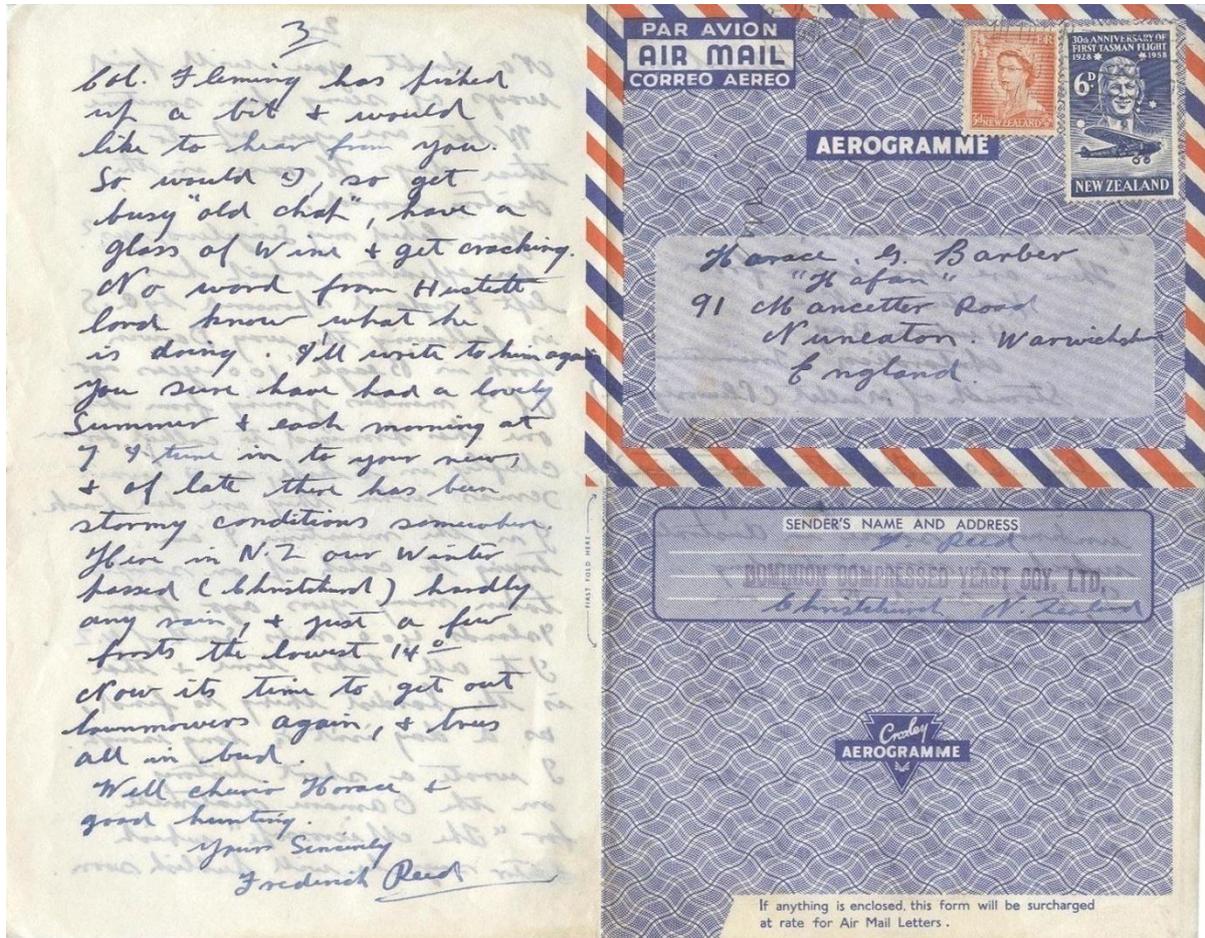
He was elected a member of the Quekett Microscopical Club on the 14<sup>th</sup> May 1946 and in 1948 is recorded as living at 'Hafan', 91 Mancetter Road, Nuneaton, Warwickshire, at which address he would spend the rest of his life. He remained an employee of the London,

Midland and Scottish Railway until his retirement in 1966. His father died in 1954, age 71, and his mother in 1967, age 84.

His brother, Ronald Ernest Barber, who is mentioned in the text but not by name, died in 1985, aged 68. There was also a sister Jean L. Barber, born in 1926.

Horace quickly established contact with a significant number of amateur and professional diatomists, both at home and abroad, and impressed them with his draughtsmanship.

The aerogramme below is a portion of a letter from Frederick C. Reed of New Zealand.



He joined a group of British Diatomists who organised meetings at Field Study Centres across the country. As was the norm at these meetings group photographs were taken. One such, from Nettlecombe Court, Exmoor National Park, Field Studies Centre, is reproduced below.



Key to the individuals in the photograph above.

<b>a</b>	Anne-Marie Schmid
<b>b</b>	Debbie Oppenheim
<b>c</b>	Paul Smith (who kindly identified/confirmed the names of the individuals)
<b>d</b>	David George Mann
<b>e</b>	Roger Flowers
<b>a</b>	Maurice O. Moss
<b>b</b>	Klaus-Dieter Kemp
<b>c</b>	Patricia (Pat) Simms
<b>d</b>	Ann Smith
<b>e</b>	Marjorie Carter (wife of John R. Carter)
<b>f</b>	Theresa Gow
<b>g</b>	Mary Mitchell
<b>h</b>	Gill Lockett
<b>i</b>	Peter Boyd
<b>j</b>	Elizabeth (Liz) Y. Haworth
<b>k</b>	Anthony Peabody
<b>l</b>	Robert Ross (14 <sup>th</sup> August 1912 – 2005)
<b>m</b>	Frank Round (1927 – 2010)
<b>n</b>	Horace George Barber (1 <sup>st</sup> September 1908 – 1982)
<b>a</b>	Robert (Bob) Isaac Firth (8 <sup>th</sup> October 1902 – 1982)
<b>b</b>	Barrie Paddock
<b>c</b>	Roger Flower
<b>d</b>	John R. Carter (1908 – 1993)
<b>e</b>	Martin Davey
<b>f</b>	Neil Roberts
<b>g</b>	Mishka Hogan-Guzowska
	The forehead between g & h belongs to Sarah Metcalfe
<b>h</b>	Roger McLean
<b>i</b>	Gwen Barber
<b>j</b>	Karen Serieyssol
<b>k</b>	Bernard Hartley (1917 – 2007)

l	John Anderson
m	Pieter Houpt
n	Tony Chamberlain
o	Samir Antoine
p	Richard (Dick) Crawford
q	Henry Hardin Gleave (13 <sup>th</sup> April 1909 – 17 <sup>th</sup> March 1990)

The following historic image depicts (from left to right) Horace G. Barber, John Carter and Eric Hollowday.



The photograph below was taken at another British Diatomists meeting.



Opposite, a letter to Klaus-Dieter Kemp following the 1979 British Diatomists meeting.

Holton, 91 Mancetter Rd., Nuneaton  
13<sup>th</sup> November 1979.

Dear Klaus,

Hope you arrived home safe & sound after your diatomianiac week, end. We made a good journey to Nuneaton in spite of a rail disorganisation between Windermere and Oxenholme. The diesel train had failed & a D. Decker Bus was laid on quickly & we made connection at Oxenholme.

Given & I had stayed at Liz's home on Sunday by long standing invitation. We had a really lovely evening & Liz & I were up till 11/30 checking my "effort" on the "Morphology of The Diatom", so we got thro' some good work.

Enclosed find the publication of M.I.H on the Marine Check List. If I remember you said you could get a Xerox copy, and then will you be sure and return. - It is of course very valuable to me for checking the existence of species in the British Isles.

Well Cheers & it was most enjoyable meeting you in the flesh - or white jumper!

Yours  
Horace

He was chairman of the Nuneaton Microscopic Society, sadly no longer in existence. The only references I have found for this organisation are two undated newspaper cuttings.

### Microscopic Society

Members of the Nuneaton Microscopic Society held their monthly meeting this week with increased membership.

The chairman, Mr. H. G. Barber, gave a talk and demonstration on using chemicals to make slides for microscopic viewing with polarized light, revealing colour structure and design made by some chemicals.

Mr. D. J. Gibbs then projected some photographic slides he had taken of chemicals through a microscope with polarized light, making pictures of interesting pattern and colour.

Members expressed their thanks.

### NUNEATON MICROSCOPE EVENING

At this month's meeting of the Nuneaton Microscope Society Mr H. G. Barber, chairman, continued his theme from last month of slide making, and went on to show how slides should be cleaned and "ringed" to present them neatly.

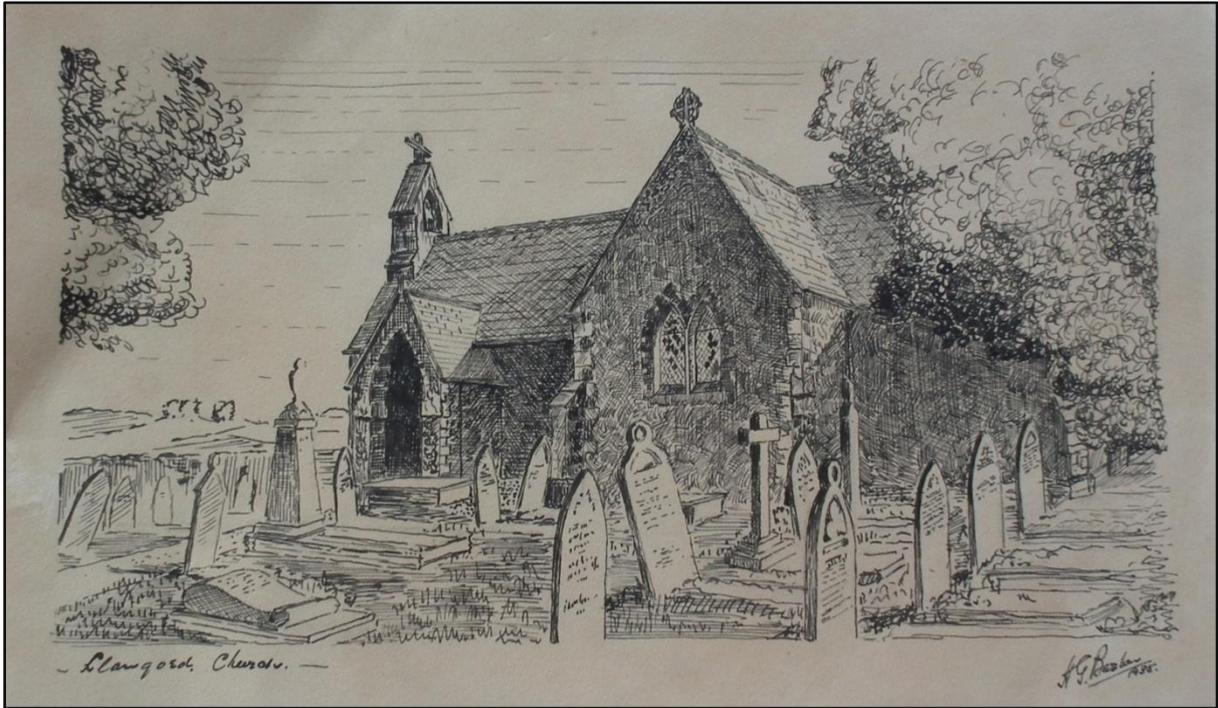
After demonstrating the process of ringing, Mr Barber invited members to try this operation for themselves. Those who did so found that it was not as easy as Mr Barber's skilled hands made it appear, but after a few practice attempts some successful results were obtained.

The meeting developed into a general discussion of problems concerning the microscope.

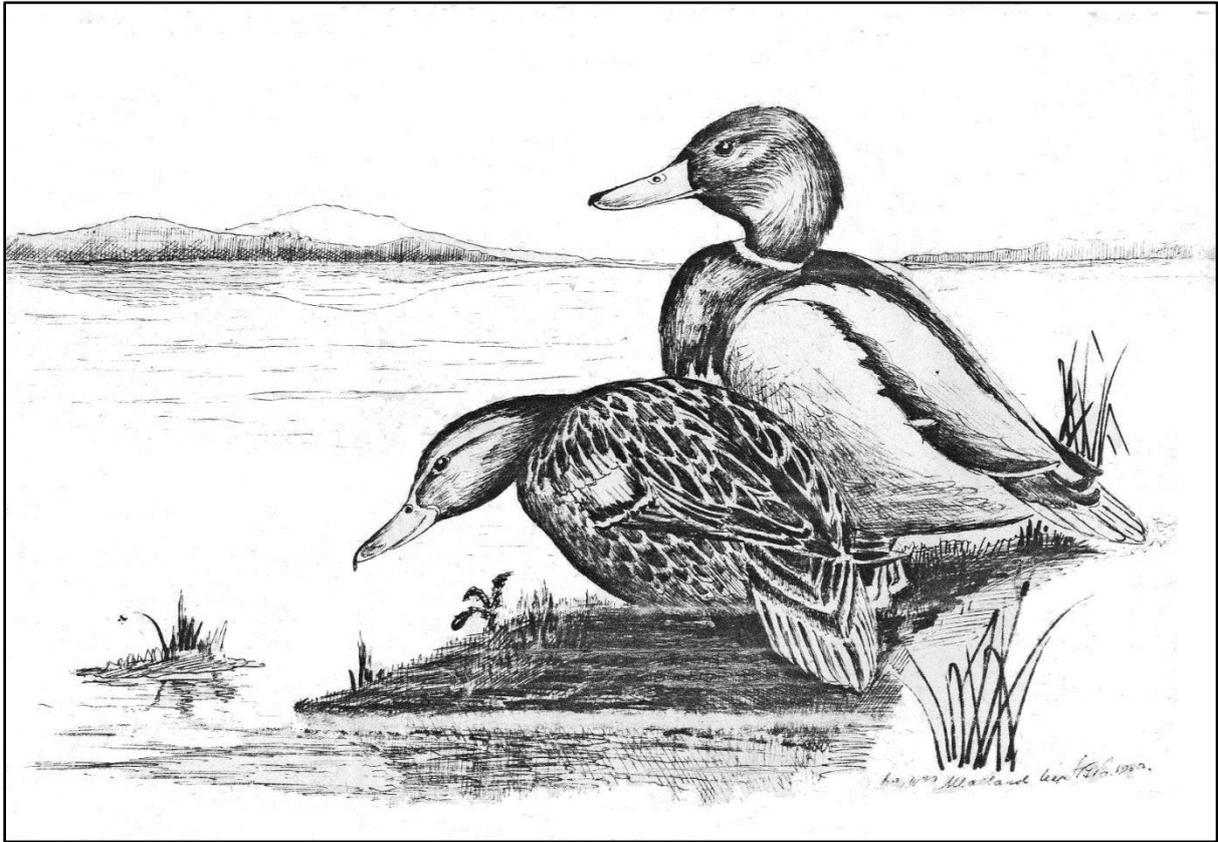
Horace was also an accomplished artist (other than the draughtsman skills used in his diatom illustrations) and a large number of his original works still survive. It has been noted, by his son, that he avoided drawing people as he could never master that art. He was particularly fond of old buildings but also painted wildlife and scenes. Many were pen and ink studies but he also used oils and watercolours.



One of Horace's last pictures







*Mr. and Mrs. Mallard*

Following his retirement he became interested in the potters art, attending evening classes at the local technical college. He was soon adept at this form of expression too.



Horace and the whole family were keen photographers, all becoming members and officers of The Nuneaton Photographic Society. The following information has been provided by Colin Yorke, the current (2013) Publicity Secretary of that Society.

- The first reference to Mr H. G. Barber, appears to be on the 1958/9 programme, and is a member living at 91, Mancetter Road, Nuneaton. Also at the same address is Mr A. Barber who is on the committee during 1959/60.
- Mr H. G. Barber received Highly Commended at the Photographic exhibition at the Art Gallery in Riversley Park in 1959.
- During 1960/61, he is Librarian and committee member, wins Intermediate Monochrome and "Our Town" competitions in 1959/60
- 1960/61 (Jan 30th) gives "An Evening with H. G. Barber" talk. Wins Advanced Mono. and "Our Town" competitions.
- 1961/62 He is President, with Mrs H. G. as Publicity Officer and Mr A. Barber as Librarian. September 25th gives talk, "Print Quality". Wins "Our Town" competition once more.
- 1962/3 He is Vice President. October 22nd Gives "Evening With Mr Barber" talk
- 1963/4 (October 21st) gives talk, "Supplementary lens on the roll film camera."
- 1964/5 Talk "Print fiddling with Mr Barber"
- 1971 Dinner and Presentation evening he is Judge for the prints (Photograph below, Horace is 2<sup>nd</sup> from the left)



...and below a photograph from the 24<sup>th</sup> Annual Dinner (Horace again 2<sup>nd</sup> from left)



Horace made regular appearances in the local press. A few examples follow.

# His world under a microscope

## NUNEATON MAN'S HOBBY BRINGS INTERNATIONAL REPUTATION

WHEN Mr. Horace George Barber, a railway clerk at Trent Valley Station, Nuneaton, returns from a walk, his wife is not surprised if he brings home fragments of rock or a jar of sludge dredged from a pond or wayside ditch.

For Mr. Barber is a most unusual collector. While other people hoard stamps, coins, butterflies, insects, matchbox labels, or beer mats, his hobby is the collection and classification of diatoms.

Invisible to the naked eye, diatoms are the minute, unicellular plants which abound in fresh and salt water. They are also to be found, fossilised, in rocks.

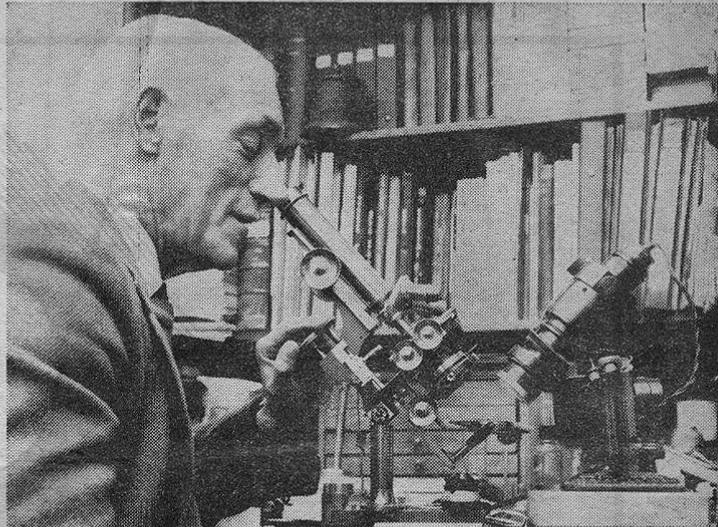
The average British fresh water diatom varies in size from 1,000th to a 50th of an inch.

A treasured, "vintage" microscope, which stands on Mr. Barber's desk at his home, 91, Mancetter Road, Nuneaton, is the clue to how he pursues his hobby.

Above the desk, carefully filed and indexed, are thousands of slides which, seen through the microscope, reveal the beauty and

distinctive pattern of each specie of diatom. "Most people do not realise how marvellous nature is," said Mr. Barber. "Many could perhaps name only a few wild flowers.

"Nature is just as marvellous in the minute world of microscopy. I took up microscopy 37 years ago. It is like going into a



Surrounded by carefully indexed slides and reference books and files, Mr. Horace Barber examines a diatom under a microscope.

many of the smaller forms being passed over or ignored."

"So, for the collector of diatoms, there can be the thrill of making a new discovery."

More new diatoms were found and described by Mr. Barber when he was engaged on research into freshwater material sent from New Zealand.

Over 400 samples of ooze from soundings of the Atlantic seabed were sent to him on another occasion with the request: "Please inform us what types of diatoms are present."

Diatoms, Mr. Barber pointed out, play an important part in the North Sea drillings for natural gas.

"The types of diatoms found in drilling samples are a clue to whether an oil or gas strike is likely," said Mr. Barber.

field into which you have never been before.

"You find that there are many marvellous things in that field. Then you find a gate leading to another field with far more marvellous things. If you like you can go from field to field for Mother Nature has provided thousands of fields for the microscopist.

"I decided, many years ago, as the serious stamp collector eventu-

### By 'Coventry Evening Telegraph' Reporter

ally decides, to concentrate on one field. My field is diatoms."

Today, Mr. Barber has an international reputation as a diatomist. He receives letters from all over the world. The British Museum and universities in America consult him.

Several newly-discovered diatoms have been named after him in recognition of the assistance he gave in a British Isles survey.

### Discoveries

"New species are still being found, even in the British Isles, which was thought to have been worked out a hundred years ago," said Mr. Barber.

"Limitations of optical equipment at that time, and failure to record accurately, resulted in

### Society chairman

Although Mr. Barber gets samples from many parts of the world—his latest are bits of rock from Majorca sent by the British Museum—he need never go far to find diatoms.

From mud taken from a pool beside Riversley Park, Nuneaton, he was able to identify no fewer than 43 varieties of diatoms.

Mr. Barber is chairman of Nuneaton Microscopical Society. It started about 12 months ago with three or four members. Now it has about 15, two of them women.

"All are interested in different aspects of microscopy," said Mr. Barber.

"A local beekeeper, for instance, finds that microscopy adds another interesting dimension to his hobby."

# A man and his camera

**M**R HORACE BARBER of 91 Mancetter Road, Nuneaton, spends his working days as a clerk in the yard master's office at Trent Valley Station.

But whenever he gets the

opportunity he gets out and about with his camera. And some examples of his work show just how advanced he has become.

It was over 30 years ago that Mr Barber first became interested in the wonder of photography. Since then he has won many awards in amateur competitions

and is now president of the Nuneaton Photographic Society.

He has even made a camera himself to help with architectural photography.

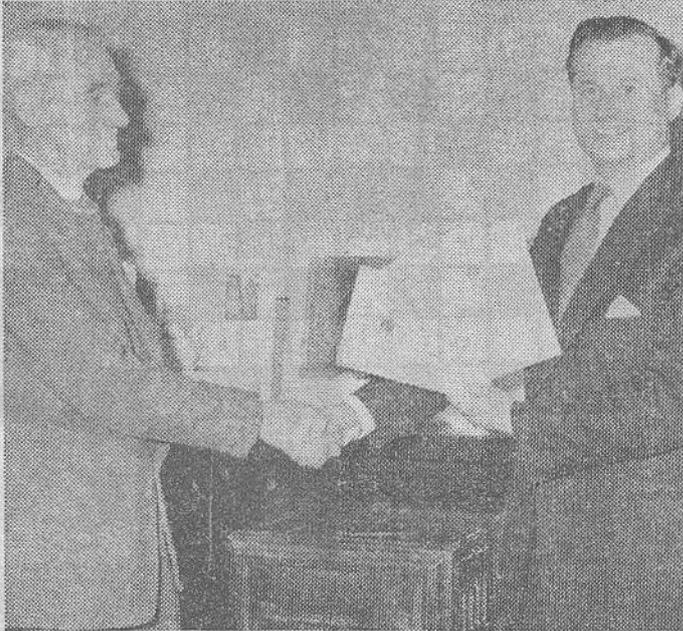
Today, a proud Mr Barber was presented with three certificates of merit, which he was awarded in the recent arts and crafts exhibition of the London Midland Region Staff Association, British Railways.

The three prints which earned him the certificates were:

- A pictorial photograph called "Winter Light."
- An architectural study of the nave and chancel of Hereford Cathedral.
- Six snapshots of Camp Hill pool, Nuneaton.

The first two of his prints will go forward to the national competition.

Mr Barber has been successful in the competition before. Last year he won the British Railways national cup for a pictorial photograph.



Mr Horace Barber is presented with three certificates of merit for his photography by Mr T. W. Royle, district operating superintendent of Rugby, at Nuneaton, today.

**NUNEATON  
EVENING  
TRIBUNE**

TUESDAY, MAY 30, 1961

# WHAT IS A DIATOM?

Nuneaton Rotary Club is given the answer

THEY form the basis of oil, they absorb poisonous paint on ships and form a layer for barnacles to form on. THEIR skeletons make filters for chemicals, polishing material for jewellers, absorbent material for dynamite, face and tooth powders, tiles for fireplaces, bricks for furnaces, and fillers for sealing wax, paint, paper and rubber, and are also used for sound proofing and cold storage. THEY are found all over the world in thousands of different shapes. Imported, THEY cost £18 a ton, and soon we may be eating THEM.

What are they? Diatoms—minute single-cell plants which are to the sea what grass is to the land. And among the men who study them as a hobby is Mr. A. G. Barber. On Monday he told a fascinated gathering of Nuneaton Rotarians about them at their weekly luncheon.

They handled with awe diatom skeletons in solid and powder form and looked at a test tube of water in which they were dissolved.

At the end, they studied examples through a microscope and learnt to their amusement that to pick them up, Mr. Barber used pigs' eyelashes. For they varied in size from one 200th inch to one 25,000th.

## Experimenting

"The time will come," Mr. Barber declared, "when foods are made from that type of thing. There is more food in the sea than ever we can grow on the land." With an increasing world population, it was impossible to find enough ground to grow food for everyone. Even now, America and Japan were experimenting with the idea.

Why wait for fish to eat diatoms and then eat the fish? he asked. Why not go straight to the diatoms?

They consisted of silica skeletons containing vegetable matter, and they multiplied themselves by dividing in two—sometimes in only four hours. They absorbed minerals from salt, fresh or brackish water.

By clinging to ships, diatoms could attract barnacles which slowed the ships down or caused them to be laid up for scraping. Thousands of pounds were being spent finding ways to prevent this.

Found in the earth, the skeletons were a clue to the presence of oil which was formed when they were covered with land for thousands of years and gradually crushed. Russia had tremendous deposits. A firm drilling in Barbados had asked Mr. Barber for information on them.

## Many varieties

Mr. Barber said he spent his holidays searching for diatoms on the beaches of Anglesey. He put them in test tubes and extracted the vegetable matter by soaking them in nitric acid. So far, in Anglesey alone, he had found nearly 1,000 different varieties.

His biggest difficulty was the shortage of literature on the subject.

Other people were searching for diatoms all over the country and new varieties were still being found. There were very few diatoms in the Nuneaton district, however.

What puzzled him was how these minute plants managed to move. "I can watch them do it under my microscope," he said. No man living, however, had been able to discover their method of propulsion.

The vote of thanks was moved by Mr. G. Ashton, Nuneaton Borough Surveyor, who was introduced as "our water engineer."

## TIME FOR HOBBIES NOW HE'S RETIRED



Mr. Barber

**R**ETIREMENT after 43½ years' railway service poses no leisure time problems for Mr. Horace George Barber, of Mancetter Road, Nuneaton, for he is a man of enquiring mind with many interests.

Today, now that he is 60, is his last working day as chief booking and parcels clerk at Trent Valley Station.

"I do regret leaving the colleagues I have worked with for so many years—one forms innumerable friendships," said Mr. Barber.

### Down to diatoms

But retirement will enable Mr. Barber to devote more time to his hobbies.

One of these is microscopy. He is the founder of Nuneaton Micro Circle and for many years has made a special study of diatomaceae, gaining an international reputation.

At present he is engaged in cataloguing and preparing slides of fossil deposits of fresh water diatoms in material sent from New Zealand for his expert attention.

"This will take possibly twelve months before the results are published," said Mr. Barber.

As a keen amateur photographer Mr. Barber has won most of the trophies of Nuneaton Photographic Society, of which he is a past president.

For three years in succession he won the "Pictorial" award in British Rail's national photographic competition.

Coventry Evening Telegraph, Tuesday, February 4, 1969

# THE TUTTLE HILL WINDMILL HAS A SMOOTH JOB

MR. HORACE BARBER, a retired railway clerk and man of many hobbies, has put a windmill back on Tuttle Hill, Nuneaton.

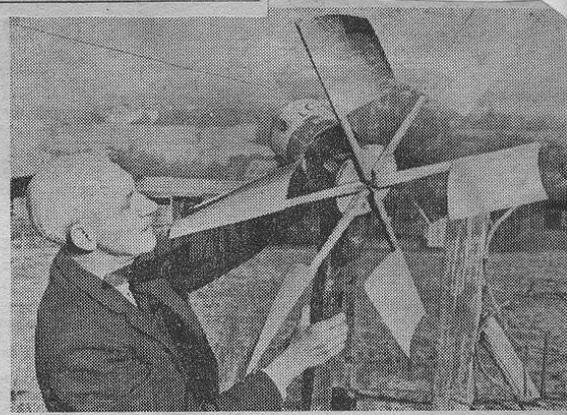
It's nothing like the big windmill whose massive, turning sails used to be a landmark for miles around.

It's just a small home-made affair on a pole at the bottom of his back garden at 91, Mancetter Road.

It cannot be seen from the road, but its whizzing vanes play a vital part in Mr. Barber's newest interest—polishing pebbles into semi-precious stones.

The vanes are fixed to a shaft which was once the front axle of a cycle.

Mr. Barber dismantles his home-made "tumble mill" to check how his stones are progressing.



## End product

They turn—at the other end of the shaft—a tin containing an assortment of selected pebbles.

This tin is the "end product" section of Mr. Barber's cheaply-made tumble-mill.

Rough pebbles, mixed with carborundum powder, are churned for days and weeks in the tin.

When they are eventually tipped out they are shining semi-precious stones of many colours, suitable for jewellery and other ornamental uses.

So now Mr. Barber, a keen amateur photographer, microscopist and potter, has become a rock hound and fossicker (rummager among pebbles).

## High degree

A fascinating variety of semi-precious stones can be found in rocks and pebbles in Britain—amethyst, agate, tourmaline, blue John, citrine, jasper, garnet, marcasite, amber and smoky quartz.

Although he has achieved a high degree of polish on his home-made jewels, Mr. Barber is seeking an even glossier, more brilliant finish.

He would like to hear from fellow fossickers who may have some useful tips to offer.



Some of the stones, partly polished after being rubbed together in the "mill."

Below one of the polished stones, varnished and mounted as a pendant.



TWELVE—EVENING TRIBUNE THURSDAY NOVEMBER 5 1970



The Mayor of Nuneaton, Councillor Albert Childs, presenting a prize of a holiday for two in Majorca to Mr and Mrs H. G. Barber, of 91 Mancetter Road, Nuneaton. Mr Barber won the prize in the colour slide competition organised by Edwards Cameras and John

Camkin Travel, Nuneaton, Ltd. His winning slide, a study of Corporation Street, Nuneaton, in the mist, was shown at King Edward School last night with the hundred best entries in the competition. Second prize was won by Mrs P. Starkey, of 224 Newtown Road, Bed-

worth, and the third went to Mr K. Summerton, of 289 Marston Lane, Nuneaton. Looking on in this picture are Mr L. F. Perry, left, and Mr E. Edwards, centre. Reproductions of the prize-winning pictures will appear in tomorrow's Evening Tribune. — ET 1297B.

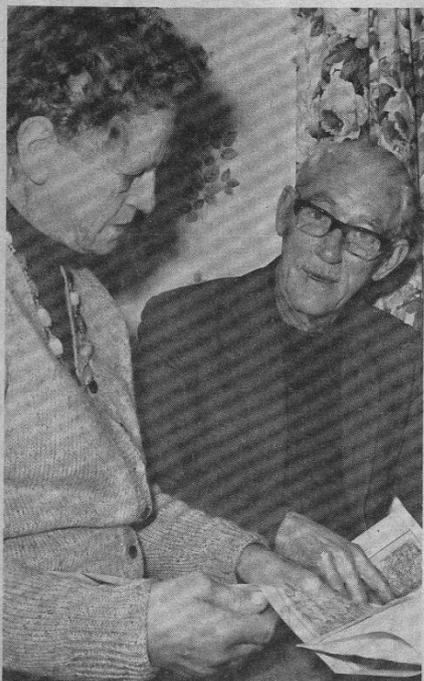


MINGHAM

Name MR. H. G. BARBER  
 Home Address 91 MANCETTER RD  
NUNEATON - ENGLAND

 HORIZON  
MIDLANDS  
LIMITED

# If you can't beat 'em join 'em...



Mr and Mrs Barber, planning for the holiday they won in Majorca. — ET 2466B.

Some wives complain if their husbands spend part of their time watching football or taking apart internal combustion engines of varying degrees.

Mrs Gweneth Barber, of Mancetter Road, Nuneaton, is an example to them all. For her husband Horace has always had a wide range of hobbies and interests all his life.

Mrs Barber's motto: "If you can't beat 'em, join 'em".

And it has been a successful formula because Mr Barber says: "I couldn't have married a more patient and understanding woman".

Mrs Barber said: "I have always taken the keenest interest in his hobbies. Sharing our interests has brought us a great deal of happiness during our years together."

Her husband is retired and now has more time to devote to a lifelong task—the preparation of a flora of the British Isles of a microscopic form of plant life found in water.

## Courting days

She smiled and said: "When we were courting I had to wait around while he collected specimens from a pond. And I've been patient with him ever since."

Mrs Barber is helping with the work on the flora. With her knowledge of Latin and French she can translate from text books. She also shares her husband's love of nature.

During walks they collect grasses and wild flowers for use in decorations and also pebbles.

Mr Barber grades and polishes the stones and has made some of them into unusual pieces of jewellery for his wife.

Mr Barber is also an expert photographer — he recently won a holiday for two in Majorca with a transparency — makes beautiful pottery, paints in water colours and does fine pen and ink drawings.

## Still time

Both enjoy gardening. And Mrs Barber still finds time for a host of her own interests!

She was brought up in Anglesey and can still speak and write fluent Welsh. She shares her fellow-countrymen's love of singing and is teaching herself to play the piano.

Winemaking, preserving, and baking still leave time for her to listen to records, watch ballet on television and read poetry.

And she never misses the opportunity of visiting churches and other historical buildings.

Now they have another "hobby"—their first grandchild, three-month-old Nicholas...

# RAIL CLERK GIVES HIS NAME TO SEA PLANTS

16 May, 1966. Rail News

**I**N recognition of his work in a British Isles survey on diatoms, Horace Barber, clerk at Nuneaton, Trent Valley, has had several newly-discovered specimens named after him.

Diatoms are small plants, invisible to the naked eye, which live in fresh or salt water. By studying the different types, it's possible to learn what type of mineral is in the rock formation below them.

Horace is one of the world's leading authorities on the subject.

In recent drilling in the North Sea, over 400 samples of ooze were sent to him to establish the different types of diatoms in it.

"Diatoms," said Horace, "played an important part in the North Sea drillings for gas."

He studies the tiny plants, averaging in size varying

from 1,000th to a 50th of an inch, through a microscope and carefully files and indexes each slide containing them.

"I've thousands of slides and pride myself on my collection and classification of different species," he said. The British Museum consults him, as do American universities, and he receives letters from all parts of the world.

## New types

Chairman of Nuneaton Microscopical Society, Horace Barber is now working on samples of rock from Majorca, which were sent to him from the British Museum.

"Part of the enjoyment in working on samples is the possibility of discovering new species," he said. "I discovered and indexed

some while working on freshwater material sent from New Zealand. It was certainly a thrill."

The possibility of discovering more is very great, it seems, for the equipment used in earlier years was quite inadequate.

"Limitations of optical equipment and failure to record accurately resulted in many smaller forms of diatoms being ignored," said Horace. "These are the new species we are discovering now."

What of the future?

"Well," said Horace, "samples from the local ponds can often yield nearly 50 different kinds of diatoms. There must be many undiscovered species throughout the world. "I hope to find a few of them," he said.

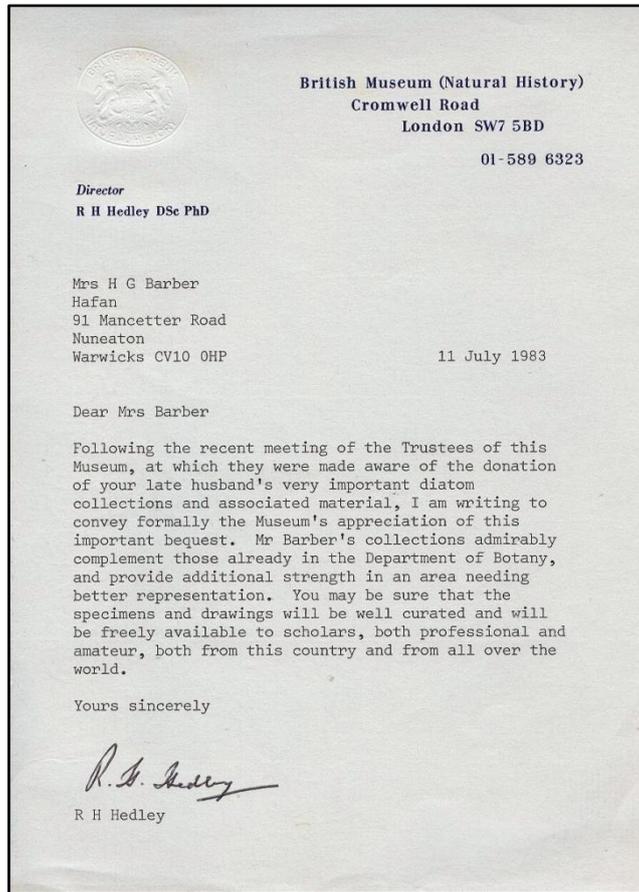


Horace Barber closely studies a sample of ooze containing many different varieties of diatoms.

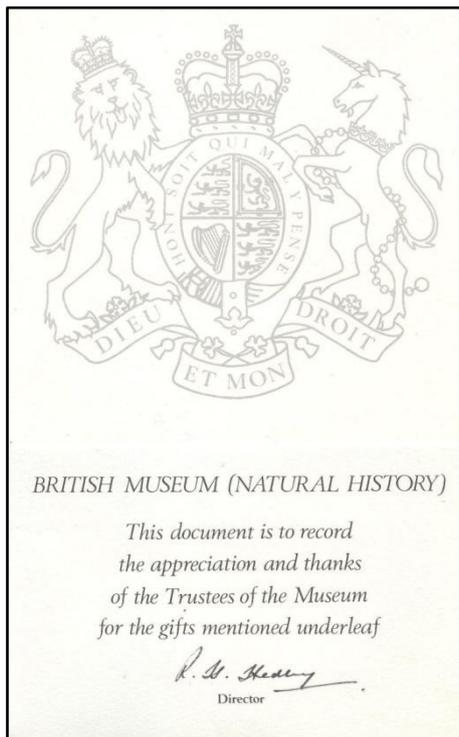
He was a keen cyclist and this goes a significant way to explain his collecting strategy throughout Nuneaton and District, undoubtedly utilising the Coventry Canal towpaths to reach the more remote sites and also perhaps the various work parties that ran up and down the railway line provided the occasional means of transport.

Horace died in 1982 at his home 'Hafan' in Nuneaton. Hafan is Welsh for Haven.

Horace bequeathed his slide, sample collection and drawings to the British Museum (Natural History).



His family subsequently received a certificate acknowledging the acquisition.

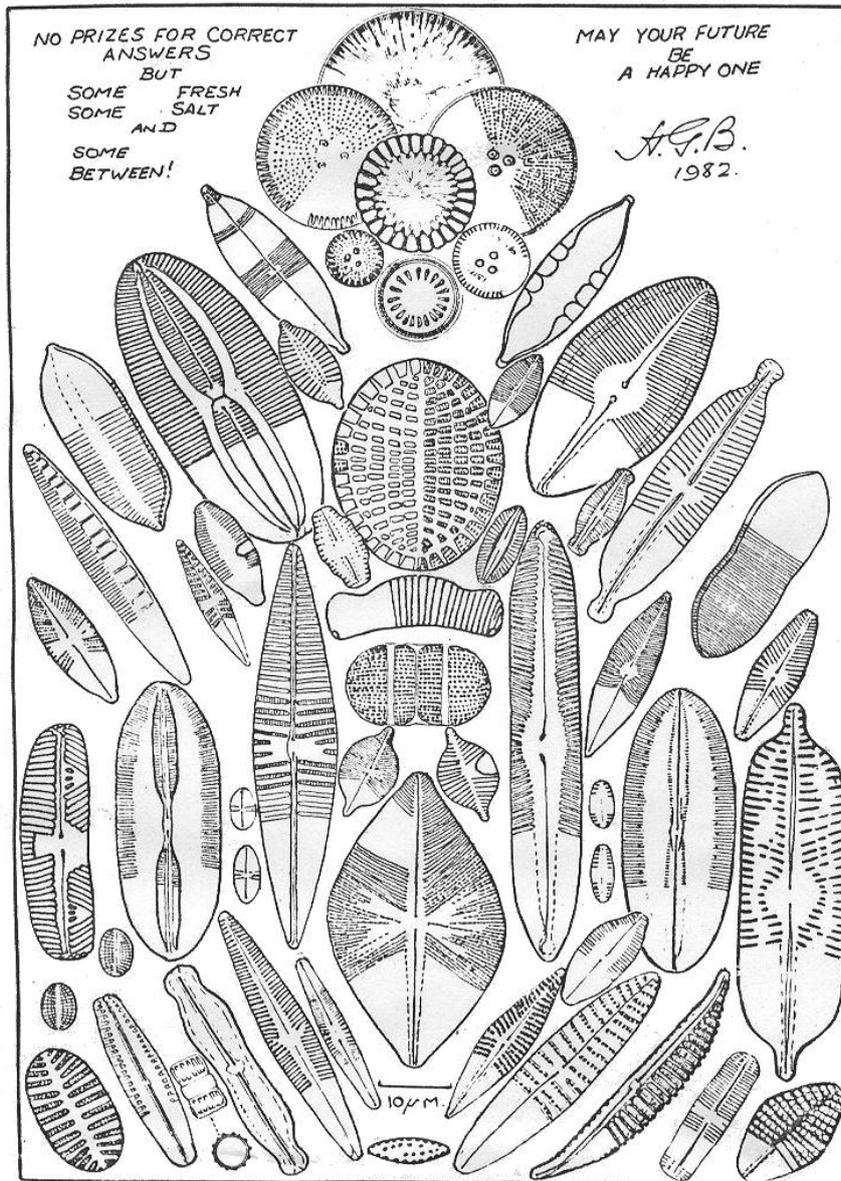


A major collection of diatom material including  
2,950 mounted slides, 789 tubes of cleaned  
specimens and 359 plates of original drawings  
comprising over 5,900 individual figures  
bequeathed to the British Museum (Natural History)  
by the late Mr H G Barber

Mrs H G Barber  
Hafan  
91 Mancetter Road  
Nuneaton  
Warwickshire  
CV10 0HP

11 July 1983

In his final year he sent out a number of calendars bearing the following image:



Alan George and Judith Ann Barber

## Appendix E

### Bibliography

#### Articles in the Quekett Journal of Microscopy:

- 1961a - A note on unusual Diatom deformities Vol. 28, page 365  
1961b - The Fossil Freshwater diatoms of the Ongarato Valley deposit, North Island, New Zealand Vol. 28, pages 387-391  
1962a - Freshwater Diatoms from Cass, South Island, New Zealand Vol. 29, pages 17-20  
1962b - The Collection and Preparation of Recent Diatoms Vol. 29, pages 21-25  
1963a - A note on the Genus *Mastogloia* occurring in Southern Anglesey Vol. 29, pages 144-146  
1963b - Fossil Freshwater diatoms from a Deposit on the Harper River, South Island, New Zealand Vol. 29, pages 193-195  
1964 - A Note on *Nitzschia sigmoidea* Vol. 29, page 238  
1972 *Hantzschia marina* (Donkin) Grunow Vol. 32, pages 156-157  
1976a - Observations on the Marine Taxon Known as *Pinnularia ambigua*, Cleve Vol. 33, pages 44-46  
1976b - Observations of *Pinnularia nodosa*, Ehrenberg Vol. 33, pages 68-69  
1977 - A Note on the Taxon *Pinnularia microstauron* var. *brebissonii* (Kützing) Hustedt Vol. 33, pages 242-243  
1979 - A Note on Epiphytic Formation of a Littoral Marine Diatom Vol. 33, pages 542-543  
1982 - A Gathering of Diatoms from Malham Tarn Vol. 34, pages 374-380  
1983 - An Account of the Diatom Flora on a Cooling Tower, Central Electricity Generating Board Vol. 34, pages 500-503

#### The following articles in The Microscope were in conjunction with J. R. Carter.

- 1970 - An Account of Fossil Freshwater Diatomaceous Earth from Gordon Road site, Auckland, New Zealand Vol. 31, pages 271-277  
1971a - An Account of Fossil Freshwater Diatomaceous Earth from Gordon Road site, Auckland, New Zealand Part II Vol. 32, pages 24-28  
1971b - An Account of Fossil Freshwater Diatomaceous Earth from Gordon Road site, Auckland, New Zealand Part III Vol. 32, pages 82-89  
1972 - An Account of Fossil Freshwater Diatomaceous Earth from Gordon Road site, Auckland, New Zealand Conclusion Vol. 32, pages 141-147  
1978 - *Pinnularia carminata* n.sp. Vol. 33, pages 305-307  
1981 - Observations on some Deformities found in British Diatoms Vol. 34, pages 214-226

In conjunction with Elizabeth Y. Haworth of the Freshwater Biological Association wrote – “A Guide to the Morphology of the Diatom Frustule” (Scientific Publication No. 44). This was published in 1981. In the preface Horace Barber is described (probably by himself) as an enthusiastic amateur. The cover illustration of the booklet is from a drawing by Horace Barber.

The illustrations and work on British diatomaceae were eventually included in the publication of “An Atlas of British Diatomaceae” (published by BioPress in 1996), which also included the work of Bernard Hartley, J. R. Carter and P. A. Sims

#### Other papers and publications-

- 1956 - A record of Diatoms from the River Leam, Leamington, Warwickshire (Limited Private Edition)  
1976 - The Diatom Flora of the County of Leicestershire (Limited Private Edition)

1976 - Observations on the marine taxon known as *Pinnularia ambigua*. *Microscopy* Vol. 33  
Pages 44-46.

1978 - The illustrated Diatom Flora of Great Britain (Limited Edition)

1979 - An illustrated Account of the Diatom Flora in a sediment Core from Windermere,  
Cumbria. (Limited Private Edition)

1981 - Some Freshwater Diatoms from Malham Tarn (Limited Private Edition) [see Appendix  
F] [see also Quekett *Journal of Microscopy* 1982 - A Gathering of Diatoms from Malham Tarn  
Vol. 34, pages 374-380]

2013 – The Diatom Flora of Nuneaton and some Outlying Districts (online publication)

## Appendix F

### Some Freshwater Diatoms from Malham Tarn

[**Editor's Notes:** Malham Tarn lies approximately 25 miles (40km) northwest of Bradford, at an altitude of 1236 feet (377 metres). The Tarn surface area is about 153 acres (61 hectares) and the average depth is about 8 feet (2.4 metres). The maximum depth is about 14½ feet (4.4 metres). The Malham Tarn catchment area covers about 2.3 miles<sup>2</sup> (6 km<sup>2</sup>). The Tarn is frozen for most of the winter but in summer the water temperature reaches as high as 20 degrees Celsius (68°F). This is still quite cold as anyone who has fallen in will testify. The inflow to the Tarn consists of a small stream entering at the north-western corner and to a lesser extent the small springs that issue from close to the limestone/shale boundary at the base of the limestone scar on the eastern shore. There is one outflow at the southern end of the Tarn, called Tarn Foot. The outflow stream flows for only a short distance - depending on outflow strength - before sinking into the limestone. This is the embryonic River Aire. To the west is a raised bog called "Tarn Moss". A 'cliff' has formed as a result of erosion by the Tarn water subsequent to the raising of the water level in 1771.

Small beds of Bottle Sedge (*Carex rostrata*) grow in the north-west corner and the sheltered east bay. The north and north-east shores are of limestone with glacial drift covering and variable sized boulders and pebbles of limestone. The Tarn lies largely over Silurian slates covered with thick glacial drift and marl deposits. Surrounding the Tarn is a karstic limestone landscape of predominately Carboniferous age.]



During the meeting of the British Diatomists held this year (1981) November 5<sup>th</sup>-7<sup>th</sup> at Malham Tarn Field Centre opportunity was taken to gather from the shore of the tarn.



Tarn House, Malham Tarn Field Centre by Horace G. Barber (November 1981)

The gathering generally was made from coating on underwater stones and boulders, and a small spring on the bank of the tarn. The geology of the side nearest the centre is limestone but the opposite, that of old peat bog (not visited). The flora of the gatherings made was principally of *Fragilaria* and *Cymbella* as will be seen from the appended list. Plates 1 & 2 will give an idea but naturally are not exhaustive, a few of the very smaller naviculoid forms need much study.



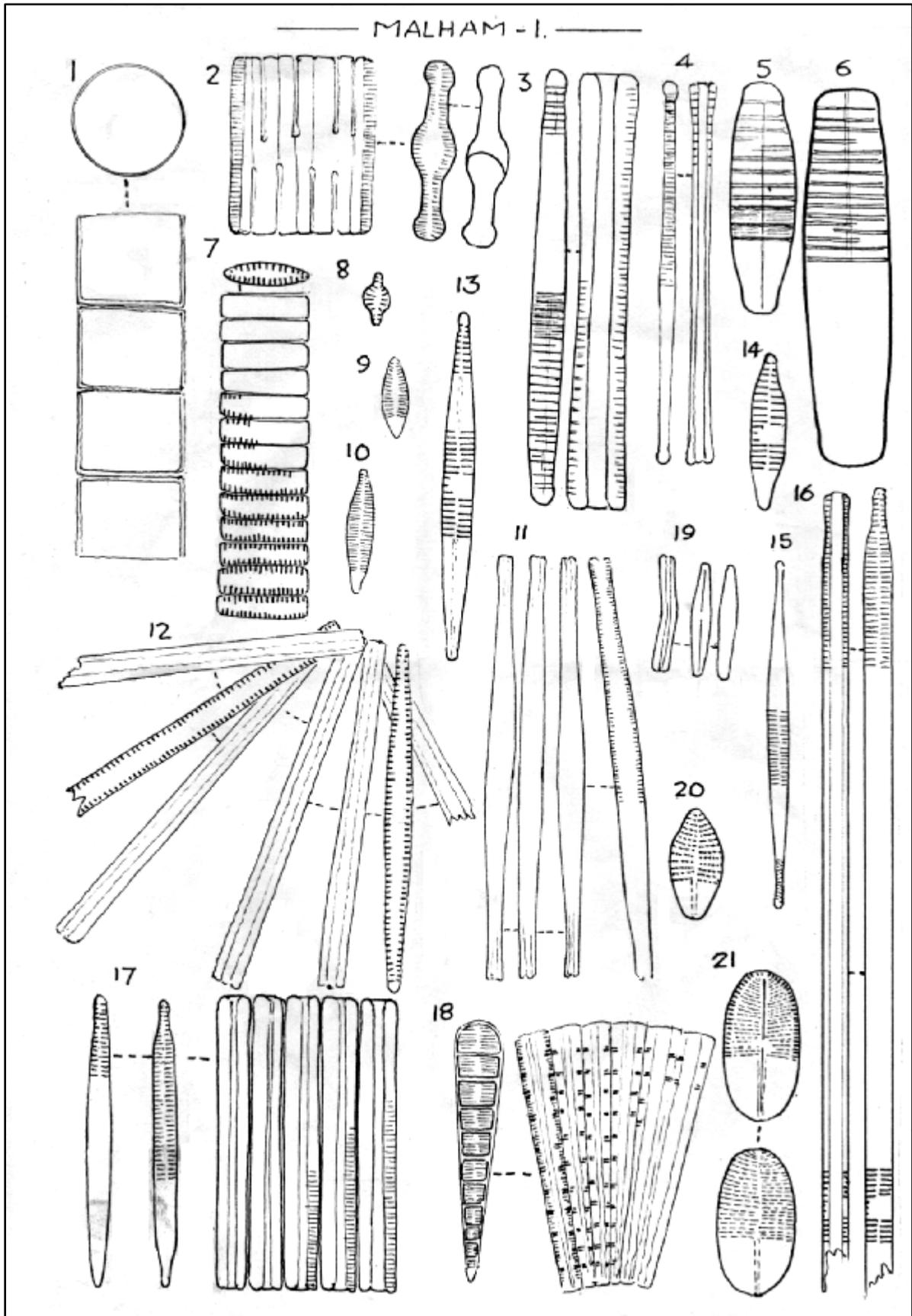
*The eastern shore of Malham Tarn*



*The spring on the east shore of the Tarn*

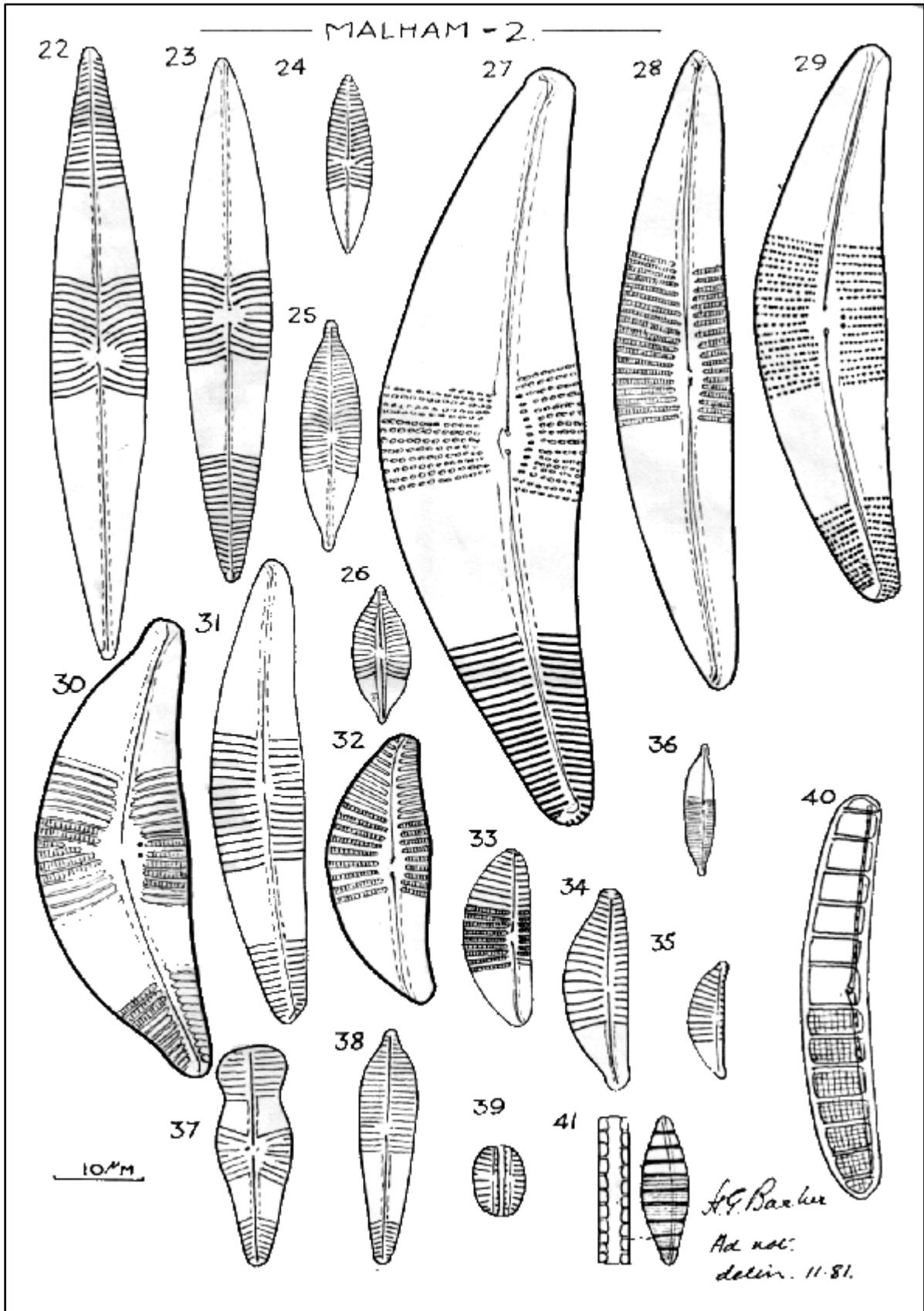
## Plate 1

Figure	Name
1	<i>Melosira varians</i> Agardh
	(From the spring) Rare
2	<i>Tabellaria flocculosa</i> (Roth) Kützing
	(From the spring) Frequent
3	<i>Diatoma vulgare</i> var. <i>grandis</i> (W.Smith) Grunow
	Massive
4	<i>Diatoma elongatum</i> Agardh
	Massive
5	<i>Diatoma vulgare</i> var. <i>producta</i> Grunow
	Few
6	<i>Diatoma vulgare</i> var. <i>producta</i> Grunow
	?auxospore form. Few
7	<i>Fragilaria</i> sp. var. <i>ventis</i> (Ehrenberg) Grunow
	Occasionally in bands up to 1mm long
8	<i>Fragilaria construens</i> (Ehrenberg) Grunow
	Only one seen
9	<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow fa.
	Few
10	<i>Fragilaria construens</i> var. <i>venter</i> (Ehrenberg) Grunow fa.
	Few
11	<i>Fragilaria crotonensis</i> Kitton
	A few stellate formations
12	<i>Synedra actinostroides</i> Lemerman
	A few stellate formations
13	<i>Fragilaria intermedia</i> Grunow
	Few
14	<i>Fragilaria intermedia</i> Grunow fa.
	Few
15	<i>Fragilaria</i> ? <i>gracillima</i> Mayer
	Few
16	<i>Synedra ulna</i> (Nitzsch) Ehrenberg
	Few
17	<i>Fragilaria construens</i> var. <i>subsalina</i> Hustedt
	Frequent
18	<i>Meridion circulare</i> Agardh
	(From the spring) Few
19	<i>Achnanthes affinis</i> Grunow
	Frequent
Not figured	<i>Achnanthes microcephala</i> (Kützing) Grunow
	Frequent
20	<i>Achnanthes Clevei</i> Grunow
	Hypovalve only seen
21	<i>Cocconeis placentula</i> (Ehrenberg) Hustedt
	(From the spring only) Rare



## Plate 2

Figure	Name
22	<i>Navicula radiosa</i> Kützing
	(Rombic Form) Rare. This taxon varies from rhombic to lanceolate
23	<i>Navicula radiosa</i> Kützing
	(Lanceolate Form) Rare. This taxon varies from rhombic to lanceolate
24	<i>Navicula cryptocephala</i> var.
	Near <i>Navicula veneta</i> Kützing. Frequent
25	<i>Navicula intermedia</i> Grunow
	(near) Few
26	<i>Navicula</i> sp.
	Only one seen
27	<i>Cymbella sturii</i> Grunow fa.
	Rare. This form could come within the orbit of <i>Cymbella cistula</i> (Ehrenberg) O.Kirchner
28	<i>Cymbella helvetica</i> Kützing
	Frequent
29	<i>Cymbella ?cistula</i>
	Frequent Usually <i>cistula</i> has 4 or 5 isolated punta. <i>Cymbella turgida</i> W.Gregory, has rostrate ends so there is a question here.
30	<i>Cymbella tumida</i> (Brébisson) H.v.Heurck
	Few
31	<i>Cymbella ? helvetica</i> Kützing fa.
	Rare
32	<i>Cymbella prostrata</i> var. <i>auerswaldii</i> (Rabenhorst) Reimer
	Very Frequent Present in gelatinous tubes and is the first occasion I have found them so. There is much variation in the outline and particularly to the ventral edge.
33	<i>Cymbella prostrata</i> var. <i>auerswaldii</i> (Rabenhorst) Reimer
	Very Frequent Present in gelatinous tubes and is the first occasion I have found them so. There is much variation in the outline and particularly to the ventral edge.
34	<i>Cymbella affinis</i> Kützing
	Rare
35	<i>Cymbella ventricosa</i> Kützing
	Frequent
36	<i>Cymbella microcephala</i> Grunow
	Frequent
37	<i>Gomphonema constrictum</i> Ehrenberg
	Only one seen
38	<i>Gomphonema augur</i> Ehrenberg fa.
	Only one seen
39	<i>Amphora ovalis</i> var. <i>pediculus</i> Kützing
	Frequent
40	<i>Epithemia zebra</i> (Ehrenberg) Kützing
	Fragments only seen
41	<i>Denticula tenuis</i> var. <i>crassula</i> (Naegeli) Hustedt
	Frequent



The sketches were all made from uncleaned material and no doubt after chemical cleaning some forms will afford a closer identification. After cleaning there are a number of forms additional to the above records and time permitting it is the intention to add to the account.

*H.G. Barber*

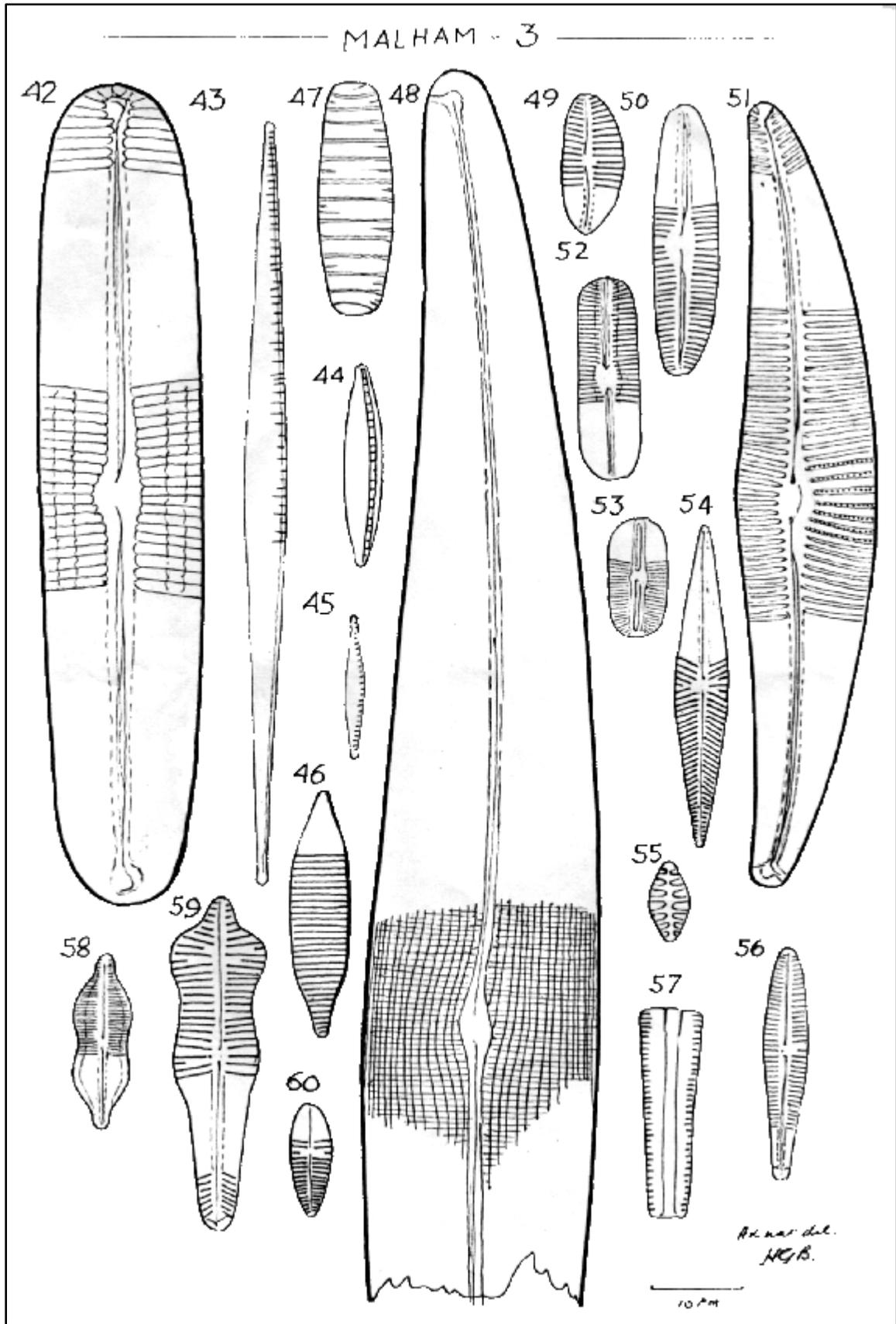
Hafan, 91 Mancetter Road, Nuneaton  
November 1981

Subsequent to the foregoing record the material was acid cleaned and a more extensive search made which resulted in Plates 3 & 4. The forms on these plates are very infrequent, many only occurring once.

There are still a few minute forms I have refrained from recording for I cannot be confident as to the Genera.

### Plate 3

Figure	Name
42	<i>Pinnularia viridis</i> (Nitzsch) Ehrenberg
	Only one seen
43	<i>Nitzschia</i> sp. (? <i>gracilis</i> )(? <i>acuta</i> )
	Only one seen
44	<i>Nitzschia dissipata</i> (Kützing) Grunow
	Only one seen
45	<i>Nitzschia</i> sp.
	Only one seen
46	<i>Nitzschia augustata</i> var. <i>acuta</i> Grunow
	Very rare
47	<i>Diatoma vulgare</i> fa.
	One only (Taxon subject to intermediates)
48	<i>Gyrosigma attenuatum</i> (Kützing) Rabenhorst
	One only
49	<i>Cymbella prostrata</i> var. <i>auerswaldii</i> (Rabenhorst) Reimer
	(End of clone form?)
50	<i>Cymbella obtusa</i> W.Gregory
	One only
51	<i>Cymbella lanceolata</i> (Ehrenberg) H.v.Heurck
	Rare
52	<i>Diploneis marginestriata</i> Hustedt
	One only
53	<i>Diploneis marginestriata</i> Hustedt fa.
	One only
54	<i>Navicula radiosa</i> var. <i>tenella</i> (Brébisson) H.v.Heurck
	One only
55	<i>Fragilaria leptostauron</i> (Ehrenberg) Hustedt
	One only
56	<i>Gomphonema angustatum</i> (Kützing) Rabenhorst
	Rare
57	<i>Gomphonema</i> sp.
	Rare (Girdle view)
58	<i>Neidium binodis</i> (Ehrenberg) Hustedt
	One only
59	<i>Gomphonema accuminatum</i> var. <i>coronata</i> (Ehrenberg) W.Smith
	One only
60	<i>Gomphonema olivaceum</i> (Lyngbye) Kützing
	One only

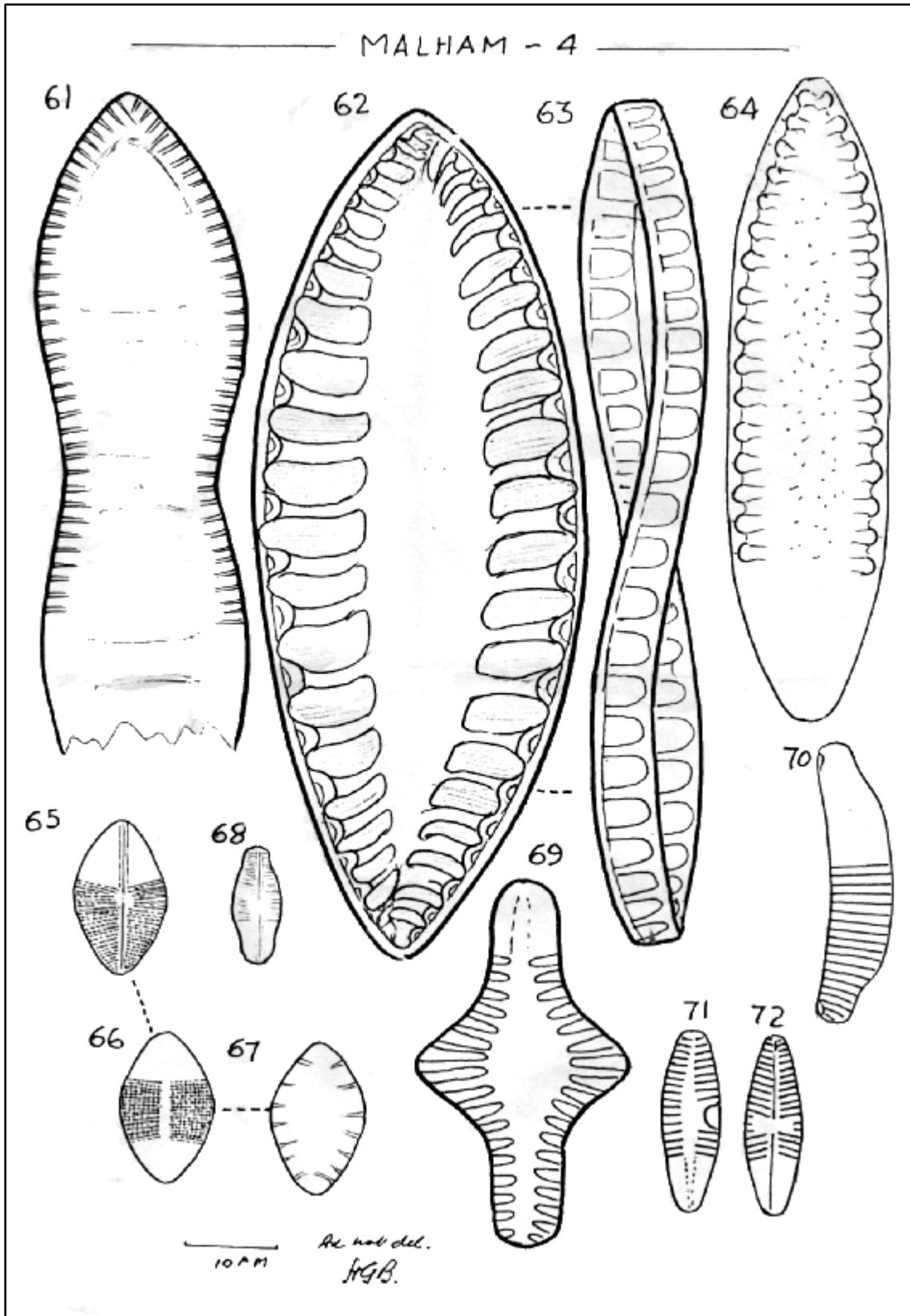


## Plate 4

61	<i>Cymatopleura solea</i> var. <i>constricta</i> Grunow
	One only
62	<i>Surirella spiralis</i> Kützing
	One only
63	<i>Surirella spiralis</i> Kützing
	Conjectured girdle view
64	<i>Surirella linearis</i> fa.
	One only
65	<i>Cocconeis pediculus</i> Ehrenberg
	Epivalve. One only
66	<i>Cocconeis pediculus</i> Ehrenberg
	Hypovalve. One only
67	<i>Cocconeis pediculus</i> Ehrenberg
	Septum. One only
68	<i>Cocconeis flexella</i> var. <i>aepestris</i> Brun
	One only
69	<i>Fragilaria leptostauron</i> var. <i>Harrisonii</i> W. Smith
	One only
70	<i>Eunotia arcus</i> Ehrenberg fa.
	One only
71	<i>Achnanthes lanceolata</i> Brébisson
	Hypovalve. One only
72	<i>Achnanthes lanceolata</i> Brébisson
	Epivalve. One only



November '81



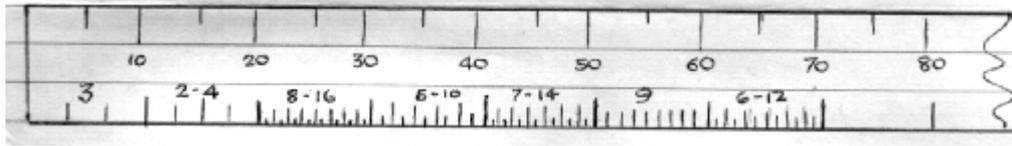
## Appendix G

### Techniques in Drawing Diatoms

by Horace G. Barber

#### Equipment

- Optics to about 1500x.
- 1mm rule slide
- 1-100 Graticule
- Rule as per illustration



#### Measurements

Rectangle quartered to cover Length and Breadth.

Centric forms – use ink compass for outline and pencil for boundaries of secondary features.

Large forms may be drawn at  $\frac{1}{2}$  size and small forms at 2x (note scale). 10 $\mu$  bar to illustrate scale.

#### Pens

Felt tip for outline of large forms.

'Biro' (ball-point) for normal and fine for striae etc.

Finer felt tip for punctae.

Fine steel nib for very fine striae.

All the above to be black.

Soft pencil for initial sketch (2B or 3B).

Plastic eraser (Staedtler) – cleaner in use.

Match grade of pen to the varying features.

#### Points to watch

Outline of valve – axial area – central area.

Shape of valve ends, capitate, rostrate, cuneate, fully rounded, apiculate etc. Striae directions, position of changeover. Rhabhe types, simple and thread-like, straight or wavy, oblique fine or broad, complex. Polar hooks style. Central terminals.

Longitudinal bands – relative widths and position on alveoli. Types of punctae (enlarged inset).

When sketching curves draw from wrist or elbow, NOT CRAMPED FINGER ENDS!.

Reverse paper for convex curves. Try to sketch in one continuous movement when inking in.

With each sketch add Length, Breadth, Striae per 10 $\mu$ , Keel Punctae per 10 $\mu$  and slide No. etc. If you have the requisite equipment also record the position of the diatom on the slide.

Really look at the shapes of the diatom – when finished it should look like what you have seen. The better the sketch, the more confidence in future reference.

Do not be afraid of replacing poor efforts as you improve.

Do not sketch what you cannot see! Recorded striae counts are better than sketched ones. Use good quality paper, Quarto or A4. Water based gum is not recommended.



## Appendix H

### David B. Williamson

David B. Williamson of Oadby, Leicestershire  
Has written widely and is an authority on the Desmidiaceae.  
Member of the Quekett Microscopical Club

- A Key to the Commoner Desmids of the English Lake District (Scientific Publications) Edna M. Lind, Alan J. Brook, Joanna Langhorne, D. Williamson
- A Monograph on some British Desmids. A.J.Brook and D.B.Williamson. 2010 (Ray Society)

Articles in the Quekett Journal of Microscopy:

- Williamson, D.B. 1984. The clumping of benthic desmids and their light-orientation (see also Brook, A.J.)
- Brook, A.J. & Williamson, D.B. 1985. Needle-like inclusions in the terminal vacuoles of *Closterium lunula* (Mull.) Nitzsch ex Ralfs (Desmidiaceae)
- Brook, A.J. & Williamson, D.B. 1984. Desmids of the genus *Cosmarium* new to or rare in Britain
- Desmids (Desmidiaceae) of genus *Cosmarium* new to or rare in Britain (Brook & Williamson)
- Williamson, D.B. 1990a. *Mesotaenium caldariorum* (Lagerh.) Hansgirg: a new find of a very rare British desmid (see also Brook, A.J.)
- Williamson, D.B. 1990b. The Pro-Am connection (see also Brook, A.J.)
- Williamson, D.B. 1991a. The desmid flora of small temporary pools (see also Brook, A.J.)
- Williamson, D.B. 1991b. Two interesting *Actinotaenium* (desmidiaceae) species from Leicestershire (see also Brook, A.J.)
- Williamson, D.B. 1991a. The desmid flora of small temporary pools (see also Brook, A.J.)
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- Brook, A.J. & Williamson, D.B. (2002). A monograph on British Desmids: Families Mesotaeniaceae, Peniaceae, Closteriaceae. . London: Ray Society.

- Brook, A.J. & Williamson, D.B. (2010). A monograph on some British desmids. Order Zygnematales Suborder Zygonemoidiineae Family Zygnemataceae Subfamily Mesotaenioideae (Saccoderm desmids) and Suborder Closteriineae Family Peniaceae and Family Closteriaceae. Edited by J.H. Price & N.J. Evans. pp. [i-ii], iii-v [1-5], 6-364, 157 pls. London: The Ray Society.
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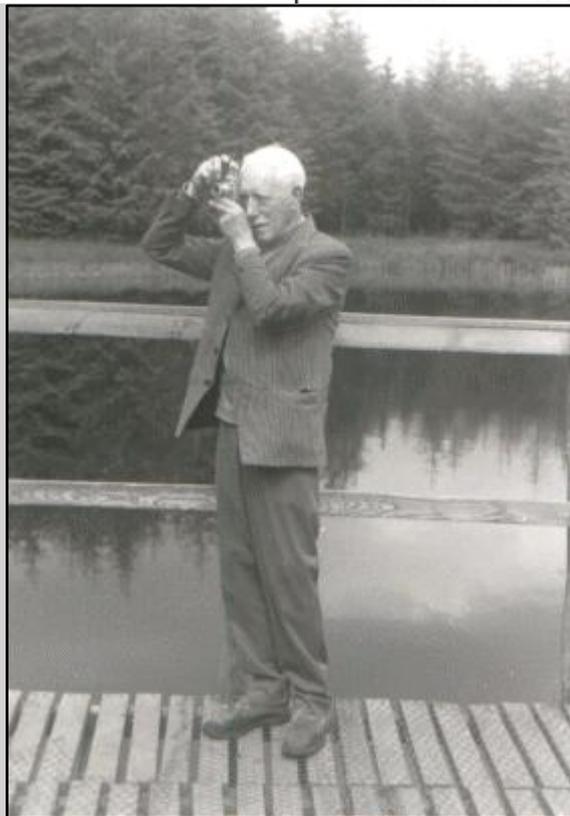
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