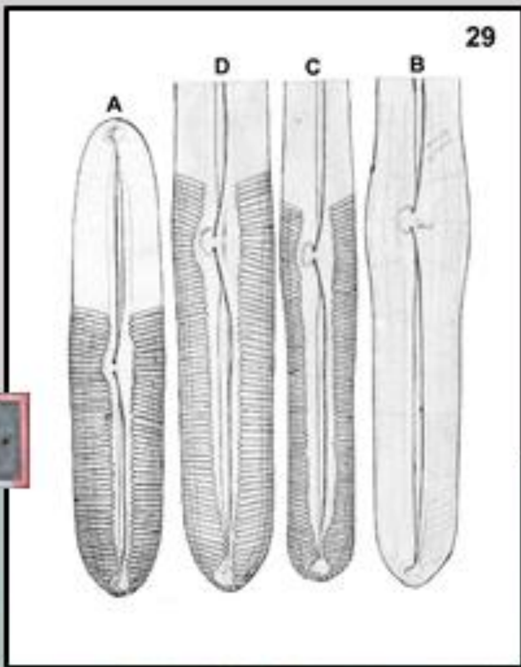
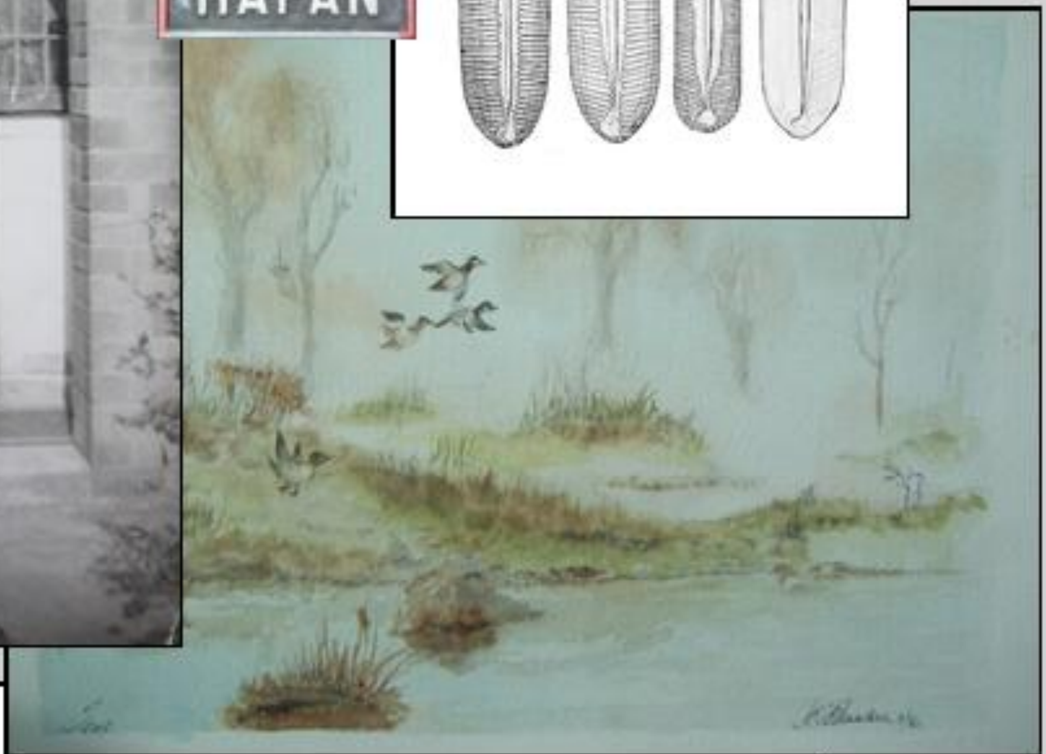
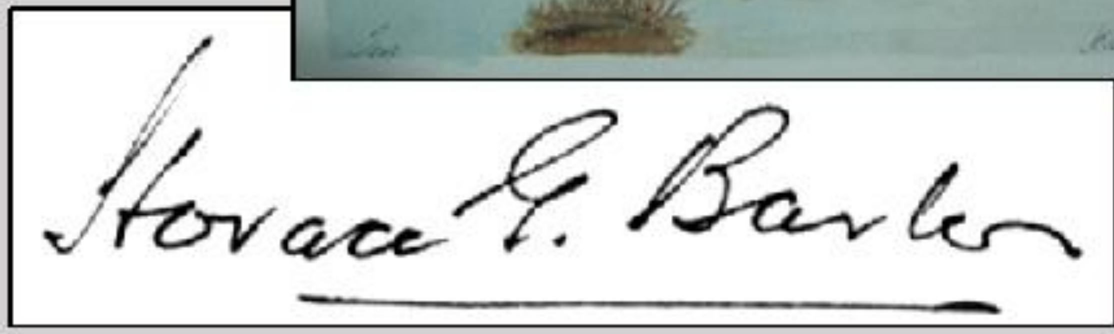
An Account of the Diatom Flora of Nuneaton and some Outlying Districts



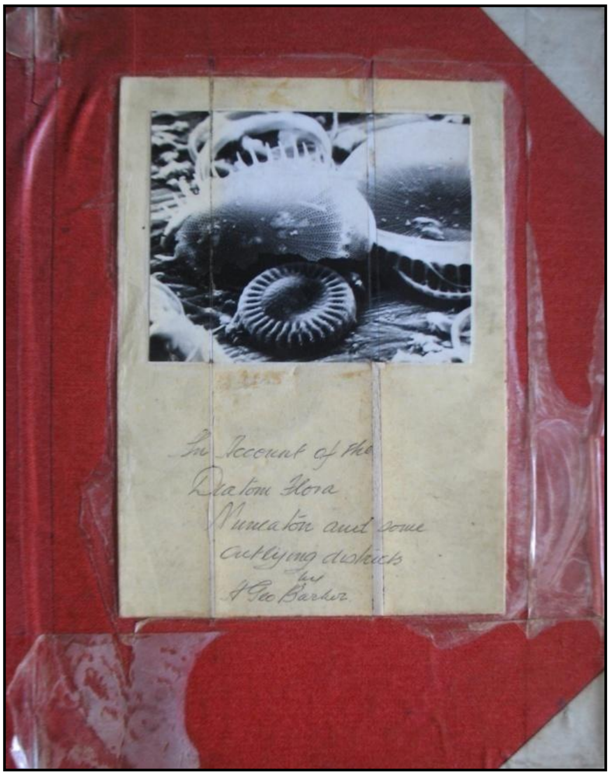




Transcribed and Edited by Steve Gill

Editor's Notes

The original document was produced on 10 inch x8 inch paper (8R) and the leaves bound together to form a book some 1.5 inches in thickness. The binding was done by Horace himself, each section being sewn and then every sewn section linked together with further cording and a glued backing. Robust red covers were applied. The front cover bears a simple title legend and also an electron micrograph of unknown origin.



The spine carries a truncated title and the author's name:

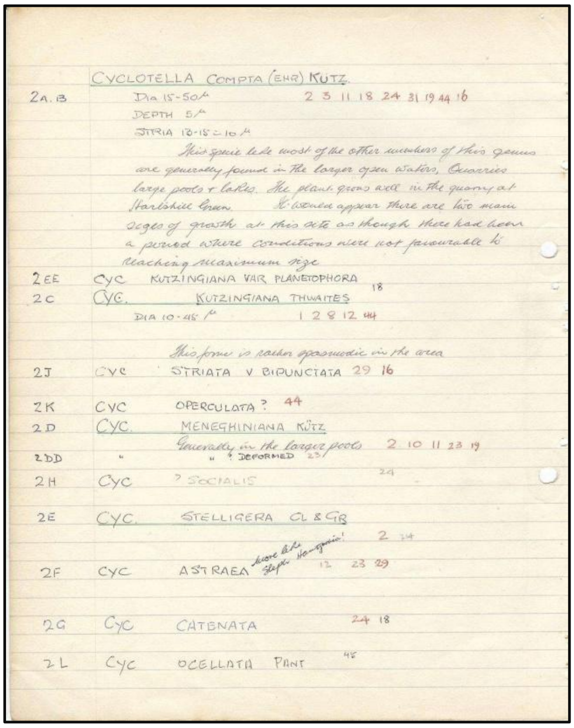
DIATOM FLORA = NUNEATON AND DISTRICT = BY H. G. BARBER =

Prior to binding the leaves had obviously been maintained in a 2-hole ring binder and each leaf had hole reinforcements made from Horace's own slide labels.

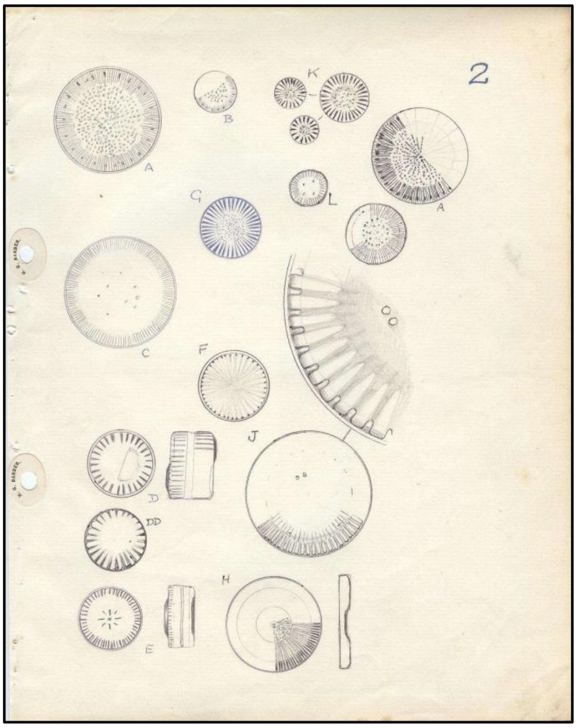
The original document includes pasted in appendices (actually notes) relating to the species depicted on the plates and others not so illustrated. These generally appear after the plate index and also after the plate itself. I have chosen to move these notes into each plate index in their appropriate positions as this makes for a more readable result (this wasn't possible in manuscript form). Many of the notes are on separate pieces of light card that were used to accompany slides and material exchanged between Horace Barber and John R. Carter and, as a result, bearing notes authored by them both. Where this is the case the note in the text is accompanied by a small icon:

The text figures were mostly drawn on lined notepaper. These have been 'cleaned' as far as is possible and included in their original positions within the text.

The paper used is now, unfortunately, yellowing considerably. The two examples below provide an indication of the deterioration in the plates and text.



CYCLOTELLA COMPTA (EHR) KUTZ.
2A. B DIA 15-50μ 2 3 11 18 24 31 19 44 16
DEPTH 5μ
STRIA 13-15 = 10μ
This specie like most of the other members of this genus are generally found in the larger open waters, Quarries large pools & lakes. The plant grows well in the quarry at Harlshill Green. It would appear there are two main sizes of growth at this site as though there had been a period where conditions were not favourable to reaching maximum size.
2EE CYC KUTZINGIANA VAR PLANETOPHORA 18
2C CYC. KUTZINGIANA THWAITES
DIA 10-45μ 1 2 8 12 44
This form is rather spasmodic in the area
2J CYC STRIATA V BIPUNCTATA 29 16
2K CYC OPERCULATA ? 44
2D CYC. MENEGHINIANA KÜTZ
Generally in the larger pools 2 10 11 23 19
2DD " " ? DEFORMED 23
2H CYC ? SOCIALIS 24
2E CYC. STELLIGERA CL & GR
2 14
2F CYC ASTRAEA more like Steph. Hungaricus! 12 23 29
2G CYC CATENATA 24 18
2L CYC OCELLATA PANT 45



The whole of the document has been transcribed, including peripheral notes and also elements that have been crossed-out. This enables the reader to follow the thought processes of the author and the problems he had in identifying to species, variation and form. Horace, by his own admission, was not the most skilled at identification and in many instances he would record specimens using 'dog-latin' terms derived from the locations the sample was from (these are usually suffixed with the letters 'Mihi', a latin term meaning 'Mine'). 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 have now disappeared but where they 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 the speculations concerning their identity then read on, you will not be disappointed. The diatoms described, although pertaining to the Nuneaton district, are sufficiently widespread to be of interest to most outside the geographical area.
There are references to Slide Nos. The slide collection was acquired by The Natural History Museum.
Horace rarely used the plural form of puncta and stria and often used rhaphe for raphe. I have not deemed it necessary to correct these.

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.
Appendix D is a brief summary of Horace's life.
Appendix E is a Bibliography.
Appendix F is a short Glossary of Terms.

Reasonable margins have been left to allow for reader's own notes. At the front of the volume Horace recorded the following note:

> "There are a number of forms, also pages, which will have to be rearranged prior to permanent binding. Also a considerable amount of room has been left for future use.

This document is formatted for A4 paper and double-sided printing. This means that if you are printing single-sided then there will be a number of blank pages.

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. Also to be 'mentioned in dispatches' are the late Frank Oldaker (photograph in Appendix F), of Nuneaton, who so carefully preserved this work and Joe Oldaker, his son, also of Nuneaton, who cared enough to pass it on. 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 been pleased!

Contents

Editor's Notes	**Page i**
Introduction	**Page 1**
Index to the Sites of Habitats Examined	
Locality No. 1. Camp Hill Pool, Nuneaton	Page 3
Locality No. 2. Corporation Quarry, Mancetter Road.	Page 3
Locality No. 3. Hartshill Hayes Quarry, Hartshill.	Page 4
Locality No. 4. Water Tower Gate, Mancetter Road.	Page 4
Locality No. 5. Ditch and Pond – Anker Inn Lane.	Page 4
Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm.	Page 5
Locality No. 7. Jee's Tarmac Plant, Hartshill.	Page 5
Locality No. 8. Astley Castle Pool.	Page 6
Locality No. 9. Arbury Hall.	Page 6
Locality No. 10. Riversley Park Pool.	Page 6
Locality No. 11. Whitacre Reservoir – City of Birmingham Water Works.	Page 7
Locality No. 12. Seeswood Pool.	Page 7
Locality No. 13. River Anker at Caldecote Bridge.	Page 8
Locality No. 14. River Anker at Leather Mill Lane.	Page 8
Locality No. 15. Leather Mill Lane.	Page 9
Locality No. 16. Spring Wood, Caldecote.	Page 9
Locality No. 17. "Savage's Field" – Mancetter Road	Page 9
Locality No. 18. Oldbury Reservoir.	Page 10
Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line (excluding Alvecote Nature Reserve which is West side of Railway)	Page 10
Locality No. 20. Marsh – J. Blakemore's field – Banks of River Anker, Hartshill.	Page 11
Locality No. 21. Ditch at roadside- Fenny Drayton	Page 11
Locality No. 22. Jee's Quarry, Hartshill	Page 11
Locality No. 23. Sheepy Mill Pool, nr. Atherstone.	Page 12
Locality No. 24. Sutton Park.	Page 13
Locality No. 25. Caldecote Lane (leading off A4131)	Page 14
Locality No. 26. River Avon at Stanford Reservoir, Northants.	Page 14
Locality No. 27. Jee's Tarmac Plant, Anker Inn Lane, Hartshill	Page 14
Locality No. 28. Drain from Jee's Tip near Berrington Road (rear)	Page 15
Locality No. 29. River Leam, Leamington	Page 15
Locality No. 30. Coventry Canal – Boon's Wharf and Caldecote	Page 15
Locality No. 31. Arbury Hall – Drain from Northwood	Page 15
Locality No. 32. Chinese Pagoda, Ansley	Page 16
Locality No. 33. Opposite Jee's Crushing Plant	Page 17
Locality No. 39. Lane leading to Shells Quarry, Mancetter. From A4131.	Page 17
Locality No. 40. Mancetter Mill Pool	Page 17
Locality No. 41. Coventry Canal, Mancetter	Page 18
Locality No. 42. Old Quarry, Mancetter	Page 18
Locality No. 43. Cosby, Leicestershire	Page 18
Locality No. 44. Alvecote Nature Reserve	Page 19
Locality No. 45. Brick Pit, Croft Road	Page 20
Locality No. 46. Gailey Reservoir – on A5 road near Junction to M6 motorway.	Page 20

Contents (continued)

Index to the Sites of Habitats Examined (continued)

Locality No. 47. Hartshill, entrance to Boon's Quarry from near the Anchor Inn.	Page 21
Locality No. 48. Stream on A4131 (now B4111)	Page 21
Locality No. 49. Bradley Green, Nr. Atherstone – Coventry Canal.	Page 22
Locality No. 50. Bedworth – Stream by Newdigate Colliery	Page 22
Locality No. 51. River Sence – Twycross A444	Page 22
Locality No. 52. Spring – Hartshill Hayes Wood.	Page 23
Locality No. 53. 'Dovedale', Derbyshire	Page 23
Locality No. 54. Quina Brook, Shropshire (Nr. Wem)	Page 23
Locality No. 55. 'Frog Pond'	Page 23
Locality No. 56. Barpool Brook – The Stang, Camp Hill Estate, Nuneaton	Page 23
Locality No. 57. Hough Heath, Nr. Crewe	Page 24
Locality No. 58. Ditch, Stanford Church	Page 24
Locality No. 59. Fish Pond, 91 Mancetter Road	Page 24
Locality No. 60. Hartshill Hayes Quarry	Page 24
Locality Map	Page26

Index to the Plates.

Plate 1 Text: *Melosira* – Agardh	Page 28
Plate 1	Page 29
Plate 2 Text: *Cyclotella*	Page 30
Plate 2	Page 31
Plate 2^{A} Text: *Stephanodiscus* – Ehrenberg	Page 32
Plate 2^{A}	Page 33
Plate 2^{B} Text: Un-named	Page 34
Plate 2^{B}	Page 35
Plate 2^{C} Text: *Stephanodiscus* – Ehrenberg	Page 36
Plate 2^{C}	Page 37
Plate 2^{D} Text: *Cyclotella*	Page 38
Plate 2^{D}	Page 39
Plate 2^{E} Text: *Coscinodiscus*	Page 40
Plate 2^{E} Text: *Coscinodiscus* (continued)	Page 41
Plate 2^{E}	Page 42
Plate 3 Text: *Tabellaria*	Page 43
Plate 3 Text: *Diatoma*	Page 43
Plate 3	Page 44
Plate 4 Text: *Meridion*	Page 45
Plate 4 Text: *Ceratoneis*	Page 45
Plate 4 Text: *Opephora*	Page 45
Plate 4 Text: *Fragilaria*	Page 45
Plate 4 Text: *Fragilaria* (continued)	Page 46
Plate 4 Text: *Asterionella*	Page 46
Plate 4	Page 47
Plate 5 Text: *Synedra*	Page 48
Plate 5	Page 49
Plate 6 Text: *Eunotia* – Ehrenberg	Page 50
Plate 6	Page 51
Plate 6^{1} Text: *Eunotia* - Ehrenberg (continued)	Page 52
Plate 6^{1}	Page 53

Contents (continued)

Index to the Plates (continued)

Plate 6[2] Text: *Eunotia* - Ehrenberg (continued)	Page 54
Plate 6[2]	Page 55
Plate 7 Text: *Cocconeis* (Ehrenberg)Hust.	Page 56
Plate 7	Page 57
Plate 8 Text: *Achnanthes* – Bory	Page 58
Plate 8 Text: *Achnanthes* – Bory (continued)	Page 59
Plate 8	Page 60
Plate 8[1] Text: *Achnanthes* (continued)	Page 61
Plate 8[1]	Page 62
Plate 9 Text: *Rhoicosphenia* - Grunow	Page 63
Plate 9	Page 64
Plate 9[1] Text: *Mastogloia*	Page 65
Plate 9[1]	Page 66
Plate 10 Text: *Amphipleura* - Kützing	Page 67
Plate 10 Text: *Frustulia* – Agardh	Page 67
Plate 10 Text: *Gyrosigma* – Hassall	Page 67
Plate 10	Page 68
Plate 11 Text: *Caloneis* – Cleve	Page 69
Plate 11 Text: *Caloneis* – Cleve (continued)	Page 70
Plate 11	Page 71
Plate 12 Text: *Neidium*	Page 72
Plate 12	Page 73
Plate 12[1] Text: *Neidium* (continued)	Page 74
Plate 12[1]	Page 75
Plate 12[2] Text: *Neidium* (continued)	Page 76
Plate 12[2]	Page 77
Plate 12[3] Text: *Neidium* (continued)	Page 78
Plate 12[3]	Page 79
Plate 13 Text: *Diploneis* – Ehrenberg	Page 80
Plate 13	Page 81
Plate 14 Text: *Stauroneis* – Ehrenberg	Page 82
Plate 14 Text: *Stauroneis* – Ehrenberg (continued)	Page 83
Plate 14	Page 84
Plate 15 Text: *Anomoeoneis* - Pfitzer	Page 85
Plate 15	Page 86
Plate 16 Text: *Navicula* - Bory [Section *Orthostichae* (Cleve)]	Page 87
Plate 16 Text: *Navicula* - Bory [Section *Orthostichae* (Cleve)] (continued)	Page 88
Plate 16	Page 89
Plate 16[1]	Page90
Plate 16[2] Text: *Navicula* – Bory (continued) [Section *Mesoleiae* Cleve]	Page 91
Plate 16[2] Text: *Navicula* – Bory (continued) [Section *Mesoleiae* Cleve]	Page 92
Plate 16[2]	Page 93
Plate 16[3] Text: *Navicula* – Bory (continued)	Page 94
Plate 16[3] Text: *Navicula* – Bory (continued)	Page 95
Plate 16[3]	Page 06
Plate 17 Text: *Navicula* (continued) [Section *Entoleiae* Cleve]	Page 97
Plate 17 Text: *Navicula* (continued) [Section *Bacillares* Cleve]	Page 98
Plate 17 Text: *Navicula* (continued) [Section *Bacillares* Cleve]	Page 99

Contents (continued)

Index to the Plates (continued).

Plate 17 Text: *Navicula* (continued) [Section *Bacillares* Cleve]	Page 100
Plate 17 Text: *Navicula* (continued) [Section *Bacillares* Cleve]	Page 101
Plate 17	Page 102
Plate 18 Text: *Navicula* (continued) [Section *Decipientes* Cleve]	Page 103
Plate 18 Text: *Navicula* (Section *Minusculae* Cleve)	Page 104
Plate 18	Page 105
Plate 18^{1} Text: *Navicula* (Sect. *Hetrostichae*) Cleve	Page 106
Plate 18^{1}	Page 107
Plate 19 Text: *Navicula* Sect *Lineolatae*	Page 108
Plate 19 Text: *Navicula* Sect *Lineolatae*	Page 109
Plate 19	Page 110
Plate 19^{1} Text: *Navicula* (continued) Section *Lineolatae* Cleve	Page 111
Plate 19^{1} Text: *Navicula* (continued) Section *Lineolatae* Cleve	Page 112
Plate 19^{1} Text: *Navicula* (continued) Section *Lineolatae* Cleve	Page 113
Plate 19^{1}	Page 114
Plate 19^{2} Text: *Navicula* (Sect. *Lineolatae* Cleve)	Page 115
Plate 19^{2}	Page 116
Plate 19^{2} - John Carter Letter	Page 117
Plate 19^{3} Text: *Navicula* – Sect. *Lineolatae* Cleve	Page 122
Plate 19^{3}	Page 123
Plate 19^{4} Text: *Navicula* – Sect. *Lineolatae* Cleve	Page 124
Plate 19^{4} Text: *Navicula* – Sect. *Lineolatae* Cleve	Page 125
Plate 19^{4}	Page 126
Plate 19^{5} Text: *Navicula* (Sec. *Lineolatae*)	Page 127
Plate 19^{5}	Page 128
Plate 20 Text: *Navicula* Section *Lineolatae*	Page 129
Plate 20	Page 130
Plate 20^{1} Text: *Navicula* – *Lineolatae* Cleve	Page 132
Plate 20^{1}	Page 133
Plate 20^{2} Text: *Navicula* – *Lineolatae* Cleve	Page 134
Plate 20^{2}	Page 135
Plate 20^{3} Text: *Navicula* (*Lineolatae*)	Page 136
Plate 20^{3}	Page 137
Plate 21 Text: *Navicula* Sect. *Lineolatae*	Page 138
Plate 21 Text: *Navicula* Sect. *Lineolatae* (continued)	Page 139
Plate 21 Text: *Navicula* Sect. *Lineolatae* (continued)	Page 140
Plate 21	Page 141
Plate 21^{1} Text: *Navicula*	Page 142
Plate 21^{1}	Page 143
Plate 22 Text: *Navicula* (Section *Lineolatae*)	Page 144
Plate 22	Page 145
Plate 23 Text: *Navicula* (Section *Lyratae* Cleve)	Page 146
Plate 23 Text: *Navicula* (Section *Punctatae*)	Page 146
Plate 23	Page 147
Plate 24 Text: *Pinnularia* (Section *Parallelistriatae*)- Ehrenberg	Page 148
Plate 24	Page 149
Plate 25 Text: *Pinnularia* (Section *Capitatae*)	Page 150
Plate 25 Text: *Pinnularia* (Section *Capitatae*) (continued)	Page 151

Contents (continued)

Index to the Plates (continued).

Plate 25 Text: *Pinnularia* (Section *Capitatae*) (continued)	Page 152
Plate 25 Text: *Pinnularia* (Section *Capitatae*) (continued)	Page 153
Plate 25 Text: *Pinnularia* (Section *Capitatae*) (continued)	Page 154
Plate 25 Text: *Pinnularia* (Section *Capitatae*) (continued)	Page 155
Plate 25	Page 156
Plate 26 Text: *Pinnularia* (Section *Divergentes*)	Page 157
Plate 26	Page 158
Plate 27 Text: *Pinnularia* (*Distantes*)	Page 159
Plate 27 Text: *Pinnularia* (*Brevistriatae*)	Page 159
Plate 27	Page 160
Plate 28 Text: *Pinnularia* (Section *Tabellariae*)	Page 161
Plate 28	Page 162
Plate 29 Text: *Pinnularia* (Section *Majores*)	Page 163
Plate 29	Page 164
Plate 29^1 Text: *Pinnularia* (*Complexae*)	Page 165
Plate 29^1	Page 166
Plate 29^2 Text: *Pinnularia*	Page 167
Plate 29^2	Page 168
Plate 30 Text: *Pinnularia* (Section *Complexae*)	Page 169
Plate 30 Text: *Pinnularia* (Section *Complexae*) (continued)	Page 170
Plate 30 Text: *Pinnularia* (Section *Complexae*) (continued)	Page 171
Plate 30 Text: *Pinnularia* (Section *Complexae*) (continued)	Page 172
Plate 30 Text: *Pinnularia* (Section *Complexae*) (continued)	Page 173
Plate 30	Page 174
Plate 31 Text: *Pinnularia*	Page 175
Plate 31	Page 176
Plate 32 Text: *Amphora* – Ehrenberg	Page 177
Plate 32	Page 178
Plate 32^1 Text: *Amphiprora*	Page 179
Plate 32^1	Page 180
Plate 33 Text: *Cymbella* – Agardh	Page 181
Plate 33	Page 182
Plate 33^1 Text: *Cymbella* – Agardh	Page 183
Plate 33^1 Text: *Cymbella* – Agardh (continued)	Page 184
Plate 33^1	Page 185
Plate 33^2 Text: *Cymbella* – Agardh	Page 186
Plate 33^2	Page 187
Plate 33^3 Text: *Cymbella* – Agardh	Page 188
Plate 33^3	Page 189
Plate 34 (No Plate, No references. See 331)	Page 191
Plate 35 (No Plate, No references. See 332)	Page 192
Plate 36 (No Plate, No references. See 333)	Page 193
Plate 37 Text: *Cymbella* – Agardh	Page 194
Plate 37	Page 195
Plate 38 Text: *Gomphonema* – Agardh	Page 196
Plate 38	Page 197
Plate 38^1 Text: *Gomphonema* – Agardh	Page 198

Contents (continued)

Index to the Plates (continued).

Plate 38[1]	Page 199
Plate 38[2] Text: *Gomphonema* – Agardh	Page 200
Plate 38[2]	Page 201
Plate 38[3] Text: *Gomphonema* – Agardh	Page 202
Plate 38[3]	Page 203
Plate 38[4] Text: *Gomphonema* – Agardh	Page 204
Plate 38[4]	Page 205
Plate 39 (No Plate, No references.)	Page 206
Plate 40 (No Plate, No references.)	Page 207
Plate 41 Text: *Denticula* – Kützing	Page 208
Plate 41	Page 209
Plate 42 Text: *Epithemia* – Brebisson	Page 210
Plate 42	Page 211
Plate 42[1] Text: *Rhopalodia* – O. Müller	Page 212
Plate 42[1]	Page 213
Plate 43 Text: *Hantzschia* – Grunow	Page 214
Plate 43	Page 215
Plate 44 Text: *Bacillaria* – Gmelin	Page 216
Plate 44	Page 217
Plate 45 Text: *Nitzschia* – Hassall (Section *Tryblionella*)	Page 218
Plate 45	Page 219
Plate 46 Text: *Nitzschia* (Section *Dubiae*)	Page 220
Plate 46 Text: *Nitzschia* (Section *Dubiae*) (continued)	Page 221
Plate 46	Page 222
Plate 47 (No illustrations or text)	Page 223
Plate 48 (No illustrations or text)	Page 224
Plate 49 Text: *Nitzschia* (Section *Lineares*)	Page 225
Plate 49	Page 226
Plate 50 Text: *Nitzschia* (Section *Dissipatae*)	Page 227
Plate 50	Page 228
Plate 50[1] Text: *Nitzschia* (Section *Lanceolatae*)	Page 229
Plate 50[1]	Page 230
John Carter Letter Ref. *Nitzschia*	Page 231
Plate 50[2] Text: *Nitzschia* (Sec. *Lanceolatae* continued.)	Page 232
Plate 50[2]	Page 233
Plate 50[3] Text: *Nitzschia* (Section *Lanceolatae* continued)	Page 234
Plate 50[3]	Page 235
Plate 51 (No Plate, No references.)	Page 236
Plate 52 Text: *Nitzschia* (Section *Sigmoideae*)	Page 237
Plate 52	Page 238
Plate 53 (No Plate, No references.)	Page 239
Plate 54 Text: *Nitzschia* (Section *Obtusae*)	Page 240
Plate 54 Text: *Nitzschia* (Section *Nitzschiellae*)	Page 240
Plate 54	Page 241
Plate 55 Text: *Cymatoplaura* - W.Smith	Page 242
Plate 55	Page 243
Plate 56 Text: *Cymatoplaura* - W.Smith	Page 244
Plate 56	Page 245
Plate 57 Text: *Surirella* – Turpin	Page 246
Plate 57	Page 247
Plate 58 Text: *Surirella* – Turpin	Page 248

Contents (continued)

Index to the Plates (continued).	
Plate 58	Page 249
Plate 59 Text: *Surirella* – Turpin	Page 250
Plate 59	Page 251
Plate 60 Text: *Surirella* – Turpin	Page 252
Plate 60	Page 253
Plate 61 Text: *Surirella* – Turpin	Page 254
Plate 61	Page 255
Plate 62 Text: *Surirella* – Turpin	Page 256
Plate 62	Page 257
Plate 63 Text: *Campylodicus* – Ehrenberg	Page 258
Plate 63 (No illustrations)	Page 259
End Notes	**Page 261**
Appendix A –Species by Location Index	
Locality No. 1. Camp Hill Pool, Nuneaton.	Page 263
Locality No. 1. Camp Hill Pool, Nuneaton. (continued)	Page 264
Locality No. 1. Camp Hill Pool, Nuneaton. (continued)	Page 265
Locality No. 2. Corporation Quarry, Mancetter Road.	Page 266
Locality No. 3. Hartshill Hayes Quarry, Hartshill.	Page 267
Locality No. 3. Hartshill Hayes Quarry, Hartshill. (continued)	Page 268
Locality No. 4. Water Tower Gate, Mancetter Road.	Page 268
Locality No. 5. Ditch and Pond – Anker Inn Lane.	Page 268
Locality No. 5. Ditch and Pond – Anker Inn Lane. (continued)	Page 269
Locality No. 5. Ditch and Pond – Anker Inn Lane. (continued)	Page 270
Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm.	Page 270
Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm. (continued)	Page 271
Locality No. 7. Jee's Tarmac Plant, Hartshill.	Page 271
Locality No. 7. Jee's Tarmac Plant, Hartshill. (continued)	Page 272
Locality No. 8. Astley Castle Pool.	Page 272
Locality No. 8. Astley Castle Pool. (continued)	Page 273
Locality No. 9. Arbury Hall.	Page 273
Locality No. 9. Arbury Hall. (continued)	Page 274
Locality No. 10. Riversley Park Pool.	Page 275
Locality No. 11. Whitacre Reservoir – City of Birmingham Water Works.	Page 275
Locality No. 11. Whitacre Reservoir – City of Birmingham Water Works. (continued)	Page 276
Locality No. 12. Seeswood Pool.	Page 276
Locality No. 12. Seeswood Pool. (continued)	Page 277
Locality No. 12. Seeswood Pool. (continued)	Page 278
Locality No. 13. River Anker at Caldecote Bridge.	Page 278
Locality No. 13. River Anker at Caldecote Bridge. (continued)	Page 279
Locality No. 14. River Anker at Leather Mill Lane.	Page 279
Locality No. 15. Leather Mill Lane.	Page 279
Locality No. 16. Spring Wood, Caldecote.	Page 279
Locality No. 16. Spring Wood, Caldecote. (continued)	Page 280
Locality No. 16. Spring Wood, Caldecote. (continued)	Page 281
Locality No. 16. Spring Wood, Caldecote. (continued)	Page 282
Locality No. 17. "Savage's Field" – Mancetter Road.	Page 282

Contents (continued)

Appendix A –Species by Location Index (continued)

Locality No. 18. Oldbury Reservoir.	Page 282
Locality No. 18. Oldbury Reservoir. (continued)	Page 283
Locality No. 18. Oldbury Reservoir. (continued)	Page 284
Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line.	Page 284
Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line. (continued)	Page 285
Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line. (continued)	Page 286
Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line. (continued)	Page 287
Locality No. 20. Marsh – J. Blakemore's field – Banks of River Anker, Hartshill.	Page 287
Locality No. 21. Ditch at roadside- Fenny Drayton.	Page 288
Locality No. 22. Jee's Quarry, Hartshill.	Page 288
Locality No. 23. Sheepy Mill Pool, nr. Atherstone.	Page 288
Locality No. 24. Sutton Park.	Page 289
Locality No. 24. Sutton Park. (continued)	Page 290
Locality No. 25. Caldecote Lane (leading off A4131).	Page 290
Locality No. 25. Caldecote Lane (leading off A4131). (continued)	Page 291
Locality No. 26. River Avon at Stanford Reservoir, Northants.	Page 291
Locality No. 26. River Avon at Stanford Reservoir, Northants. (continued)	Page 292
Locality No. 26. River Avon at Stanford Reservoir, Northants. (continued)	Page 293
Locality No. 27. Jee's Tarmac Plant, Anker Inn Lane, Hartshill.	Page 293
Locality No. 28. Drain from Jee's Tip near Berrington Road (rear).	Page 293
Locality No. 28. Drain from Jee's Tip near Berrington Road (rear). (continued)	Page 294
Locality No. 29. River Leam, Leamington.	Page 294
Locality No. 29. River Leam, Leamington. (continued)	Page 295
Locality No. 29. River Leam, Leamington. (continued)	Page 296
Locality No. 30. Coventry Canal – Boon's Wharf and Caldecote.	Page 296
Locality No. 31. Arbury Hall – Drain from Northwood.	Page 296
Locality No. 31. Arbury Hall – Drain from Northwood. (continued)	Page 297
Locality No. 32. Chinese Pagoda, Ansley.	Page 297
Locality No. 33. Opposite Jee's Crushing Plant	Page 297
Locality No. 40. Mancetter Mill Pool	Page 298
Locality No. 42. Old Quarry, Mancetter.	Page 298
Locality No. 43. Cosby, Leicestershire.	Page 298
Locality No. 44. Alvecote Nature Reserve. (Generic sample points)	Page 298
Locality No. 44. Alvecote Nature Reserve. (Generic sample points) (continued)	Page 299
Locality No. 44. Alvecote Nature Reserve. (Generic sample points) (continued)	Page 300
Locality No. 44^2. Alvecote Nature Reserve. (Sample point 2)	Page 300
Locality No. 44^6. Alvecote Nature Reserve. (Sample point 6)	Page 300
Locality No. 45. Brick Pit, Croft Road.	Page 301
Locality No. 46. Gailey Reservoir – on A5 road near Junction to M6 motorway.	Page 301

Contents (continued)

Appendix A –Species by Location Index (continued)

Locality No. 47. Hartshill, entrance to Boon's Quarry from near the Anchor Inn.	Page 301
Locality No. 48. Stream on A4131 (now B4111).	Page 302
Locality No. 50. Bedworth – Stream by Newdigate Colliery.	Page 303
Locality No. 51. River Sence – Twycross A444.	Page 303
Locality No. 52. Spring – Hartshill Hayes Wood.	Page 303
Locality No. 53. 'Dovedale', Derbyshire	Page 304
Locality No. 54. Quina Brook, Shropshire (Nr. Wem).	Page 304
Locality No. 55. Frog Pond, Shropshire	Page 304
Locality No. 60. Hartshill Hayes Quarry.	Page 304
No Location Cited	Page 304
No Location Cited (continued)	Page 305

Appendix B - Index of Illustrated Diatoms

Misc.	Page 307
A	Page 307
B	Page 307
C	Page 308
C (continued)	Page 309
D	Page 309
E	Page 309
E (continued)	Page 310
F	Page 310
G	Page 310
G (continued)	Page 311
H	Page 311
M	Page 311
N	Page 311
N (continued)	Page 312
N (continued)	Page 313
N (continued)	Page 314
O	Page 314
P	Page 315
R	Page 316
S	Page 316
S (continued)	Page 317
T	Page 317

Appendix C - Obituary notice from the Quekett Journal of Microscopy (34) June 1983	**Page 319**
Appendix D - Horace George Barber (1908 – 1982)	**Page 321**
Appendix E – Bibliography	**Page 331**
Appendix F - Frank Herbert Oldaker F.S.M.C., F.R.O.A.	**Page 335**
Appendix G – Glossary of Terms	**Page337**

Introduction

An Introduction to the Diatom Flora Recorded in and around the Nuneaton District

Commenced July 1964

Although the commencement of the record is stated as July 1964 I had, over the years, made spasmodic gatherings around my own home but never thoroughly examined same for I was too busy each year examining material principally from North Wales.
In 1964 I decided to pay particular attention to the diatoms of my own district so that the aforementioned previous gatherings had become most valuable. Some of the sites are no longer in existence.
Apart from small ditches and the local River Anker the expanses of water are artificially created such as the Old Quarries, embanked pools, impounding waters of small streams, none of which are more than some 200 or 300 years old. I have in mind the thought that old natural stretches of water contain higher percentages of species than younger artificially created ones but I cannot say with certainty that this is the case. Some sites follow this rule and others contradict, there being far more importance in the type of water and habitat.

Astley Castle pool, an area of some 3 or 4 acres created artificially approximately 200 years ago has a very poor variety of diatoms to-date – the quantity is present but epiphytic forms certainly predominate.
Seeswood Pool, which is quite nearby, has a much more varied flora and I estimate the latter is a younger site.
I have not been able to examine thoroughly the water of Arbury Hall but, to the present, these exceed the Astley Castle site.
Of the varying Quarry sites there is no similarity amongst any of them. Each seems to have its own specific population, such as:-

- Camp Hill Pool (Old Manganese site)– *Pinnularia, Neidium, Surirella* and *Tryblionella* in large numbers.
- Mancetter Road Quarry – The first 3 genera present but *Tryblionella* very scarce and *Stauroneis* takes the place.
- Hartshill Hayes Quarry – *Cyclotella* and *Stephanodiscus* in profusion.

Now all these three points are well within one mile of one another but the flora of each is noticeably different.

A further point, on leaving Hartshill Hayes Quarry and travelling West up on to the edge of the Midland plateau one comes to Oldbury Reservoir – an artificial construction for the purpose of supplying water to the Coventry Canal. This reservoir is some 200 or 300 feet higher in altitude but contains a flora again quite different to any of the former sites.

A point to note is the ‘alpine’ influence the higher altitude makes. *Tabellaria* is present quite frequently here but never in the lower countryside. A similarly sited small pond – “Yardley Cottage Pond” also exhibits this feature as though the points had been ‘seeded’ by Ice Age remnants.

It will also be noticed that from some sites I have made many gatherings over the period of compiling the flora. Such as “Spring Wood”, “Caldecote Lane” etc. and although there is often repetition of flora, according to the time of year gathered, the flora changes and often a species will be found at that particular time and present at no other, consequently the frequent gathering does pay dividends in many respects. Further, I’ve made many gatherings along the course of the River Anker. These too pay well and are very enlightening as to the change of flora through the countryside.

It will be noted that I have purposely included many ‘variants’ and supplied alien ‘names’, Dog Latin and otherwise and I have done this as a somewhat temporary measure to note the appearance of any particular variant which may be predominant in the survey.
Generally I do not recognise many of the so-called varieties found in literature as they are only really forms influenced by various habitat factors – I am too well aware of the variability of some species but in order to confirm this point it is necessary to segregate the variants and finally shew the range a form can take, when years of experience prove the whole question.
During the course of sketching the forms one or two of the *Fragilaracea* were not strictly to a scale but the rest of the flora is pretty accurate regarding Length, Breadth and shape. The stria are not strictly to scale (most difficult to effect) but a reasonable estimation – the measured stria when quoted are pretty accurate (taken at the middle of LH or RH half of valve – usual practice). The ends and central stria can, of course, be wider or closer than quoted stria pitch per 10µ.

September 1979. On looking through the pages I can now see many cases of misidentification etc. but generally the sketches are quite reasonable even if the identification is poor. This apart my dubbing forms with “Dog Latin” names was for MY convenience and often useful when corresponding to make a definite reference.

Even in 1979 there’s a lot I don’t know still.

Index to the Sites of Habitats Examined

Note concerning National Grid Reference

As far as I am able, the National Grid reference has been used from the Ordnance Survey to give a reasonable idea of the site. A point of illustration i.e. Nuneaton Trent Valley Railway Station is:-

393.500 N 435.500W

But in order to simplify, the 2nd, 3rd and 4th numbers only are used, such as 93.5N 35.5W. Adhering to this reference it is possible to be within 100 metres when referring to a point.

All National Grid References refer to Ordnance Survey Map 132 unless otherwise stated.

Notes regarding the locality and sites of the gatherings made for the compilation of this record.

Locality No. 1. Camp Hill Pool, Nuneaton 93.2N 33.7W

[52.534126, -1.503732]

This site is also known as "Stubbs Pool".

An artificial pool situated on the east side of Camp Hill Road. Gatherings taken from silt dredges and floating rafts of algae during warm weather. Gatherings made May 1966 revealed quite a different balance of flora. Even the 'rafts' were different.

Slide Nos. 743, 744, 745, 747, 748, 1075, 1076, 1077, 1078

Camp Hill Pool a.k.a Stubb's Pool (named for Henry Stubbs of Camp Hill Hall) [A fairly large, but shallow, water body with public access]

Locality No. 2. Corporation Quarry, Mancetter Road, Nuneaton 93.3N 34.0W

[52.536129, -1.500599]

A flooded quarry situated in the angle of Camp Hill Road (A47) and the Mancetter Road (A4131). Gatherings taken by dredge and scrapings from stones etc. around the edges. The quarry has practically sheer sides and there is very little chance of weed growths to support a particular flora.

Slide Nos. 680, 689, 690, 757, 875, 876, 877, 888, 1215, 1216

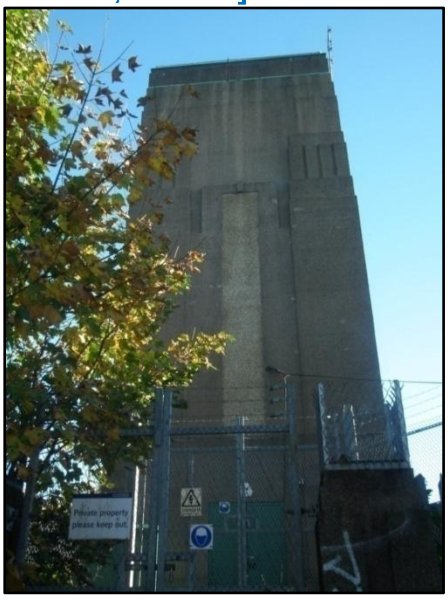
[Editor's Note: Also known as Poors Piece Quarry. A Nature Conservation Area and formerly a Local Nature Reserve. Contact with Nuneaton and Bedworth Borough Council has confirmed that there is no public access to this location.]

Locality No. 3. Hartshill Hayes Quarry, Hartshill. 94.8N 32.4W
[52.542329, -1.510663]

Hartshill Hayes Quarry [No public access without permission]
[Access courtesy of John Styles (Security Manager)]

This is the quarry on the left hand side of the Atherstone Road nearest Hartshill Green. The sides are too steep for aquatic vegetation but the sediments are fairly rich – particularly in *Cyclotella*.
Slide Nos. 742, 754.

Locality No. 4. Water Tower Gate, Mancetter Road, Nuneaton 93.5N 34.0W
[52.536958,-1.50017]



Water Tower Gate, Mancetter Road [No public access. No longer wrought iron!]

This is an unusual site and is very fugitive. By the Wrought Iron gate to the large Water Tower is a small patch of damp on the left hand side and from a wiping off the concrete one or two quite unusual gatherings have been made.
Slide Nos. 753, 953, 1255, 1256, 1257, 1258

Locality No. 5. Ditch and Pond – Anker Inn Lane, Nuneaton 94.9N 33.6W

The lane in question runs from the Anker Inn to Jee's Loading Wharf by the Railway and on the left hand side of the lane was situated a shallow pond and ditch but this has now been drained and consequently does not now exist.
Slide Nos. 735, 736
[Editor's Note: This lane no longer exists as a public right of way but has been incoroporated into the Lafarge Tarmac distribution site adjacent to the Anker Inn on Mancetter Road.]

Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm. 94.9N 31.6W
[52.550497,-1.53403]

Yardley Cottage Pond

Yardley Cottage Pond

Stream feeding Yardley Cottage Pond

Position of Yardley Cotage Pond relative to St. Lawrence's Wood of Hartshill Hayes Country Park

Yardley Cottage is a site by name only and can be found on the Ordnance Survey map. The pond is an artificially created one situated in a small coppice and well grown with aquatics. It would appear the pond is the source of a fair Spring fed from the high surrounding ground of "Oldbury Hills".
The flora of this site appears to me to be unique for the district as it harbours quite a mountain type set of diatoms. The idea runs through my mind the said flora could be an Ice Age remnant situated on the edge of the Midland plateau.
Slide Nos. 823, 824, 886, 887, 889, 892.
[Editor's Note: Now known as Yardley Pool Nature Reserve. A secluded stream, dammed to form a small lake near its source. Stream banks and pool lined with alders. The site is located just outside the boundaries of Hartshill Hayes Country Park, although I was able to access it via the Park I'm not sure of the Public Access status of this location. The spring fed stream itself runs through the park and looks to be a promising location in itself. Park in Hartshill Hayes Country Park car park (£2 parking fee at time of visit) and purchase the guide map (50p). The Park is run and maintained by Warwickshire County Council.]

Locality No. 7. Jee's Tarmac Plant, Hartshill. 95.4N 33.4W

Note: I think this was formerly Abells 'Old Plant'. This site is situated approximately opposite the Borough Sewage Works on the Railway Side of the road and was the former site of a Tarmac plant, all that remains nowadays are small rush filled holes. There is no sediment to be taken but good gatherings can be made from the growing rushes.
Slide No. 556.
[Editor's Note: Uncertain as to whether the Severn Trent Plant has expanded on to this site.]

Locality No. 8. Astley Castle Pool. 89.5N 31.5W

[52.501855, -1.538987]

The above pool I feel will at a later date give a far greater flora than that which I have recorded to date. i.e. 1964. The pool would appear to have been artificially created by an earth embankment but at what date I can not say. The water is heavily infested with the weed *Elodea Canadensis [American or Canadian Waterweed or Pondweed*] and as a result dredging is difficult. What gathering was made was from a 'weed squeeze' and as a result is mostly of an epiphytic nature. *Navicula radiosa* being particularly abundant.

A surprising find in this water was *Amphora veneta*. My previous experience of this form has been in North Wales from marine sites at the high water mark.

Slide Nos. 832, 952, 953, 1167, 1168.

Astley Castle Moat

Astley Castle Pool

Locality No. 9. Arbury Hall, Nuneaton. 89.3N 33.3W

[52.500353, -1.510921 – probably Garners Pool]

The pool in question is situated above the one facing Arbury Hall itself and is another artificial lake formed by Earth Embankment along the roadside.

Slide Nos. 833, 834, 1061, 1062, 1063, 1064, 1065, 1066

[Editor's Note: Ancestral home of Viscount and Viscountess Daventry. The Estate/Events Secretary of Arbury Estate has informed me that there is No Public Access to this location.]

Locality No. 10. Riversley Park Pool, Nuneaton. 91.7N 36.4W

[52.520477, -1.465205, centre of Nuneaton]

This site I think is much older than the actual Riversley Park and I suspect is the source of water for the Union Wool and Leather Factory situated on one side. The pool has quite a good flora and one form in question is i.e. *Pinnularia transversa* most prolific in the waters. It is of interest as to why this form should be so prolific at the site and occurs at no other (?) point in the district.

Slide Nos. 854, 855, 858, 882.

Riversley Park Pool. Public access to duck-feeding platform on west side via footpath.

[Editor's Note: The Union Wool and Leather Factory no longer exists and has been replaced by a Sainsbury's retail outlet.]

Locality No. 11. Whitacre Reservoir – City of Birmingham Water Works. Map 131. 91.3N 21.5W

[52.519015,-1.664257]

During the Winter of 1963/4 a visit was made to one of the Whitacre Reservoirs and from a gathering scraped from the concrete sides a list was produced and submitted to the City of Birmingham Water Engineer – See separate list for details (not available in this manuscript).

Slide Nos. 837, 838, 839

[Editor's Note: I believe this reference is to one of the Shustoke Reservoirs, formerly the site of Whitacre Lodge and built to supply the Whitacre Treatment Works. There are two bodies of water – Upper and Lower Shustoke. There is full public access to the Lower Reservoir.]

Locality No. 12. Seeswood Pool. 90.5N 3.30W

[52.512042, -1.518044]

The overflow at Seeswood Pool looks to be an interesting prospect for diatoms.

This fairly large stretch of water has produced good variety of forms together with a few which are most difficult to identify and could possibly be new forms. The site warrants much further investigation.

Slide Nos. 771LT, 893, 894, 895.

Seeswood Pool [Accessible with permission]

[Editor's Note: The 1899 OS map records this site as "Seaswood Pool".]

Locality No. 13. River Anker at Caldecote Bridge. 94.3N 34.7W.
[52.545434,-1.489334]

Slide Nos. 53, 180, 276.

Caldecote Bridge

River Anker at Caldecote Bridge (looking North)

River Anker at Caldecote Bridge (looking South)

Locality No. 14. River Anker at Leather Mill Lane. 95.6N 33.9W.
[52.556582, -1.500664]
Slide Nos. 54, 161, 184.

Looking West

Looking East

Locality No. 15. Leather Mill Lane. 95.6N 33.9W.
[approximately 52.556433,-1.500814]

This gathering was made in the short ditch which flows into the River Anker.
Slide Nos. 173, 175, 372.

Locality No. 16. Spring Wood, Caldecote. 93.9N 34.3W
[52.542068,-1.494827]

This site up to the present time has produced quite a good variety of forms as well as a number of unusual and difficult ones. The area is a very good one and due to winter flooding by the River Anker has never been under cultivation. This latter point is also revealed in the marsh type of herbage to be seen there.
Slide nos. 153, 181, 421, 691, 733, 847, 849, 859, 936, 937, 943, 944, 945, 966, 967, 968, 1098, 1099, 1100, 1102, 1184, 1185, 1186, 1187, 1188, 1189, 1244, 1245, 1246
[Editor's Note: Although I couldn't find the spring (from which the wood derives its name) the ground is waterlogged and there is an abundant moss cover.]

Locality No. 17. "Savage's Field" – Mancetter Road 93.5N 33.5W

This site was formerly a spring and ensuing ditch but in recent years has been built over in the construction of Berrington Road.
Slide No. 734.
[Editor's Note: The latterly built portion of Berrington Road is almost opposite the Water Tower Gate (Locality No. 4) on Mancetter Road. The photograph is of the general area with the housing of Berrington Road to the rear.]

Locality No. 18. Oldbury Reservoir. 95.7N 30.6W

[52.552741,-1.544352]

An artificially formed stretch of water which holds a sub-alpine flora and requires much greater searching then I have yet done.

Slide Nos. 852, 853, 938, 939, 940, 941, 1201, 1202, 1197, 1198

[Editor's Note: Now associated with the Mancetter/Purley Quarries complex.]

Locality No. 19. River Anker at Polesworth and subsidence area east of the railway line (excluding Alvecote Nature Reserve which is on the West side of railway [Location 44 (44, 44[2], 44[6])]

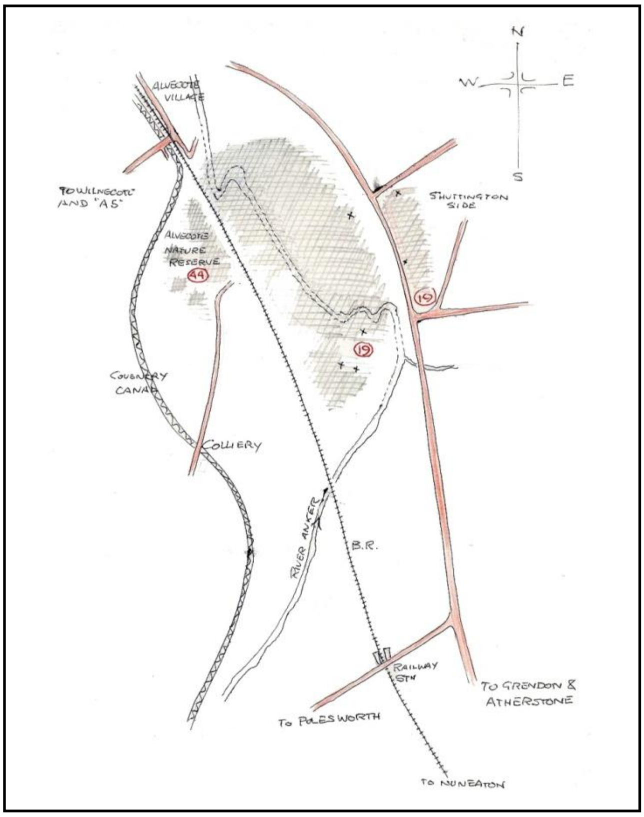
[Various locations 52.642386,-1.628573, 52.641397,-1.629474 etc.]

Most northerly collection point of Locality 19 on east side of road.

Northerly collection point of Locality 19 on west side of road.

In the vicinity of Polesworth due to coal mining operations by the varying pits much subsidence has taken place in the line of the River Anker with the result that there are many wide stretches of water. Gatherings of material have been made at varying points near to the road but it would take a regular number of years to get a representative picture of the forms present, as I can visualise many habitats to be tested.

Slide Nos. 879, 880, 881, 1161, 1162, 1163, 1164, 1165, 1166.



Locality No. 20. Marsh – J. Blakemore's field – Banks of River Anker, Hartshill.

This site is situated on the North side of Woodford Lane about the centre of a field. Westerley Bank of the River Anker. Although referred to as a Marsh is really a water-logged river-side pasture. When water has accumulated from the flooding and winter rains a 'pond' some 12 inches deep is formed. This site proved to be very good and I was greatly surprised to find the diatom *N. amphibola* Pant. present.

Slide No. 942.

[Editor's Note: This area is now occupied by a Dobbies Garden World. 52.58860, -1.514257. Although the fields have been drained and when last seen were occupied by a herd of deer, the centre has created a number of ponds within their wildlife reserves. These may prove an interesting source of diatoms.]

Locality No. 21. Ditch at roadside- Fenny Drayton

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* v. *arenacea*)

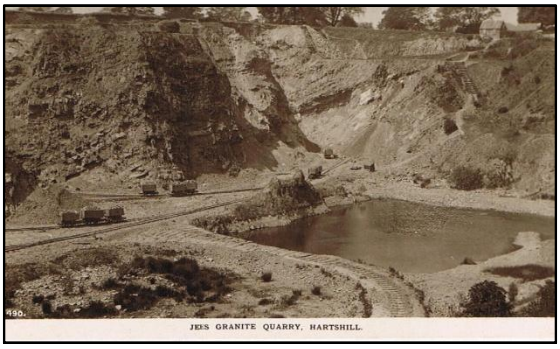
Slide Nos. 884, 885.

Locality No. 22. Jee's Quarry, Hartshill

[52.543412,-1.511714]

The site in question is not now in existence, having been a small marshy area off the Mancetter Road, right hand side going across the fields to Hartshill Church and due to the quarry extensions having been dug away!

Slide Nos. 49, 182, 369, 371.



Jee's Quarry – a huge 'hole in the ground'. The extensions to the quarry obliterated some of the collection points. [Access courtesy of John Styles (Security Manager)]

Locality No. 23. Sheepy Mill Pool, nr. Atherstone.

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.

Slide Nos. 850, 51, 852A, 1111, 1112, 1113, 1114, 1115, 1121, 1122, 1123, 1193, 1194.

[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

Locality No. 24. Sutton Park.

[Sutton Park - 52.575724,-1.855659]

Longmoor Pool (Summer_2007) by Lee Jordan (used under Creative Commons License)

Powell`s Pool and Sailing Club by John Proctor (used under Creative Commons License)

Blackroot Pool by Matt Sellers (used under Creative Commons License)

Keeper's Pool by Stephen Boisvert (used under Creative Commons License)

Little_Bracebridge_Pool by Ted and Jen (used under Creative Commons License)

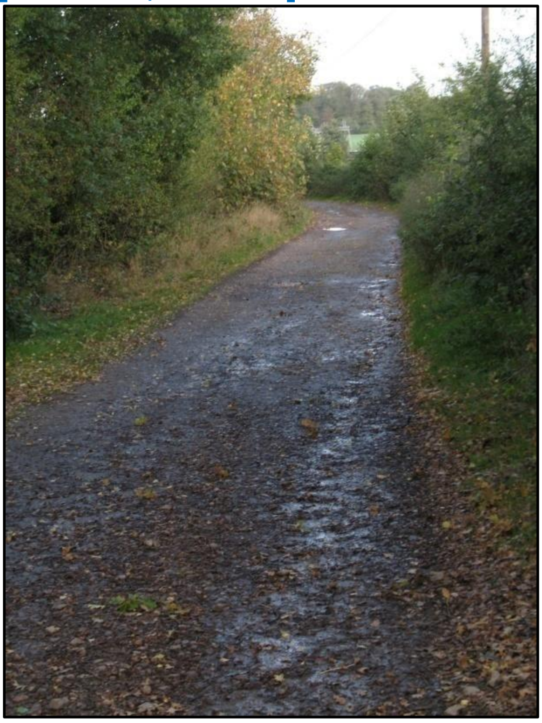
The Sutton Park referred to is the parkland at Sutton Coldfield, nr. Birmingham. Within the confines of the area are a number of water stretches, but I am unable at present to say whether they are all natural. Possibly parts are original and have been impounded to increase the areas. A gathering was made along the shores of the largest area of water where often small drains from the banks make the ground boggy. This gathering has proved to be possibly the most prolific and interesting one I have yet made and has contributed some 130 odd species of diatoms. The general run is about 50 or 60.

In the gathering can be found *Amphiprora ornata* Bailey, although the plant is recorded by F. von Hustedt as living in some of the large European lakes. I have not heard or read of it being found in the British Isles inland waters. It is of course present in various brackish sites on the coasts.

Slide Nos. 946, 947, 948, 949, 950, 951, 969.

[Editor's Note: Sutton Park contains within its perimeter a number of pools. The largest – Powell's Pool is on the southern edge of the Park. The next in size is at the north – Bracebridge Pool. The smaller pools are Blackroot Pool at the east, Wyndley Pool at the south-east and Longmoor Pool to the north-west of Powell's Pool.]

Locality No. 25. Caldecote Lane (leading off A4131) [1st January 1966]
[52.541259,-1.492982]



Due to the very wet weather of Autumn 1965 the bridle road above, between the canal bridge and the railway bridge, was the site of a stream of water crossing the middle of the road and diatoms here were most prolific. Patches 9-12 inches long by 2 and 3 inches wide covering the fine gravels and sand. It is noticeable the flora is particularly like to that of the "1 Reed" gathering made within Spring Wood. *Achnanthes lanceolata* being very prolific and shewing all forms. It would appear the water quality or type being responsible for the similar flora due to being charged with similar minerals.
Slide Nos. 1048, 1049, 1050, 1180, 1181, 1182, 1183, 1240, 1241, 1242, 1265, 1266, 1267, 1268, 1269, 1270, 1271, 1272.

Locality No. 26. River Avon at Stanford Reservoir, Northamptonshire. (Slide 1051)
[52.422824, -1.115263]
The actual gathering was made from a squeeze of *Callitriche* spp. *[water-starworts]* Taken from the River Avon – not the actual Reservoir (the River bypasses the Reservoir). The material was quite rich and quite good enough to make burned mounts and avoid cleaning.
During the course of examinations a *Diploneis crabro* was noted. – N.B. This is not a contamination and has evidently been introduced by wildfowl.
Slide Nos. 964, 1051, 1052, 1053, 1054, 1055, 1056, 1274, 1275.

Locality No. 27. Jee's Tarmac Plant, Anker Inn Lane, Hartshill
This site is near to Hartshill signal box and from submerged timber and reeds a gathering was taken. A cleaning was not made – just two burned slides.
When an examination was made of the material I was surprised to note many fragments of fossil marine diatoms. I thought at first this was due to my carelessness but this was not so for I realised the contamination was due to a remarkable coincidence, for on a concrete patch near the water's edge was some two or three inch deep wet piles of a white coloured substance. This proved to be fossil diatoms, imported for the purpose of heat insulating the tarmac heating pipes.
Slide Nos. 1057, 1058.
[Editor's Note: This lane no longer exists as a public right of way but has been incoroporated into the Lafarge Tarmac distribution site adjacent to the Anker Inn on Mancetter Road. *See Locality No. 5.]*

Locality No. 28. Drain from Jee's Tip near Berrington Road (rear) [Slides 1059/60]

The remains of Jee's Tip

This site is at the rear of Berrington Road and in a way covers similar territory to the No. 17 Site "Savage's Field". The 28 gathering was made from the varying drains and rises from the waste tip as distinct to the ditch which is now at the ends of various houses gardens. A chemical cleaning was not made, just two burned mounts. The flora is not extensive and not as good as the 17 site. Very few *Pinnularia* there now. There is, of course, the possibility of season as a cause of alteration.

Slide Nos. 1096, 1097, 1199, 1200, 1217, 1218, 1219, 1230.

Locality No. 29. River Leam, Leamington [Slide 1032]

This slide was sent to me in 1955 from M. E. Parker through R. Gosden. The former had gathered same when the river at Leamington was being cleaned out! The material was cleaned by Parker's own method and I think most effective. I believe the river water at this point receives some alkaline drainage hence the reason for one or two unusual forms.

Slide Nos. 1103, 1104, 1105, 1106, 1107, 1108.

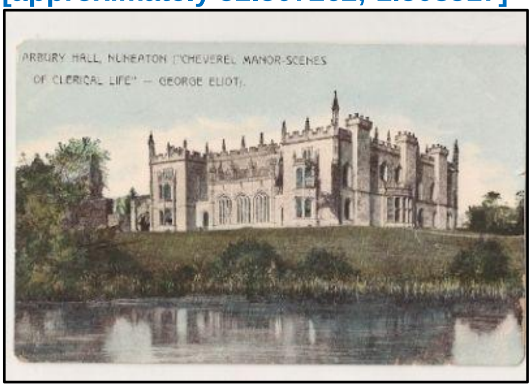
Locality No. 30. Coventry Canal – Boon's Wharf and Caldecote
[52.540449,-1.493497]

Possibly the site of Boons Wharf at Bridge 27 of the Coventry Canal.

The canal at this particular point is very prolific in rushes and on the old leaves diatoms in profusion can be gathered, particularly *Navicula viridula* during the early months of the year.

Slide Nos. 236A, 376, 376B, 883, 1067, 1068, 1091, 1092, 1159, 1160.

Locality No. 31. Arbury Hall – Drain from Northwood
[approximately 52.507262,-1.508517]



This site is a newly cut ditch running from the wood "North Wood" and passes under the main North Drive to eventually join Barpool Brook.

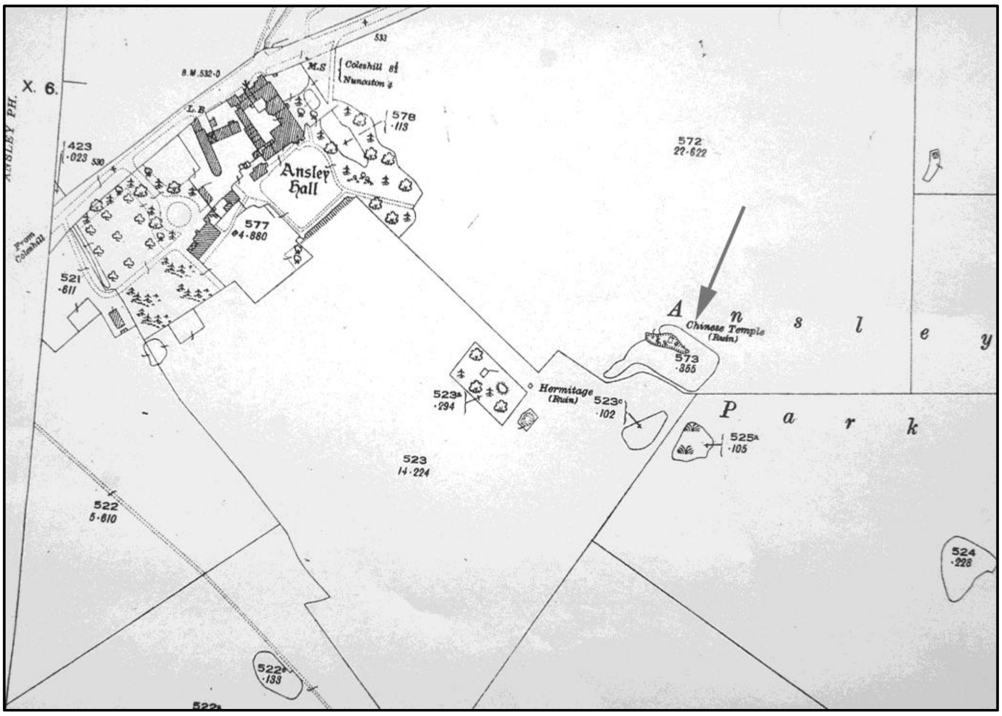
[Editor's Note: Ancestral home of Viscount and Viscountess Daventry. The Estate/Events Secretary of Arbury Estate has informed me that there is No Public Access to this location.]

Locality No. 32. Chinese Pagoda, Ansley

[52.536717,-1.548836]

If the 6" to 1 mile Ordnance Survey map is consulted there will be seen the remark "Chinese Pagoda (Ruin)". The gathering was taken from a shallow, tree surrounded pond quite close by the ruins. This gathering was not cleaned – which was a mistake on my part as it contained many forms of the small *Pinnularia intermedia* a soil diatom which has for some time past caused me considerable trouble.

Slide Nos. 1070, 1071.



(Image courtesy of Nuneaton Library)

Site of former Chinese Temple

Pond (now clear of trees) beside remains of Chinese Temple

Also of interest at this location:

[Editor's Note: The 25" to 1 mile map (above) shows the location as 'Chinese Temple (ruins)' situate in Ansley Park, the grounds of Ansley Hall. The Temple was erected in 1737.]

Locality No. 33. Opposite Jee's Crushing Plant
[52.543451,-1.507745]

Tunnel to Jee's Crushing Plant from Jee's Quarry. [Access courtesy of John Styles (Security Manager)]

The site in this case is temporary – caused by small pools in the ruts of Earth moving machinery. The water surface was covered by rafts of algae due to hot sunshine.
Slide Nos. SP39, 335, 943, 1085, 1086.

[Editor's note: Locality Nos. 34 thru 38 not mentioned.]

Locality No. 39. Lane leading to Shells Quarry, Mancetter. From A4131. 96.2, 31.5
[52.56306,-1.536423]

This is a small area of marsh ground caused by a rise in the field, left hand side of roadway near Cause Bridge. Diatoms taken from rafts of algae during hot weather.
Slide Nos. 1087, 1088.
[Editor's note: No references to this location in the Plate species.]
[Editor's Note: I have been unable to find any references to Shells Quarry. However, the Hartshill sandstone is known for its well preserved fossil beds.]

Locality No. 40. Mancetter Mill Pool
[52.566579,-1.525854]

A number of the stones in the backwater of this mill pool will be found to have dark brown growths of algae up to 3" long composed principally of *Synedra ulna* and spp.
Slide Nos. 1089, 1090.

The Mill is on Mill Lane and the remains of the mill pool are still extant, though somewhat silted up.

Mancetter Mill - Mill-race and Wheel pit

[Editor's note: Limited access for collecting specimens, though the river, some 20 yards away is easily accessible.]

Locality No. 41. Coventry Canal, Mancetter ?Sp39? 95.3, 32.4
[52.554516,-1.524997]

This gathering was taken from the silted reed beds at the side of the towpath.
Slide Nos. 1091, 1092.
[Editor's note: No references to this location in the Plate species.]
[Editor's note: All the silt and reed accumulations on the towpath side have been removed. The reeds still grow on the far bank.]

Locality No. 42. Old Quarry, Mancetter 95.5, 32.10
[52.557666,-1.530608]

At this grid reference there is a Canal Bridge leading to the opposite bank of the canal and gives access to 2 or 3 old Quarries. The particular gathering was made on the drain near the water edge. A dredge was used for the Quarry water but no silt could be taken! The same applied to the quarry nearer Mancetter. I do not know whether the sites have filled recently with water as this could be the cause of obtaining no silt samples.
Slide Nos. 1093, 1094.

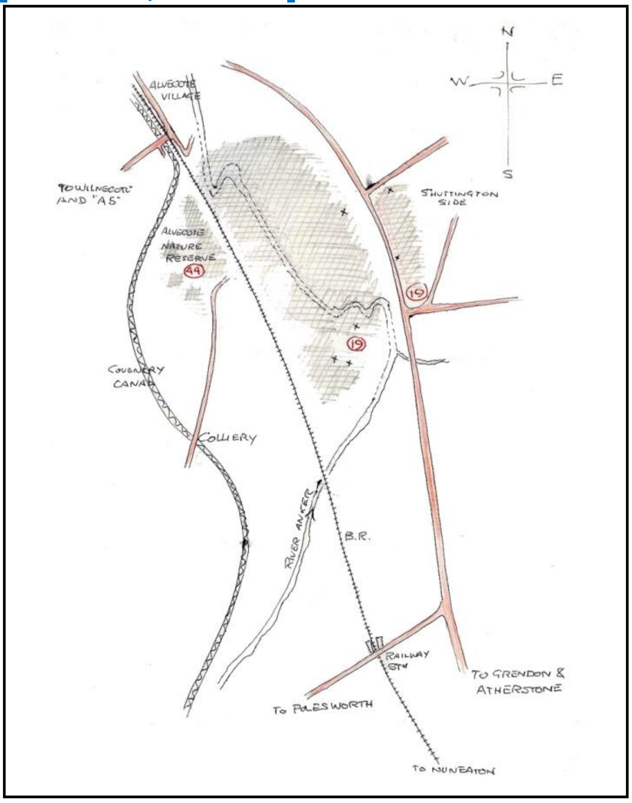
[Editor's Note: Checking of the OS Map reveals the existence of a small road called Quarry Lane that appears to lead to 2 or 3 small quarries (and the main Mancetter Quarry) and is approximately the right location @ 52.55766,-1.53064. However, access to this area was restricted.]

Locality No. 43. Cosby, Leicestershire
[52.547594,-1.195729]

This gathering was taken from an undeveloped new housing estate where my son expects to live. The habitat is temporary, being a rain filled rut which thanks to the nice

weather prior, had caused the algae to form rafts and subsequently, ease of gathering. June ’68 gatherings taken from stream in village – rafts of Algae.
Slide Nos. 1095, 1247, 1248, 1249.
[Editor’s Note: The stream 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.]

Locality No. 44. Alvecote Nature Reserve
[52.632464,-1.625483]



See Locality 19 for larger version of this map

June 1966. The Nuneaton Microscope Society visited the Alvecote Nature Reserve. This site is situated between the old Pooley Hall Colliery and the village of Alvecote. The area is a partially flooded one and well grown with vegetation. One of the ponds of water which takes drainage from the Pooley Hall Coal Tip and is very acid. I would estimate the depth of water to be zero to 20 inches and the whole of the mud surface is thickly coated with diatoms, mono-specific, *Nitzschia ?palea* (or one closely related). Just lower, where *Typha latifolia* *[Bulrush, Common Bulrush, Broadleaf Cattail, Common Cattail, Great Reedmace, Cooper's reed, Cumbungi]* flourishes, *Eunotia exigua* exists in practically pure growth.
Slide Nos. 1109, 1110, 1115, 1116, 1117, 1118, 1119, 1120, 1146, 1150, 1261, 1234, 1235, 1236, 1237, 1238, 1239.

[Editor’s note: A number of collection points or collections from the same location at different times as the references 44, 44^2 and 44^6 imply. Interestingly there were six collection points at locality 19 (adjacent to the Nature Reserve) but these are not so designated. The Nature Reserve is now isolated from the collection area ‘19’ by the M42 and much of the course of the River Anker has been dredged to create large areas of standing water to the east of the M42.]

Locality No. 45. Brick Pit, Croft Road

[52.515006,-1.494634]

The Old Brick Pit situated in the angle of Croft Road and Heath End Road, Stockingford is in the process of being filled. Material taken from this site is most difficult to clean due to the large amount of fine silt of a mineral nature present. The first cleaning from this point was, unfortunately, contaminated with a 'dirty' tube and cannot be relied upon. However, from a second gathering burned slides were made and these revealed the presence of two interesting forms. *Mast. elliptica* v. *danseii* and *Amphiprora alata*, the former very prevalent in the material.

Slide Nos. 1142, 1143, 1144, 1145.

[Editor's Note: This area is now known as Lingmoor Park and there is no longer a pit at this location, nor any permanent water body.]

Locality No. 46. Gailey Reservoir – on A5 road near Junction to M6 motorway.

[52.691653, -2.093496]

Calf Heath Reservoir (see note below)

This site is quite new and I was only able to obtain weed (*Millefoil* sp.?) with the dredge – diatoms chiefly *Cocconeis placentula*.

Slide Nos. 1147, 1148, 1149.

Calf Heath Reservoir (Southern End)

Gailey Reservoir (Lower)

Gailey Reservoir (Upper)

[Editor's Note: There are two reservoirs – Gailey Upper (East) and Gailey Lower (West). Horace mentions the resorvoir as being "quite new" . However, the Gailet reservoirs were constructed about 1847. In view of this early date I wonder whether Horace actually meant Calfheath Reservoir that is just the other side of the M6 junction, also on the A5. This reservoir was constructed about 1964 and as such fits the "quite new" observation.]

Locality No. 47. Hartshill, entrance to Boon's Quarry from near the Anchor Inn.
[52.549532,-1.50768]

Two gatherings were made here. One from the overflow of a sludge bed at right-hand side of road 150 yards from junction and the other by the corner with A4131 from the ditch. Neither sites had many species. Mostly *Nitzschia* and *S. ovalis*.

[Editor's Note: The current Judkin's Quarry was formerly Boon's No.1. Quarry. The entrance at the Anchor Inn is to one or both of the Jee's Quarries! The quarry is currently 'moth-balled' and there is no sludge bed present. The area just beyond the yard is the site of the concrete gravel silos, now mostly empty. It may be that this Jee's Quarry complex became Boon's No.2 quarry.]

Locality No. 48. Stream on A4131 (now B4111)
[52.561788,-1.522529]

This small stream is the first one on the Mancetter Road after passing under the Railway "Iron Bridge" and left hand side of the road was the gathering site. One from the coated stones and the other from the muddy puddles draining into the stream from the field.

The material along with others made that day were sent to JRC and from his cleaning further slides were made.

Slide Nos. 1155, 1156, 1157, 1158, 1169, 1170, 1171, 1172, 1173, 1174.

[Editor's Note: This stream appears on the OS map of 1899 in exactly its current position.]

Locality No. 49. Bradley Green, Nr. Atherstone – Coventry Canal.
[52.599196, -1.581742]

This collection was a dredge taken from the canal along a loading dock. *Slide Nos. 1159, 1160.*

[Editor's note: No references to this location in the Plate species.]

Locality No. 50. Bedworth – Stream by Newdigate Colliery
[52.479827,-1.495578]

This small and fairly fast running stream flows out to the River Avon drainage area – (not to the Nuneaton Anker). The gathering was made from stones and pebbles in the river bed similar to site 48. The flora principally *N. viridula* and notably *Amphipleura rutilans*. Of the latter the 1st I have personally noted. (J. R. Carter reports the form present at Alvecote).
Slide Nos. 1175, 1176, 1177.

[Editor's Note: Newdigate Colliery closed in 1982. Now the site of a Housing Estate. One large pool (a balancing lake) exists at the corner of Bluebell Drive and Smorrall Lane. A stream and lake also exists to the north going under Heath Road near Heather Drive. The lake is at the rear of The Willows. This stream is the most likely candidate.]

Locality No. 51. River Sence – Twycross A444
Slide Nos. 1195, 1196.
[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.]

Locality No. 52. Spring – Hartshill Hayes Wood.

Access from The Green, Hartshill

Taken from the boggy ground which crosses the pathway from Hartshill Green into the Hayes part of the Hartshill Woods.
Slide Nos. 1231, 1232, 1233, 1234.

Locality No. 53. 'Dovedale', Derbyshire

All the gatherings taken from the River Dove in Dovedale, Ham to Milldale section. The whole of this district is of limestone formation and as a result gives rise to quite a varied and different flora to that of acid or neutral sites. The same applies also to the macroflora of this area.
Also various gatherings made along valley – A limestone flora!
Slide Nos. 1250, 1251, 1252, 1253, 1254, 1255, 1256, 1257, 1258, 1259, 1260, 1262, 1263, 1264.

Locality No. 54. Quina Brook, Shropshire (Nr. Wem)

The disused canal arm near to property of my brother.
Slide Nos. 1283, 1284.
[Editor's Note: Quina Brook is a hamlet in north Shropshire. The derelict portion of the canal referenced is the Prees Branch of the Llangollen Canal.]

Locality No. 55. 'Frog Pond', Shropshire

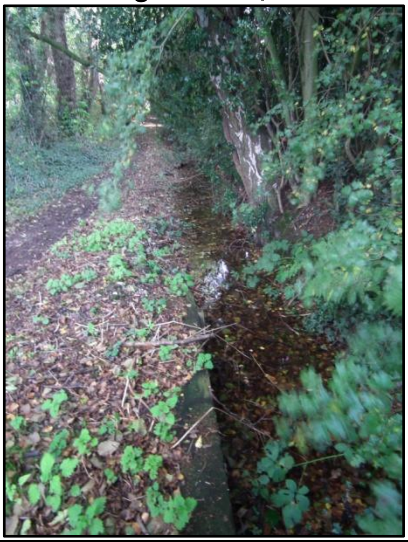
A large shallow lake known locally as 'Frog Pond' quite near to Prees Heath, Shropshire
Slide Nos. 1281, 1282.
[Editor's Note: Not sure as to the actual location of "Frog Pond", though there are a number of large shallow lakes in the vicinity of Prees Heath [52.939225,-2.660666]

Locality No. 56. Barpool Brook – The Stang, Camp Hill Estate, Nuneaton
[52.527449,-1.507745]

This small brook rises out Galley Common Way and I think is fed by mine water. The flora is rather unusual for it contains very surprising *Amphiprora* spp.
Slide Nos. 1279, 1280.

[Editor's Note: Barpool Brook runs along the lower part of Camp Hill. Easy public access. The brook has now been widened at various points along its route to provide balancing ponds as much of the surrounding area has been developed. I have not been able to resolve the name „The Stang". No mine now exists upstream.]
[Editor's note: No references to this location in the Plate species.]

Locality No. 57. Hough Heath, Nr. Crewe



A place, I am sure in prehistoric times, the site of a ‘bog’ or ‘moss’ quite a good place for macroflora.
Slide Nos. 1276, 1276A, 1277, 1278.

[Editor’s note: No references to this location in the Plate species.]

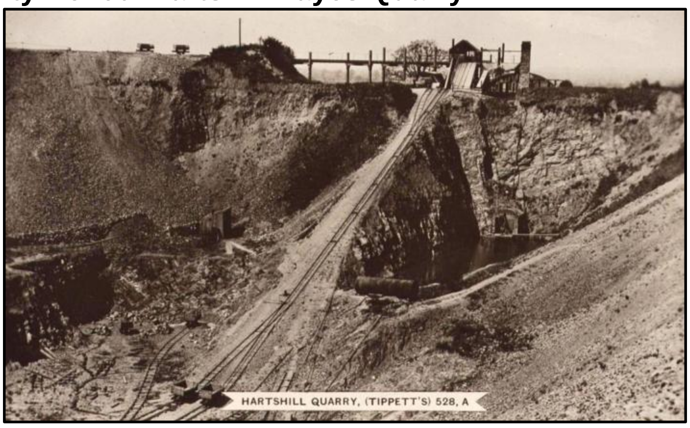
Locality No. 58. Ditch, Stanford Church

Small fast running ditch opposite the church.
Slide Nos. 1274, 1275.
[Editor’s note: No references to this location in the Plate species.]

Locality No. 59. Fish Pond, 91 Mancetter Road

[52.539492, -1.502485]
Slide No. 1273.
[Editor’s Note: This address was the home of Horace G. Barber – ‘Hafan’]
[Editor’s note: No references to this location in the Plate species.]

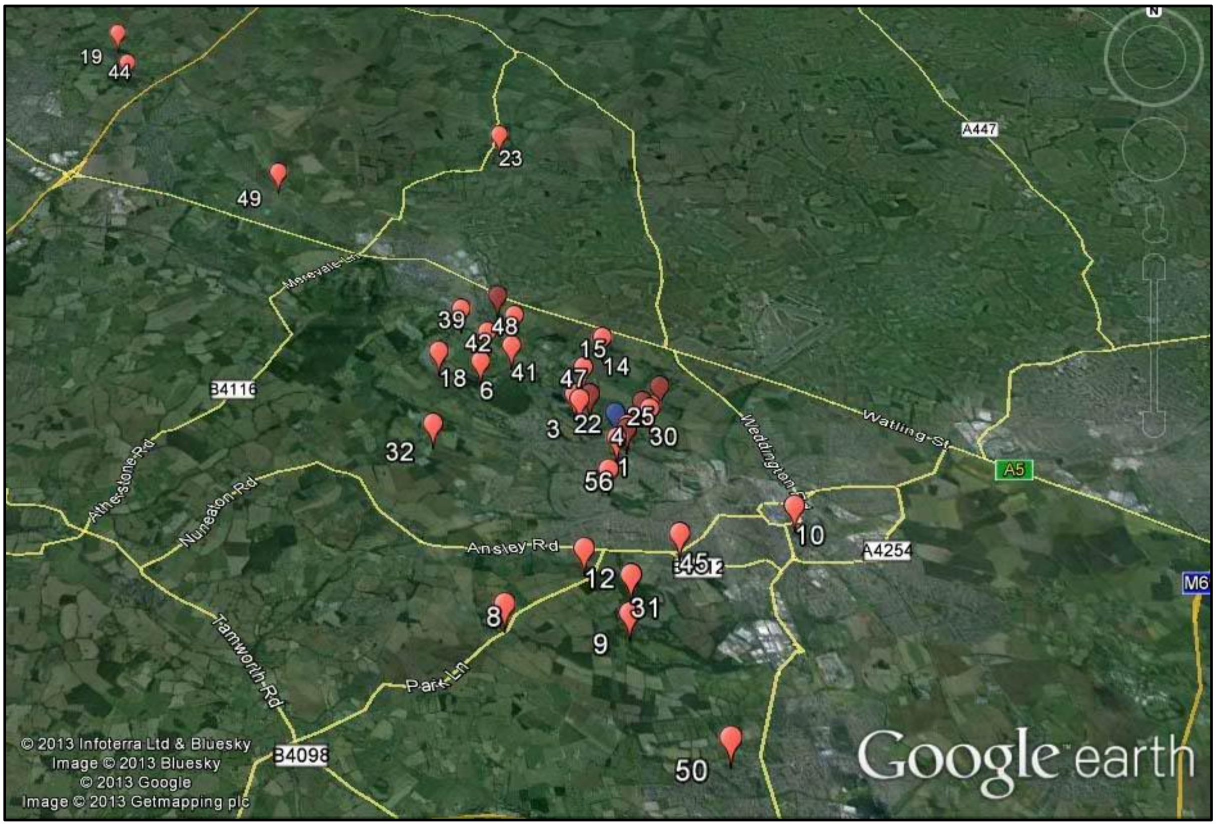
Locality No. 60. Hartshill Hayes Quarry

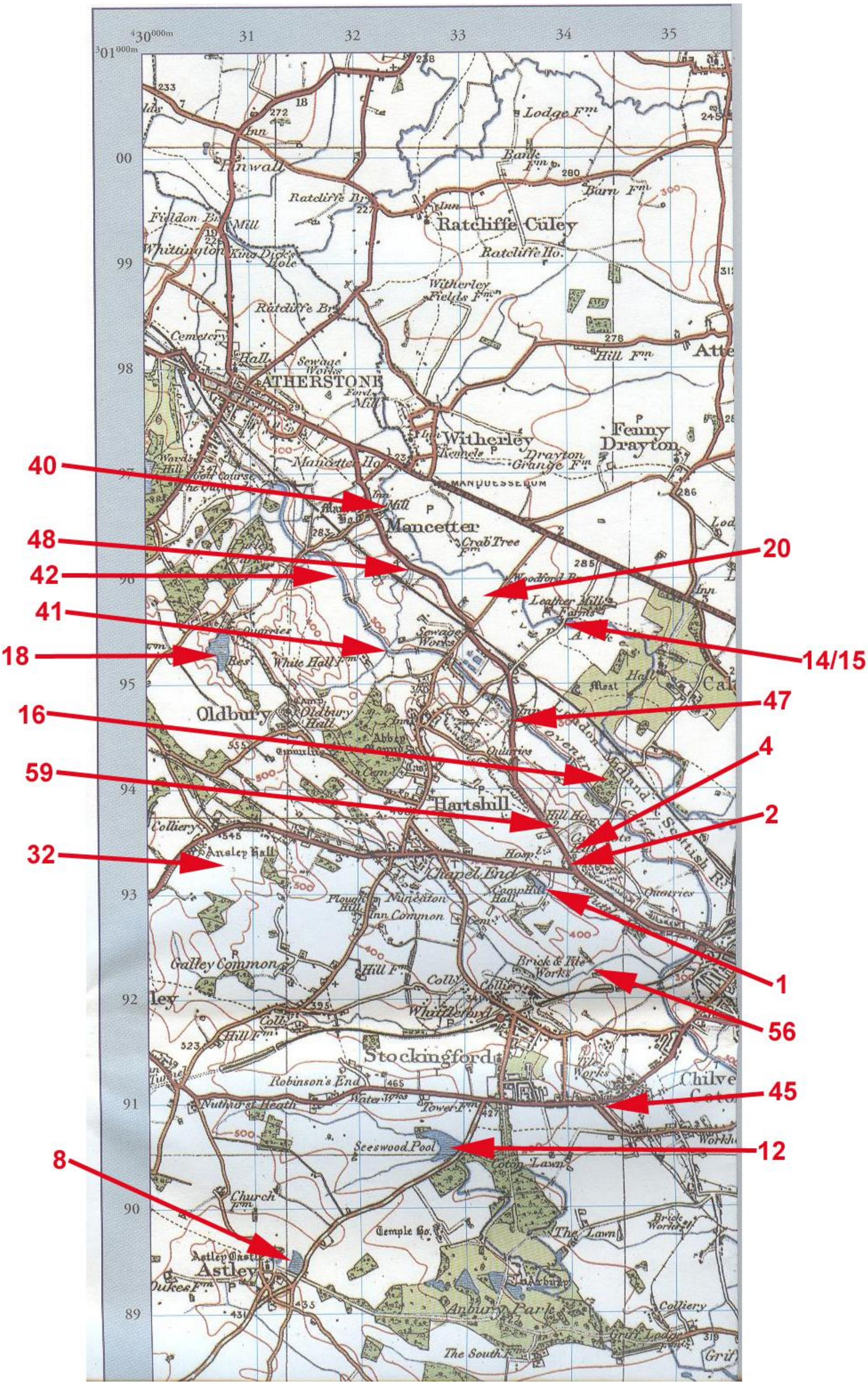


Slide No. 755.

[Editor’s Note: It is not clear as to whether or not this reference is to either of the Jee’s quarries, Woodlands Quarry at the northern limit of Hartshill or Tippet’s.]

As can be seen on the Google™ Earth map (below) the vast majority of the collection sites were clustered around his home (marked by the Blue pin) on the North-East side of Nuneaton . The centre of Nuneaton town itself is around the pin marked 10 (Riversley Park Pool). The annotated OS Map [next page] (the same issue that Horace himself referenced) provides more detail. Number 59 on this map is 91 Mancetter Road, the Barber residence.





Ordnance Survey One-inch Map of Great Britain [Seventh Series] (Sheet 132)

Index to the Species and Plates.

Generally the order of taxonomy
by
Fredk. Von Hustedt 1930.

The species, varieties and forms are lettered to the plates.
Where a noted diatom in the Plate Text does not appear in the Plate itself it is recorded either as ‘To be sketched’ or ‘Not figured’. The former annotation is by Horace Barber and obviously denotes his intention to include the drawing at some juncture. Though a representation does not appear on the Plate a figure may still be present in the associated notes or even as a figure related to another entry for the same Plate.

Plate 1 *Melosira* – Agardh

Figure	Text	Locations
A	*Melosira varians* Agardh	1, 6, 9, 10, 11, 12, 15, 16, 19, 26, 29, 44
B	*Melosira varians* Agardh	No location cited
	(an auxospore form of the above) So far as this diatom is concerned I have never yet seen any markings on the frustules – neither the face nor the girdle view and I think one of the only forms in the Phylum which is so. The form, as in the rest of the British Isles, is quite frequent especially in still or slow-flowing waters.	
C	*Melosira granulata* var. *muzzanensis* (F.Meister) Hustedt	29

Plate 1

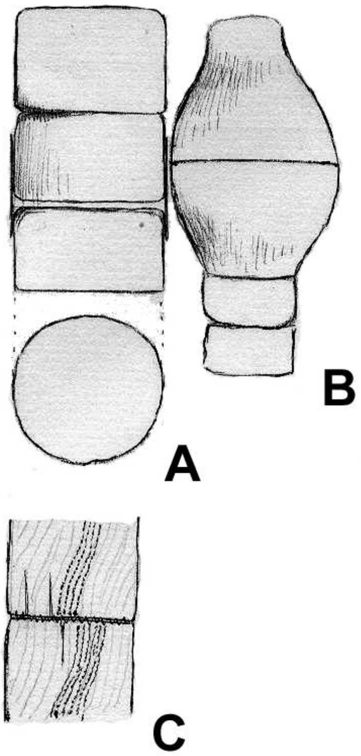


Plate 2 *Cyclotella*

Figure	Species/Text	Locations
A	*Cyclotella compta* (Ehrenberg) Kützing	2, 3, 11, 16, 18, 19, 24, 31, 44
	Diameter 15-50µ Depth 5µ Stria 13-15 in 10µ This specie, like most of the other members of this genus, is generally found in the larger open waters, quarries, large pools and lakes. The plant grows well in the quarry at Hartshill Green. It would appear there are two main sizes of growth at this site as though there had been a period where conditions were not favourable to reaching maximum size.[1]	
B	*Cyclotella compta* (Ehrenberg) Kützing	2, 3, 11, 16, 18, 19, 24, 31, 44
C	*Cyclotella Kützingiana* Thwaites	1, 2, 8, 12, 44
	Diameter 10-45µ This form is rather spasmodic in the area.	
D	*Cyclotella Meneghiniana* Kützing	2, 10, 11, 19, 23
	Generally in the larger pools	
DD	*Cyclotella Meneghiniana* Kützing (deformed?)	23
	Appendix to form 2 DD. Deformity I have not illustrated deformities but this is the first occasion I have seen a *Cyclotella* with 'excentric' centre.	
E	*Cyclotella stelligera* Cleve & Grunow	2, 24
EE	*Cyclotella Kützingiana* var. *planetophora* Fricke	18
F	*Cyclotella astraea* Kützing	12, 23, 29
	(more like *Stephanodiscus Hantzschia*!)	
G	*Cyclotella catenata* Brun	18, 24
H	*Cyclotella ?socialis*	24
J	*Cyclotella striata* var. *bipunctata* Fricke	16, 29
	Appendix to form 2J *Cyclotella striata* var. *bipunctata* River Leam (Site 29) Slide 1032 The form from this site does not follow the type as illustrated by Hustedt in as much as the heavier radial lines are only marginal and not 50% as he depicts. (See fig.72 Du Europas) Also the mottling of the central area is very faint to me.	
K	*Cyclotella operculata*?	44
L	*Cyclotella ocellata* Pantocsek	45

[1] This implies that the environmental conditions are such that the first phase of frustule formation results in a 'stunted' condition and thus all subsequent divisions will result in frustules of the same size or smaller.

Plate 2

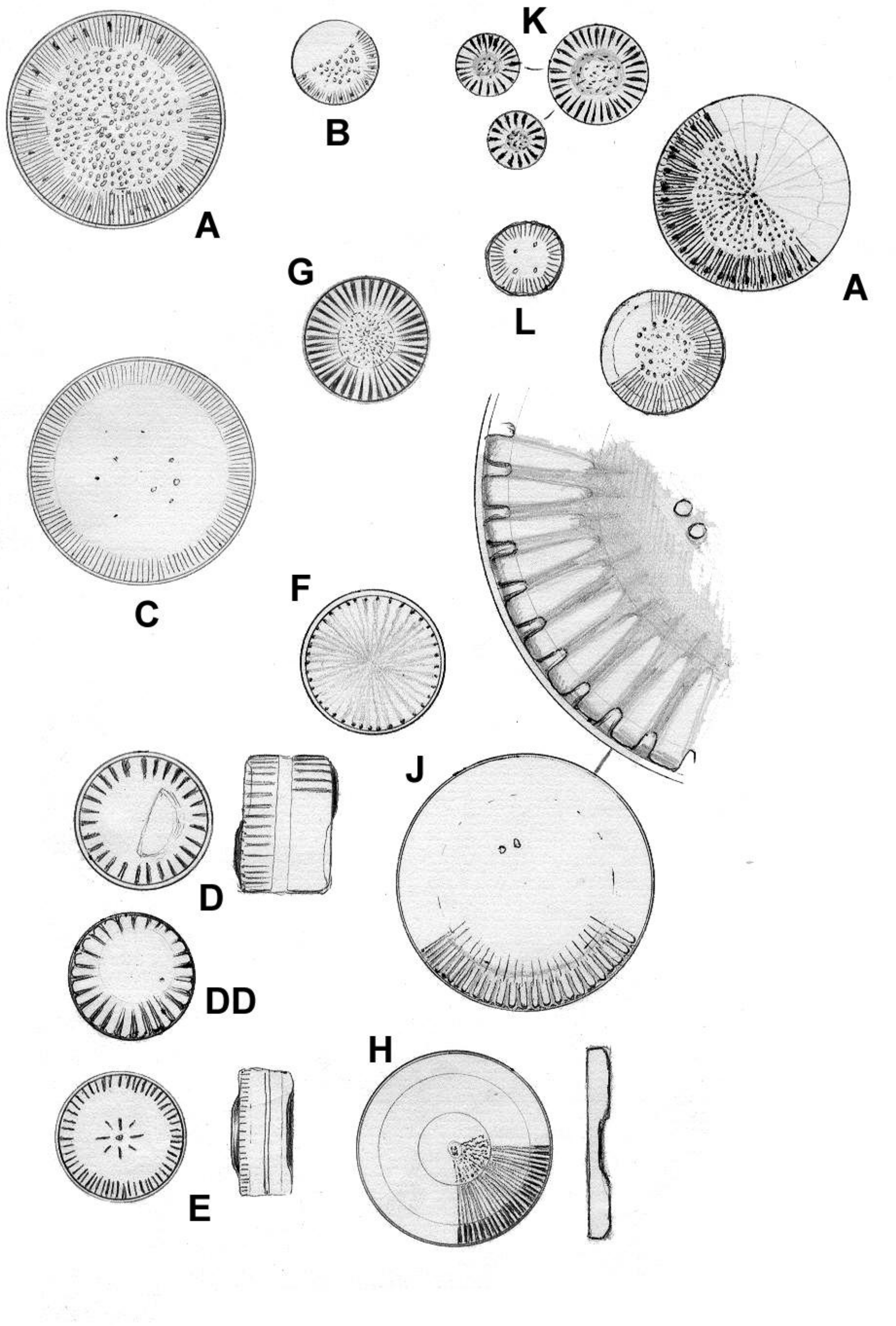


Plate 2^A *Stephanodiscus* - Ehrenberg

Figure	Species/Text	Locations
A	*Stephanodiscus astraea* (Ehrenberg) Grunow	9, 26, 31
	Note rather an unusual site for this form but nonetheless there!	
B	*Stephanodiscus astraea* (Ehrenberg) Grunow	11
BB	*Stephanodiscus Hantzschia* Grunow	11
C	*Stephanodiscus*	44[6]
	Appendix to form 2^A C Slide 2915 Alvecote (JRC) This is a difficult form to portrait. The outer half of the punctae are quite radial rows and decrease to the centre. Then there is a domed central half and here the lines of puncta lose the radial formation and become just an irregular patch. The spines set somewhat in from the edge are not equally spaced but quite irregular and are rather sparse for the usual spines of this genus. A casual sight of this form gives the impression that the outer half of the stria are lines but a second look will reveal they are made up of puncta decreasing towards the centre. 	
D	Un-named	24
	Appendix to form 2^A D Slide 948 Sutton Park 24 site. Diameter 15µ. I am rather at a loss to correctly place this form but I think it is possibly *astraea* var. Rather difficult to portray and the radial rows of puncta are quite faint.	

Plate 2[A]

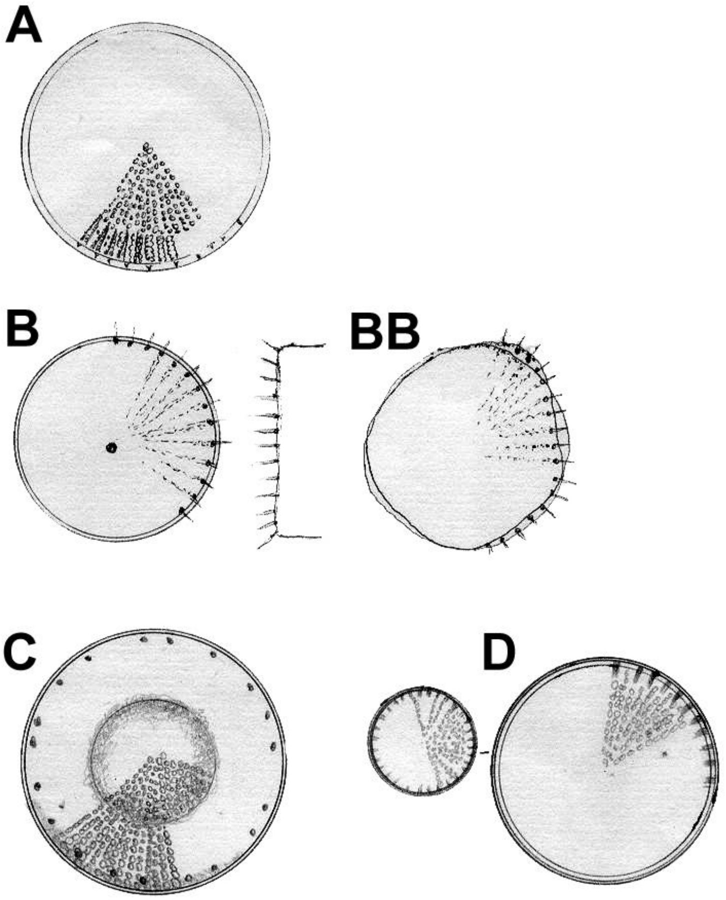
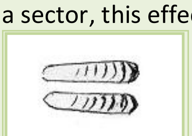


Plate 2^B – Un-named

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>A</td><td>Un-named</td><td>No location cited</td></tr>
<tr><td>B</td><td>Un-named</td><td>No location cited</td></tr>
<tr><td>C</td><td>Un-named</td><td>19</td></tr>
<tr><td>D</td><td>Un-named</td><td>2, 45</td></tr>
<tr><td>E</td><td>Un-named</td><td>No location cited</td></tr>
<tr><td rowspan="2">F</td><td>Un-named</td><td>16, 19, 44^6</td></tr>
<tr><td colspan="2">Appendix to form 2^B F
from Carter’s 2919 Slide of Alvecote 6 (44^6) material
It is stated that at times this diatom exhibits spines but those I have examined to date do not possess any such feature, neither is there any trace of markings (secondary) within the coarser radial markings, only a difference in tone such as is present in some of the Pinnularia stria. This I am aware is of an exceedingly fine grating revealed only by the Electron Microscope and I do suspect it is a similar structure for Cyclotella Meneghiana.
A feature I had expected to be able to see on these two complete frustules was an interlocking of the adjacent stria but I cannot say that this happens, being neither adjacent nor alternate. From a suitably placed form I have noted the stria are not flat but domed:-

At least at the edge part of the valve.</td></tr>
<tr><td>G</td><td>Un-named</td><td>No location cited</td></tr>
<tr><td>H</td><td>Un-named</td><td>No location cited</td></tr>
<tr><td rowspan="2">I</td><td>Un-named</td><td>44^6</td></tr>
<tr><td colspan="2">Appendix to form 2^B I from Carter’s 2919 Slide Alvecote 6 (44^6)
This form which lies tilted to the horizontal position shews very well the stria arrangement from the centre and over the edge of the valve.
It is noticed with careful focussing there are very small spines in the dark spaces at the edge of the frustules, one to each division.
I have not noted this previously in one or two similarly placed forms.</td></tr>
<tr><td rowspan="2">J</td><td>Un-named</td><td>44^6</td></tr>
<tr><td colspan="2">Appendix to form 2^B J from Carter’s 2919 Slide Alvecote 6 (44^6)
This is a high focus sketch of a 2^B G and H form.
The sketch 2^B G, H is from a lower focus and of a different frustule.</td></tr>
<tr><td rowspan="2">K</td><td>Un-named</td><td>44^6</td></tr>
<tr><td colspan="2">Appendix to form 2^B K Slide 1147 “Alvecote 6” (44^6)
I have figured this form because the central area is typical of a number of these forms. Many others though are not so marked, some, even do not exihibit markings! The question of puncta too is most variable from nil to 4 or more.
Some forms when lying in inclined position will be noted to have SMALL spines on the outer rim of the valve and on others none can be detected. It is said by Grunow the radial stria may exhibit lineations but this I think is an effect of aberration and take the statement with doubt. It is not difficult with oblique light to produce in a sector, this effect:-

I think 2^B A, B, C, D, E, F, I, K are of one species = “Menenghiana”, 2^B G, H, J another species.
In the former series spines are VERY small even when present – in the latter the spines are quite well developed and can be focussed up and down even when seen from the face side of the valve. There is to see another big difference in these forms i.e. in the former stria are well spaced

Whereas the latter do NOT exhibit an actual space between the “radial sectors”.
A further point, the former has generally a greater diameter than the latter.</td></tr>
</table>

Plate 2[B]

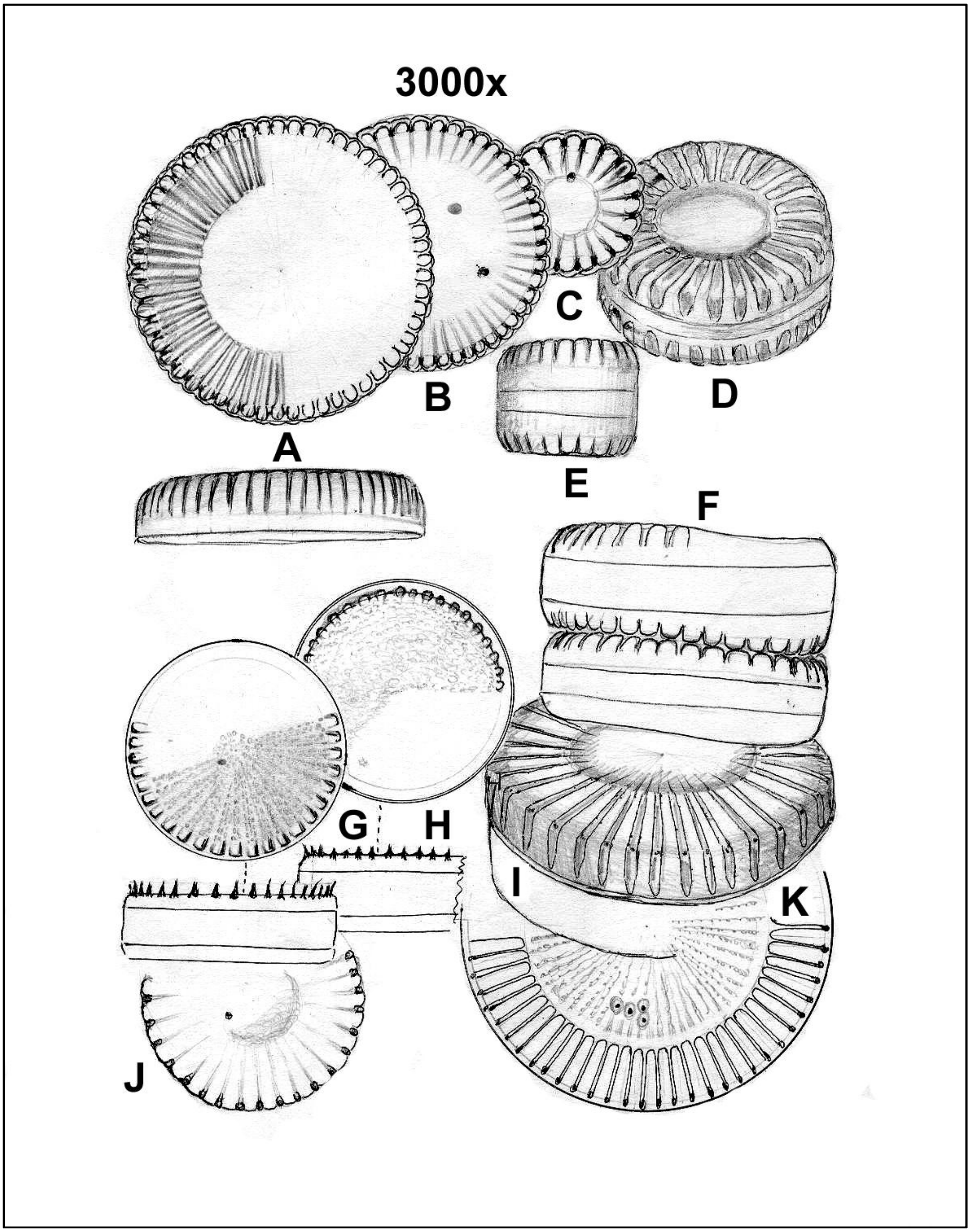


Plate 2[C] *Stephanodiscus* - Ehrenberg

Figure	Species/Text	Locations
A	*Stephanodiscus Hantzschii* Grunow	44^6
B	*Stephanodiscus Hantzschii* Grunow	44^6
C	*Stephanodiscus Hantzschii* Grunow	44^6
D	*Stephanodiscus Hantzschii* Grunow	44^6
E	*Stephanodiscus Hantzschii* Grunow	44^6

Plate 2[C]

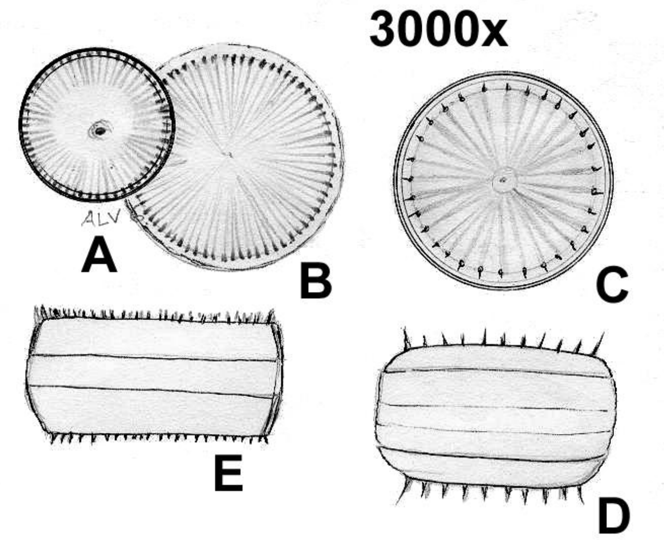


Plate 2^D *Cyclotella*

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">A</td><td>Cyclotella Kützingiana “tripuncta”</td><td>44, 46</td></tr>
<tr><td colspan="2">Appendix to form 2^D A
from Corporation Road Brick Pit
Slide 1144
Cyclotella “tripuncta”
Although I have dubbed this form “tripuncta” etc, is it not Kützingiana?
The slide 1144 is of the cleaned material which was contaminated with brackish forms (dirty tube) it is of the Brick Pit and 2^D A can be found in the incinerated material so that I have sketched 2^D A, B, C from the contaminated slide 1144.
Form 2^D E is from incinerated material on slide 1142.
Forms A, B, C can be found with varying number of puncta.
Form E has 3 puncta arranged in reverse position top or bottom of valve dependent on focussing.
I am fairly sure all these forms are of the same species and the nearest I can identify is to that of Cyclotella Kuntzingiana.
I have many times criticised the sketches of H. von Hustedt and I am sure with some cause. See fig. 62 Cyclotella Kützingiana page 99 of Middle Europe where the puncta are shewn:-

As though these puncta were all in focus at the same time. NO! this is a wrong impression for only 3 are in focus at one plane and then and equilateral triangle is formed:-

One side

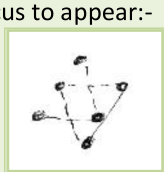
the other side!
But both sets are in close proximity of focus to appear:-

I suspect this would obtain with B as well but did not find complete valve to prove.</td></tr>
<tr><td>B</td><td>Cyclotella Kützingiana “quadrapuncta”</td><td>46</td></tr>
<tr><td>C</td><td>Cyclotella Kützingiana (nuda) Thwaites</td><td>46</td></tr>
<tr><td>D</td><td>Cyclotella Kützingiana (nuda) Thwaites</td><td>46</td></tr>
<tr><td>E</td><td>Cyclotella “dubitabilis” Mihi Carter</td><td>44</td></tr>
<tr><td rowspan="2">F</td><td>Cyclotella “dubitabilis” Mihi Carter</td><td>24</td></tr>
<tr><td colspan="2">Appendix to form 2^D F
Sutton Park.
Slide 948
Site 24
This form is quite common on slide and I am sure a C. compta but Hustedt would help no end if his diagrams were more accurate!</td></tr>
</table>

Plate 2[D]

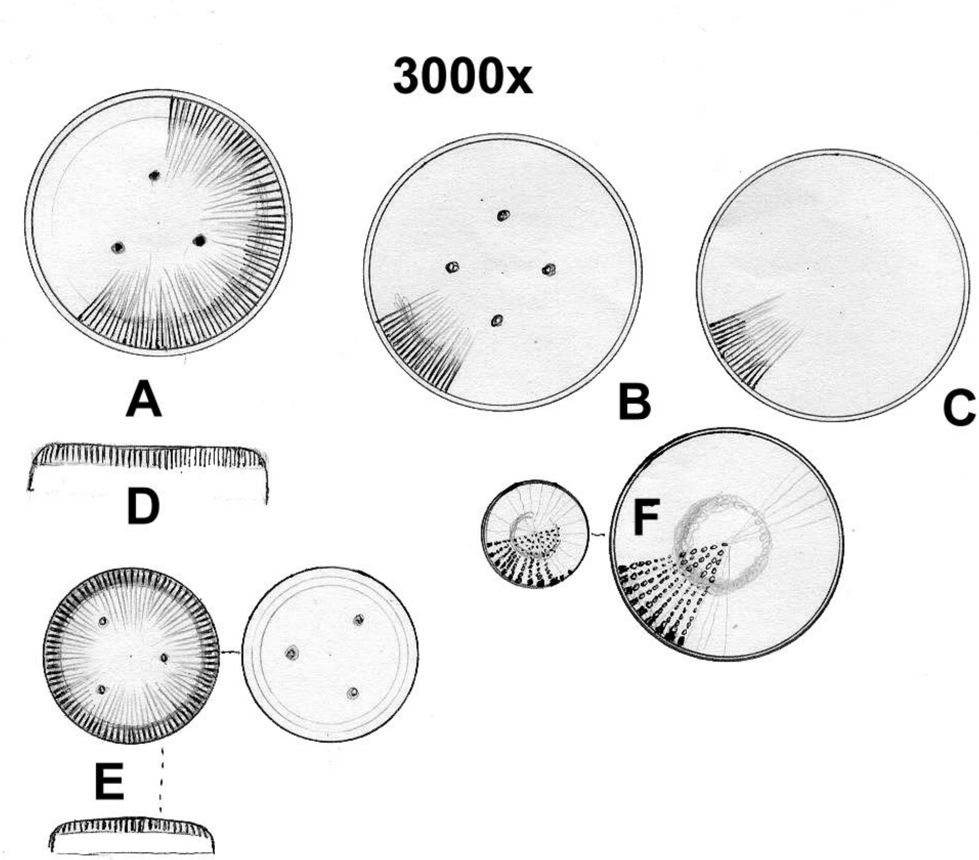
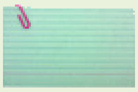
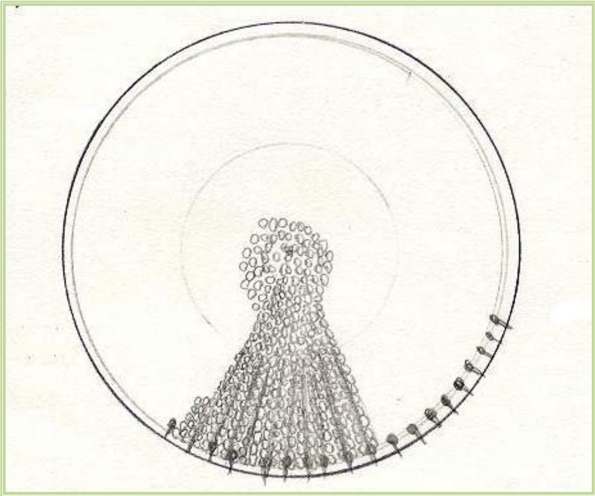


Plate 2^E *Coscinodiscus*

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>A</td><td>Stephanodiscus astraea (Ehrenberg) Grunow</td><td>44⁶</td></tr>
<tr><td></td><td colspan="2">


Stephanodiscus astraea
Slide 1147
Alvecote 6 (44⁶). Green



Hustedt quotes:
Valve disc-shaped, generally isolated valves or along with short chains. Valve more or less concentric, 30-70µ diameter. With coarse radial rows of puncta, approximately 9 in 10µ.
Stephanodiscus astrea from Eyebrook Reservoir (? The typical form from slide 740)

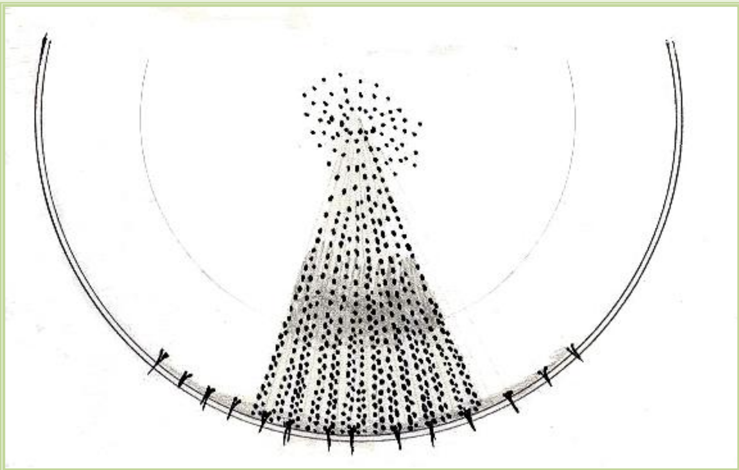

</td></tr>
<tr><td>B</td><td>Coscinodiscus beta G.H.H.Karsten</td><td>44⁶</td></tr>
</table>

Plate 2^E <u>*Coscinodiscus*</u> (continued)

Figure	Species/Text	Locations
C	*Coscinodiscus “Alvecote 6”* Mihi	44^6
	(oblique view) Appendix to form 2^E C *Coscinodiscus “Alvecote 6”* Carter Slide 2916 This slide was sent by J. R. Carter to illustrate a *Cyclotella* marked on slide and during the course of going over slide noted form 2^E C. This form is a complete frustule and lies at an angle revealing interesting features. I feel sure it is related to 2^E B. Diameter about 28µ. Puncta size approximately 18 in 10µ. The puncta as far as can be seen on the curved edge for the valve do not assume any set pattern but are just irregular,  although I do suspect that the central area are of the type illustrated in form 2^E B. Due to the tilt of the frustules I am unable to see whether the surface of the valve is the “two level” feature as for *Cyclotella*, but there is quite a depression in the centre. Later: 2^E E is the same sort as 2^E C.	
D	*Coscinodiscus ~~“pseudosubtilis”~~ Rothii* var. *subsalsa*	44^6
	Appendix to form 2^E D *Cos. ~~“pseudosubtilis”~~ Rothii* var. *subsalsa* Carter Slide 2916 Diameter approximately 30µ This form is rather like a poor *subtilis*, as though a fowl introduction and is in a way quite common occurrence – 2 or 3 per slide. The form is also noted by J.R.C. N.B. The form is NOT a contamination and is found in the uncleaned material! After further consideration the form is, I am sure, *C. Rothii* var. *subsalsa*.	
E	*Coscinodiscus “Alvecote 6”* Mihi	44^6
	Appendix to form 2^E E Alvecote 6 (44^6) Slide 1146 This is still another of the queer “*Coscinodiscus*” of this gathering! The form lies on an angle to the horizontal and shews the row of spines quite well (like form C). The puncta are NOT in regular pattern but somewhat of a “pruinose” nature. Around the outer rim, as figured, is a row of spines. On focussing there is a definite depression for half of the centre, such as is present in the genus *Cyclotella*. This feature and the rim spines really take the form from *Coscinodiscus* and into *Cyclotella*! This form is not a *Coscinodiscus Rothii* surely with such irregular puncta. Or does *Rothii* vary a great deal?	
F	*Coscinodiscus lacustris* Grunow	44^6
	Appendix to form 2^E F Alvecote 6 (44^6) Slide 1147 This form can be seen all thro’ this gathering and I do not think it *C. Rothii* var. *subsalsa*. Around the outer rim is a single row of regular puncta like 2^E E. The general puncta are very much as figured but note well there is no outer band or area of finer puncta as in var. *subalsa*! There is the usual centre half depressed and *Cyclotella* style spines are quite close to outer margin. Stria NOT circular but quite angular and with central spot pores are hardly “subradial”. I have now seen Van Der Werff’s illustration of *lacustris* (according to him) and the forms are identical. This also is the form which J. R. Carter calls “the rough *Coscinodiscus*” in correspondence.	

Plate 2[E]

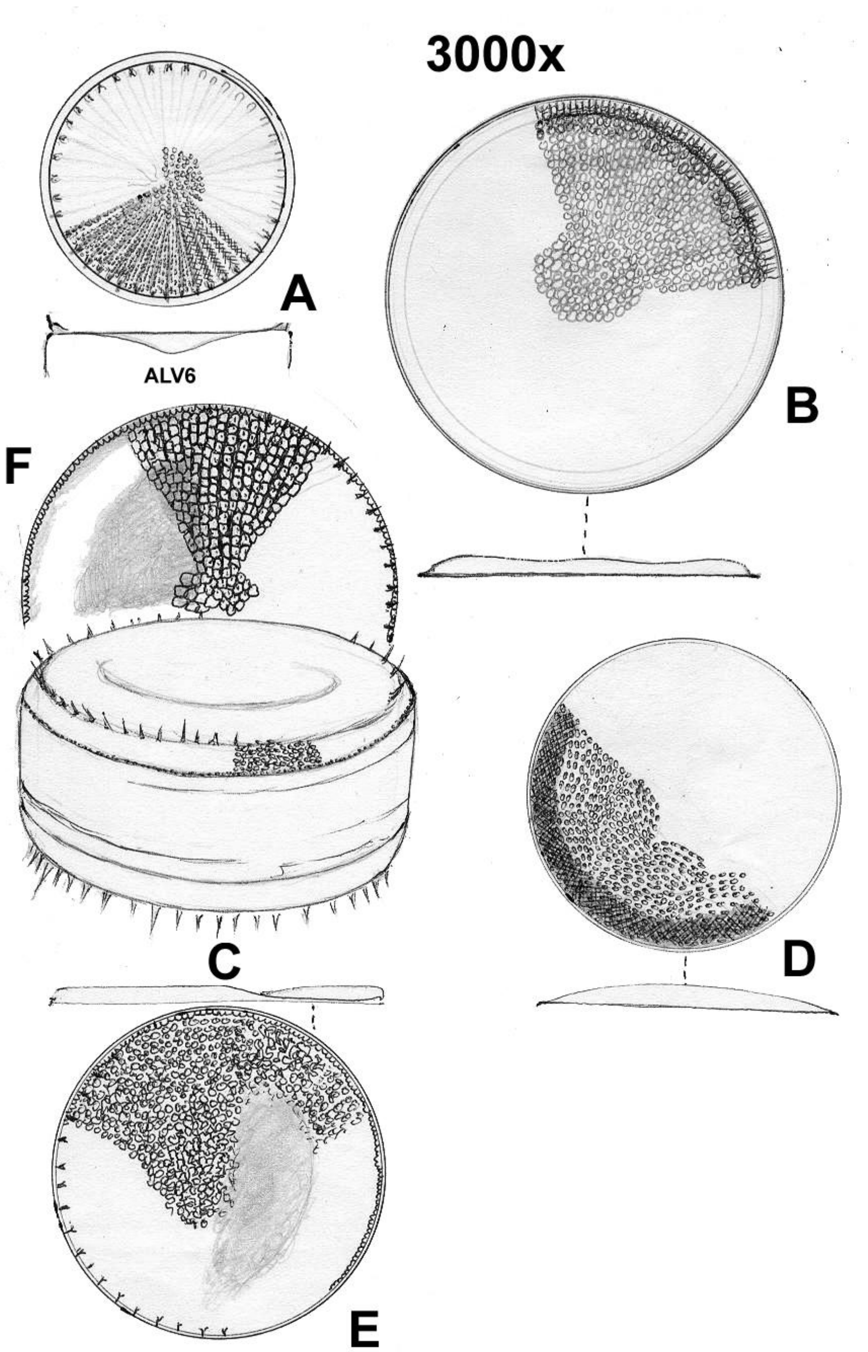


Plate 3 *Tabellaria*

Figure	Species/Text	Locations
A	*Tabellaria fenestrata* (Lyng.) Kützing	6, 18, 24, 44
	Length 30-140µ Breadth 3-9µ Stria 20 in 10µ This form was quite a surprise when found in the Hartshill district at a site in a wood near Yardley Cottage (see Ord. Survey Map). The genus is not common in low and flat country but likes hilly and mountainous areas and it would appear to me the form is a remnant of prehistoric times. The site too contains other forms of a similar nature.	
B	*Tabellaria fenestrata* (Lyng.) Kützing	6, 18, 24, 44
	See 3 A above	
C	*Tabellaria fenestrata* (Lyng.) Kützing	6, 18, 24, 44
	See 3 A above	
D	*Tabellaria flocculosa* (Roth.) Kützing	6, 13, 18, 44
	Length 12-60µ Breadth 5-16µ See the remarks for the sp. *fenestrata*, the same could apply.	

Plate 3 *Diatoma*

Figure	Species/Text	Locations
E	*Diatoma vulgare* Bory	1, 14, 19, 24, 29, 44
	Length 30-60µ Breadth 10-13µ Stria 6-8 in 10µ Sec. Stria ±16 in 10µ and generally faint. The form is fairly common in the district and on one occasion a practically pure gathering was taken from the Coventry Canal near to Spring Wood. The stone and aquatic plants being heavily coated.	
F	*Diatoma vulgare* var. *producta* Grunow	1, 10, 12, 14, 29
G	*Diatoma vulgare* var. *ovalis* (Fricke) Hustedt	14
H	*Diatoma vulgare* Bory	1, 14, 19, 24, 29, 44
	See 3 E.	
J	*Diatoma vulgare* var. *grandis* (W.Smith) Grunow	10
K	*Diatoma elongatum* Agardh	1, 2, 3, 8, 11, 12, 14, 16, 19, 26, 29, 31, 33, 42, 45, 52
L	*Diatoma elongatum* var. *tenuis* (Agardh) Kützing	14
M	*Diatoma elongatum* var. *minor* Grunow	14, 19
N	*Diatoma anceps* (Ehrenberg) Grunow	1, 6, 52
O	*Diatoma anceps* (Ehrenberg) Grunow	1, 6, 52
P	*Diatoma anceps* (Ehrenberg) Grunow	1, 6, 52
Not figured	*Diatoma elongatum var. capitata*	44

Plate 3

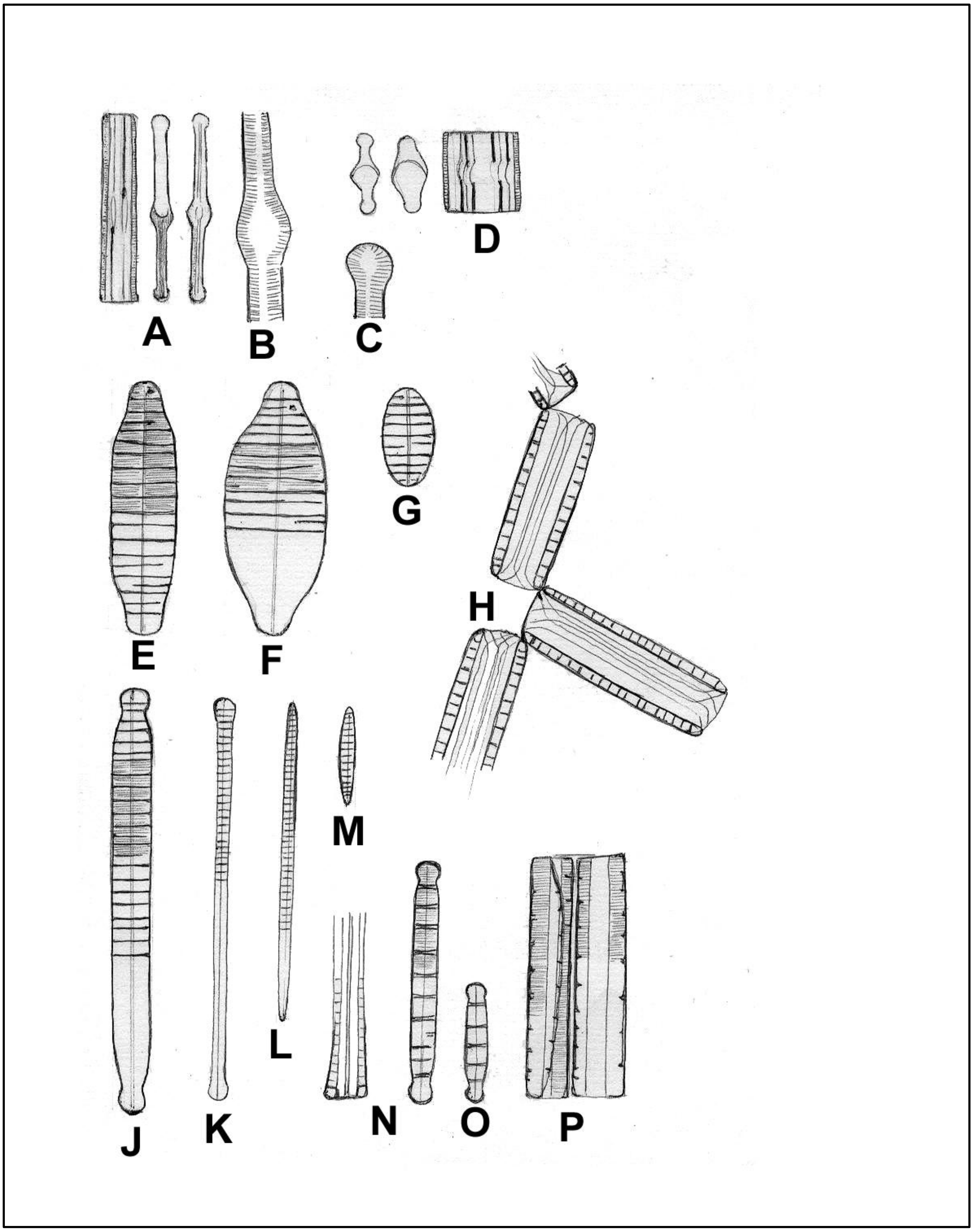


Plate 4 *Meridion*

Figure	Species/Text	Locations
A	*Meridion circulare* Agardh	1, 5, 6, 7, 12, 15, 16, 25, 26, 27, 28, 29, 30, 52
	Length 12-80µ Breadth 4-8µ Septa 3-5 in 10µ Stria 15 in 10µ (site 25 contains sporangial forms) This cosmopolitan plant is well represented in the district and during the early spring in field ditches can be found in full bloom and often coating rotting leaves etc., a rich dark brown. It is particularly prevalent where there are numbers of old Oak leaves. Uncleaned gatherings will often, in March/April, reveal more than complete circles of frustules.	
B	*Meridion circulare* Agardh	1, 5, 6, 7, 12, 15, 16, 25, 26, 27, 28, 29, 30, 52
	See 4 A	
C	*Meridion circulare* Agardh	1, 5, 6, 7, 12, 15, 16, 25, 26, 27, 28, 29, 30, 52
	See 4 A	
D	*Meridion circulare* var. *constricta* (Ralfs) vanHeurck	25, 28, 33
	The variety *constricta* is often found with the type.	
D1	*Meridion circulare* var. *constricta* (Ralfs) vanHeurck	25, 28, 33
	The variety *constricta* is often found with the type.	

Plate 4 *Ceratoneis*

Figure	Species/Text	Locations
To be sketched	*Ceratoneis arcus* (Ehrenberg) Kützing	1

Plate 4 *Opephora*

Figure	Species/Text	Locations
E	*Opephora Martyi* (Heribaud)	3, 24
	Length 5-60µ Breadth 4-8µ Stria 6-8 in 10µ Present in the district but not as frequent as expected.	

Plate 4 *Fragilaria*

Figure	Species/Text	Locations
F	*Fragilaria capucina* Desmazières	8, 9, 10, 12, 19
	Length 25-100µ Breadth 2-5µ Stria 15 in 10µ The genus is quite common in the district. For identification purposes is best done when in the uncleaned state when the frustules are in long bands. This avoids being confused with the various *Synedras*.	
G	*Fragilaria capucina* var. *mesolepta* (Rabenhorst) Grunow	1, 6, 8, 12
H	*Fragilaria construens* (Ehrenberg) Grunow	1, 3, 9
J	*Fragilaria construens* var. *binodis* (Ehrenberg) Grunow	6, 9, 18
K	*Fragilaria construens* var. *center* (Ehrenberg) Grunow	3, 9, 12, 18, 24, 29
L	*Fragilaria crotonensis* Kitton	1, 3, 19, 24
	This form seems to be very frail in this area. See 861 Sutton Park for good forms.	
M	*Fragilaria brevistriata* Grunow	3
	Length 12-16µ Breadth 3-5µ Stria 13-17 in 10µ	

Plate 4 *Fragilaria* (continued)

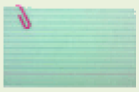
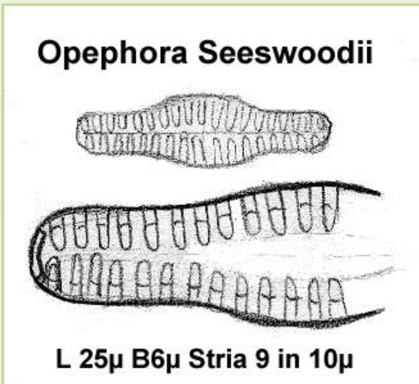
Figure	Species/Text	Locations
N	*Fragilaria Harrisonii* W.Smith	12, 24
	Length 15-40µ Breadth 10-16µ Stria 6-8 in 10µ The most prolific site for the plant to date appears to be Seeswood Pool where the type and its varieties are reasonably common. This one habitat after seeing a fair number in the district is rather surprising. Of course it could be coincidence and this factor cannot be ruled out.	
O	*Fragilaria Harrisonii* var. *rhomboides* Grunow	12
P	*Fragilaria harrisonii* var. *dubia* Grunow	12
R	*Fragilaria harrisonii* var. *dubia* Grunow	12
S	*Fragilaria pinnata* var. *lancettula* (Schumann) Hustedt	3
	Present in the quarry at Hartshill Green	
T?	*Fragilaria leptostauron* (Ehrenberg) Hustedt	44
	See Harrisonii	
T?	*Fragilaria Leptostauron* var. *dubia* (Grunow) Hustedt	12
U	*Fragilaria Harrisonii* var. *"Seeswoodii"* Mihi	12
	See small note book of the district or slide 893. There are a number of forms present and could possibly be auxospores of, say, *dubia* but the frequency of occurrence rather rules this out. It must not be overlooked that the form may be an *Opephora*. Dimensions: Length 25µ Breadth 6µ Stria 9 in 10µ  893 Seeswood  I wonder if this is a auxospore, the only one formed (No! 2 or 3 more found) I do not think the form is *Frag. Harrisonii* fa.	
V	*Fragilaria intermedia* Grunow	1, 2, 3, 6, 12, 16, 19
W	*Fragilaria pinnata* Ehrenberg	24
Y	*Fragilaria virescens* var. *elliptica* Hustedt	18

Plate 4 *Asterionella*

Figure	Species/Text	Locations
S?	*Asterionella formosa* Hassall	1, 3, 11, 19, 28
	Length 40-130µ Breadth 1-2µ Strai 25-28 in 10µ The form is present in the larger pools and the illustration is rather on the large size being too stout in the width, but this is done to facilitate sketching.	
X	*Asterionella gracillima* (Hantzsch) Heiberg	1

Plate 4

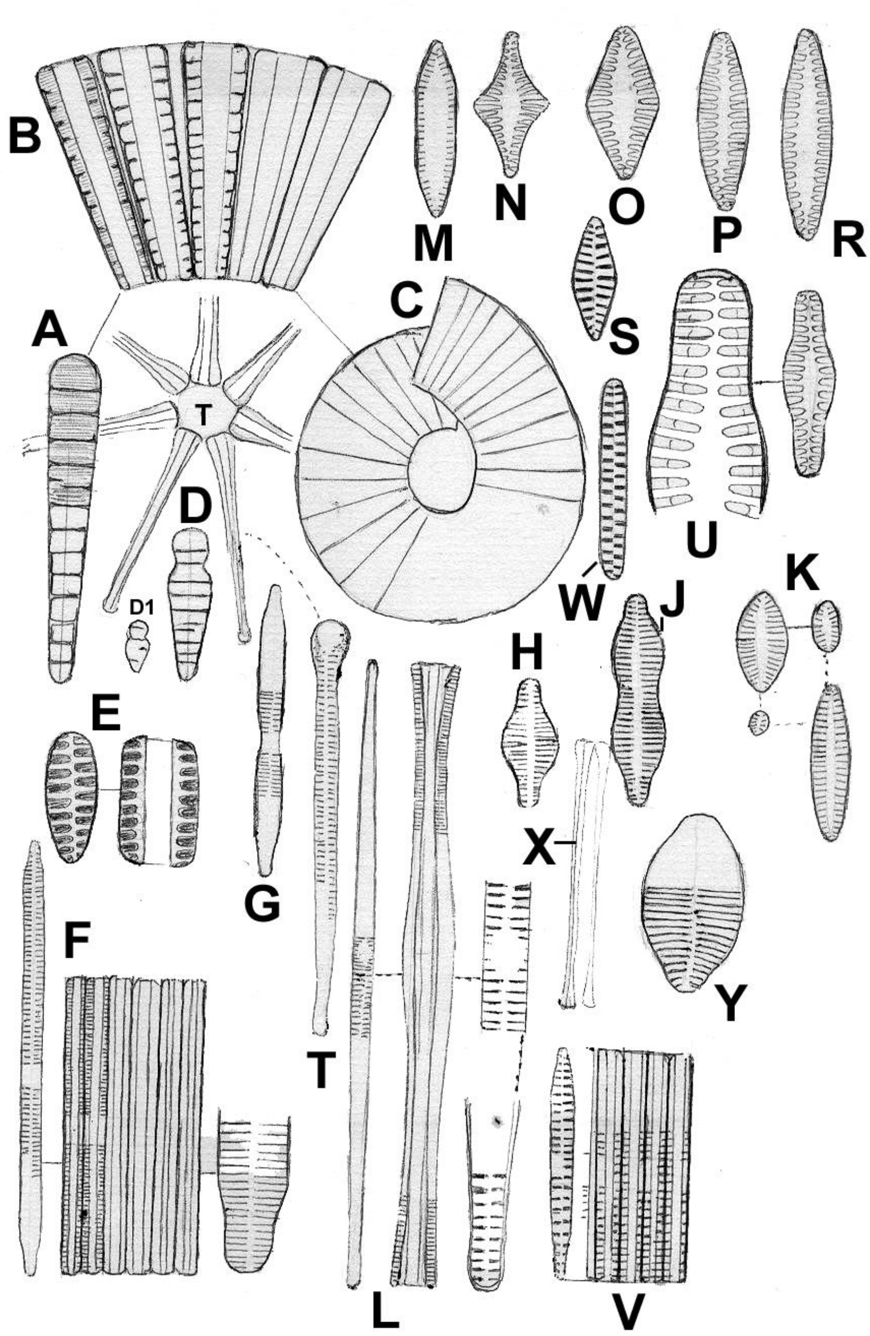


Plate 5 *Synedra*

Figure	Species/Text	Locations
A	*Synedra ulna* (Nitzsch) Ehrenberg	1, 2, 3, 5, 6, 9, 10, 11, 12, 14, 16, 18, 19, 26, 27, 29, 48, 50
	Length 50-350µ Breadth 5-9µ Stria 6-12 in 10µ Generally 10 in 10µ. The type *ulna* is quite common in the area. Also many of the varieties of the type. This plant is very prolific in the early spring inhabiting slow streams, ditches and larger slow moving waters, as well as pools. All materials are best examined prior to cleaning so as to aid identification.	
Not figured	*Synedra ulna* var. *spathulifera* Grunow	44
C	*Syndera ulna* var. *oxyrhynchus* (Kützing) vanHeurck	5, 11, 14
D	*Synedra minuscula* Grunow	5, 19
E	*Synedra vaucheria* Kützing	7, 18, 19, 29, 33, 42
E	?*Synedra vaucheria* var. *truncata* (Greville) Grunow	12, 44
F	*Syndera ulna* var. *oxyrhynchus* fa. *contracta* Hustedt	9
	Synedra ulna var. *impressa* Hustedt	14
G	*Synedra ulna* var. *Danica* (Kützing) Grunow	1, 2, 3, 5, 9, 10, 19, 24, 26
H	*Synedra acus* Kützing	1, 2, 3, 6, 16
J	*Synedra acus* var. *radians* (Kützing) Hustedt	3
K	*Synedra affinis* Kützing	1, 3, 5, 11, 12, 26, 27, 29, 45
	Synedra acus var. *delicatissima* (W.Smith) Grunow	42
L	*Synedra cyclopum* Brutzschy	10
	This is the first time I have recorded this form in the area and is also the first time I have seem same in 25 years – Rather rare in Riversley Park Pool.	
M	*Synedra pulchella* var. *minuta* Hustedt	12
N	*Synedra pulchella* fa. *constricta* Hustedt	14
O	*Synedra pulchella* Kützing	1, 16, 24, 45
Not figured	*Synedra pulchella* var. *lanceolata* O'Meara	No location cited
Not figured	*Synedra amphicephala* Kützing	13, 27
P	*Synedra parasitica* var. *subconstricta* (Grunow) Hustedt	19, 23, 29
Q	*Synedra rumpens* Kützing	14, 16, 25, 26, 44
R	*Synedra rumpens* var. *fragilaroides* Grunow	14, 29
S	*Synedra parasitica* (W.Smith) Hustedt	1, 19, 29
T	*Synedra ulna* (Nitzsch.) Ehrenberg	19
U	*Synedra ulna* (Nitzsch.) Ehrenberg	40
	Appendix to forms 5T, 5U *Synedra ulna* var. '*pseudo-oxyrhynchus*' Mancetter Mill Slide 1090 Slide 1090 is practically all *Synedra ulna and* some of its varieties. All the plants are very robust and I have noted previously *ulna* grows most prolific here. I presume from the water of the Sewage Works higher up the river. The forms depicted are notably short and very wide. The stria are 10-11 in 10µ which is too coarse from *oxyrhynchus* and although there is a gentle narrowing in the centre of some, certainly not as for 'fa. c*ompressa*' whose stria are quoted as 8-12 in 10µ, hence the tag '*pseudo-oxyrhnchus*'. Neither can the form be equated with *Fragilaria aequalis*.	
V	*Synedra pulchella* Kützing	45

Plate 5

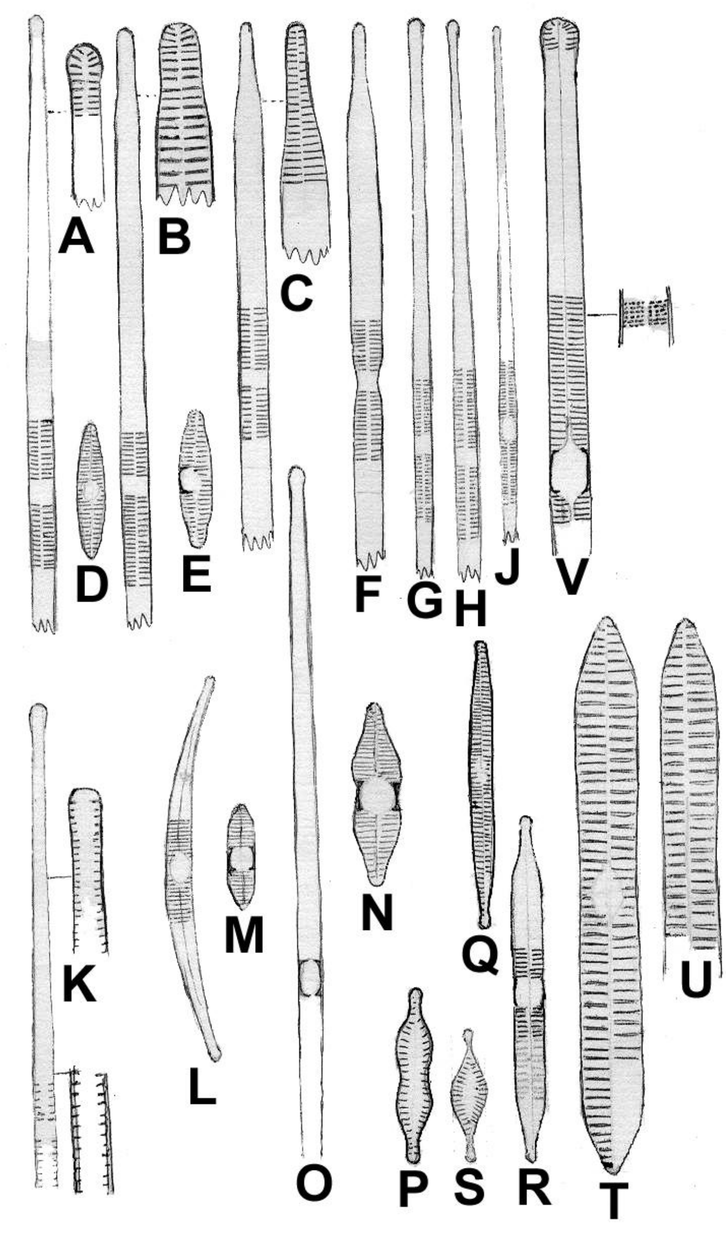


Plate 6 *Eunotia* – Ehrenberg

The genus *Eunotia* is not well represented in the area, possibly due to the neutral or alkaline conditions generally. It is noticeable the small alpine area Yardley Cottage and Oldbury Reservoir etc. have given the most diverse forms yet found.

Figure	Species/Text	Locations
A	*Eunotia* ~~*alpina* (Naeg.) Hustedt~~ *Naegelii* Migula var. *Naegelii*	1, 6, 9, 27
	Length 40-130µ Breadth 1-5-2.5µ Stria 15/20 in 10µ	
B	*Eunotia arcus* Ehrenberg	18
	Length 25-70µ Breadth 3-9µ Stria 12/14 in 10µ	
C	*Eunotia tenella* (Grunow) Hustedt	3, 4
	Length 6-27µ Breadth 3µ Stria 16-20 in 10µ	
D	*Eunotia pectinalis* (Kützing) Rabenhorst	16
E	*Eunotia pectinalis* var. *minor* (Kützing) Rabenhorst	6, 16, 18, 19, 20, 28
	Length 40-140µ Breadth 5-10µ Stria 7-12 in 10µ	
F	*Eunotia exigua* (Brébisson) Grunow	3, 18, 19, 44
	Length 8-67µ Breadth 2-3µ Stria 20-24 in 10µ	
G	*Eunotia lunaris* (Ehrenberg) Grunow	1, 3, 6, 9, 16, 18, 19, 26, 31, 33
	Length 20-150µ Breadth 3-4µ Stria 15-17 in 10µ	
H	*Eunotia Kocheliensis* O.Mull.	6
	Length 11-18µ Breadth 6µ Stria 10 in 10µ	
J	*Eunotia formica* Ehrenberg	1
	Length 11-18µ Breadth 7-13µ Stria 8-11 in 10µ	
K	*Euntotia lunaris* var. *subarcuata* (Naeg.) Grunow	8, 9, 19, 26, 31
L	*Eunotia valida* Hustedt	1
	Length 30-150µ Breadth 3.5-7.5µ Stria 11/15 in 10µ	
Not figured	*Eunotia formica* var. *ventralis*	1
M	*Eunotia praerupta* var. *inflata* Grunow	20
	Length 30µ Breadth 10µ Stria 8 in 10µ	

Plate 6

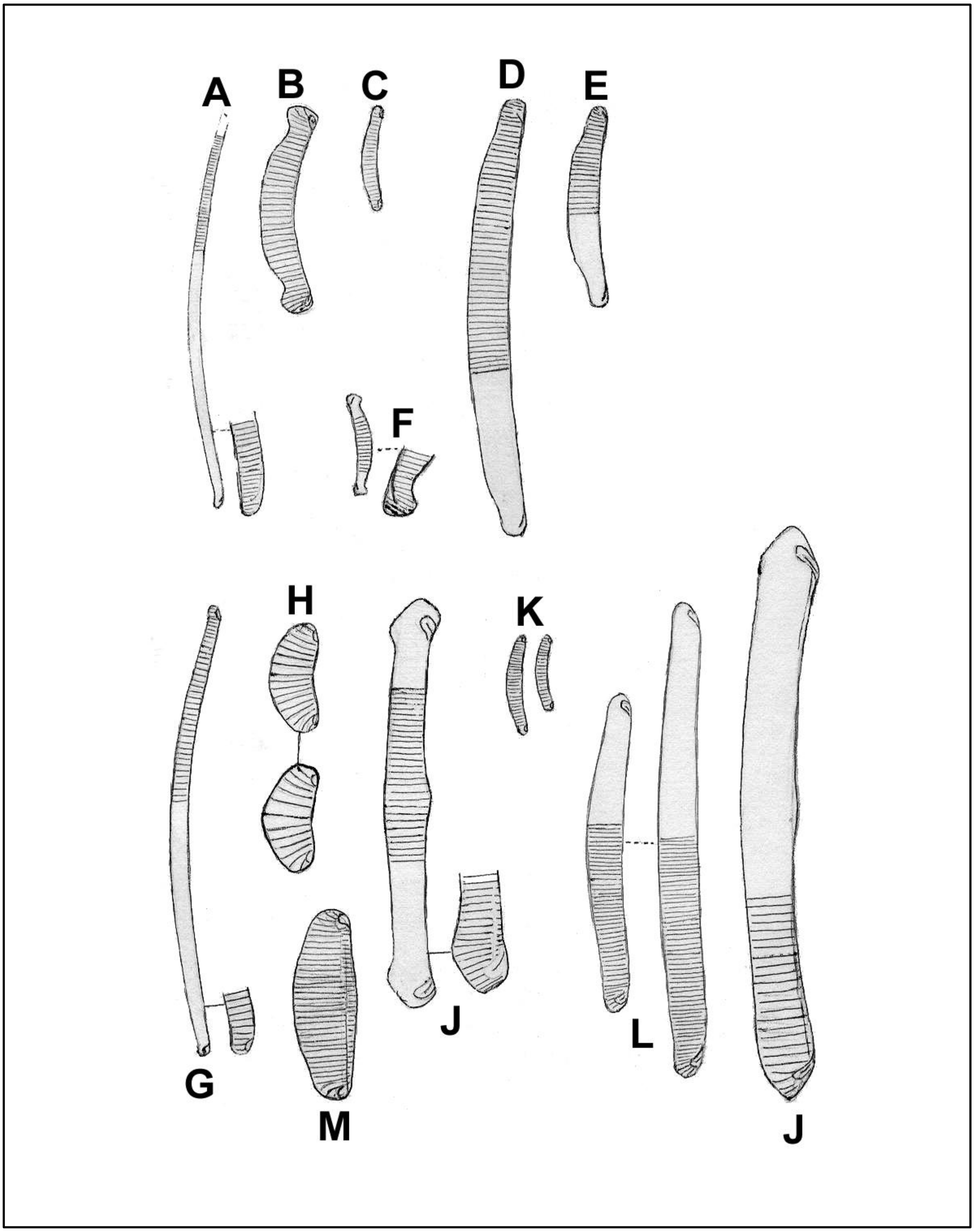


Plate 6[1] *Eunotia* - Ehrenberg (continued)

Figure	Species/Text	Locations
A	*Eunotia gracilis* (Ehrenberg) Rabenhorst	1, 9
B	*Eunotia pectinalis* var. *ventralis* (Ehrenberg) Hustedt	1, 19
C	*Eunotia praerupta* Ehrenberg	No location cited
D	*Eunotia arcus* var. *fallax* Hustedt	2, 18
	Length 22µ Breadth 4µ Stria 12 in 10µ	
E	*Eunotia pectinalis* var. *undulata* (Ralfs) Rabenhorst	24

Plate 6[1]

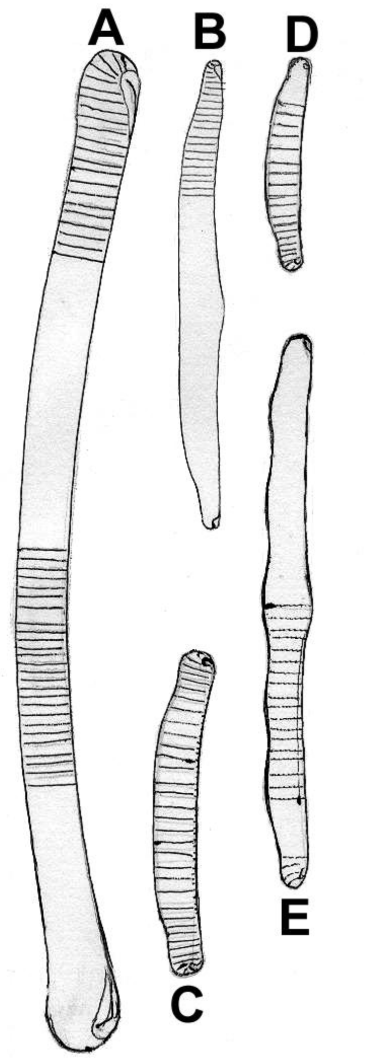
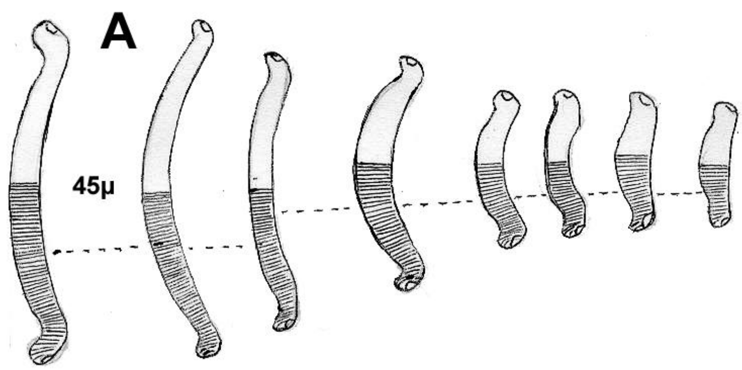


Plate 6[2] *Eunotia* - Ehrenberg (continued)

Figure	Species/Text	Locations
A	*Eunotia exigua* (Brébisson) Rabenhorst	44

Plate 6[2]



Eunotia exigua (Breb) Rabenhorst : shewing variation in Growth taken from pure gathering

Plate 7 *Cocconeis* (Ehrenberg) Hustedt

Figure	Species/Text	Locations
A	*Cocconeis placentula* Ehrenberg	1, 3, 4, 5, 6, 8, 9, 12, 13, 16, 18, 19, 26, 29, 44, 48
	Length 11-70µ Breadth 8-40µ Stria 23 in 10µ	
B	*Cocconeis placentula* Ehrenberg	1, 3, 4, 5, 6, 8, 9, 12, 13, 16, 18, 19, 26, 29, 44, 48
	Length 11-70µ Breadth 8-40µ Stria 23 in 10µ	
C	*Cocconeis placentula* var. *euglypta* (Ehrenberg) Cleve	3, 9, 11, 12, 19, 26, 27, 48
	Stria 19 in 10µ	
D	*Cocconeis placentula* var. *lineata* (Ehrenberg) P.Cleve	9
E	*Cocconeis pediculus* Ehrenberg	2, 11, 12, 13, 18
	Length 15-56µ Breadth 10-37µ Stria 16-18 in 10µ and 18-20 in 10µ	
F	*Cocconeis thumensis* A.Maver	3, 48
	Length 10µ Breadth 5-6µ Stria 15/16 in 10µ	
G	*Cocconeis placentula* var. *Rouxii* (Brun et Ehrenberg) Cleve	9, 26

Plate 7

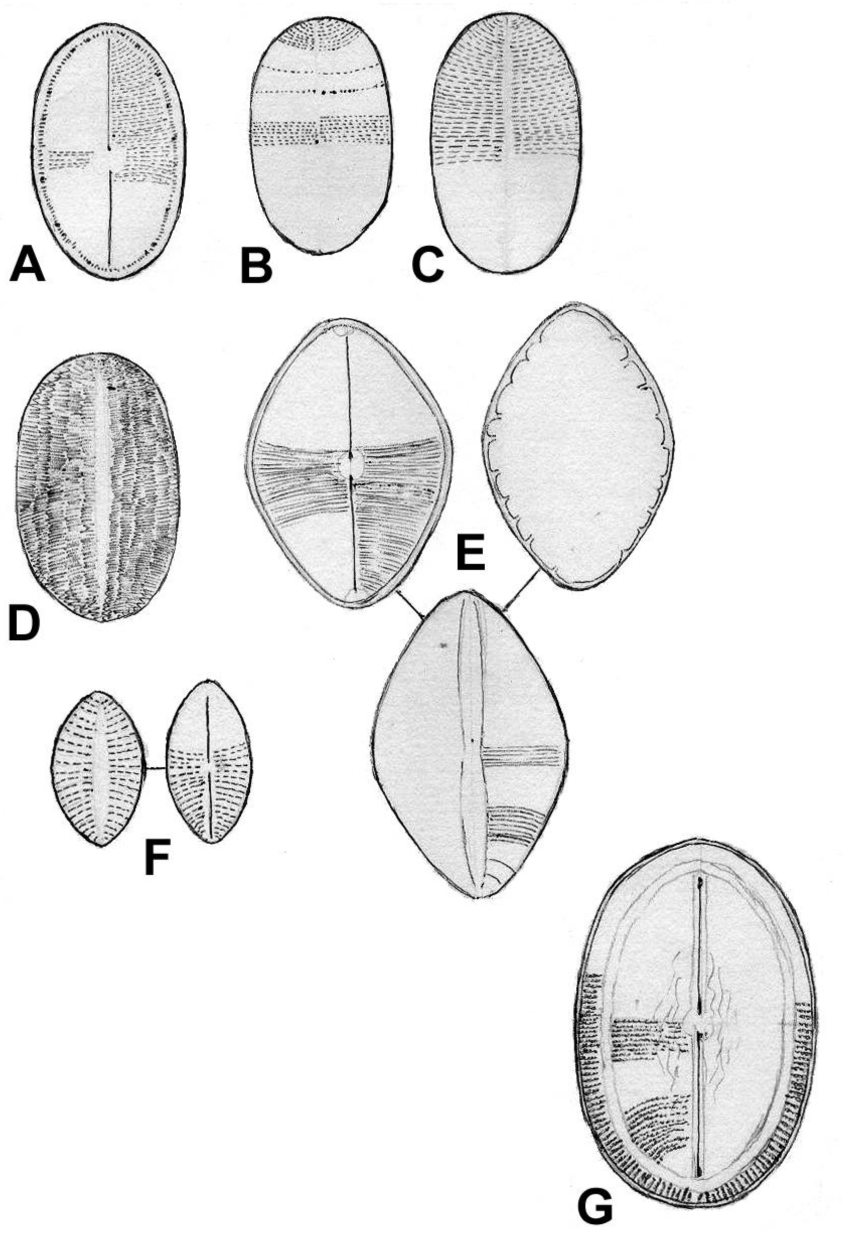


Plate 8 *Achnanthes* - Bory

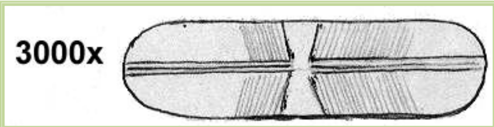
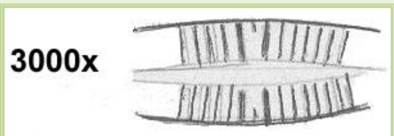
Figure	Species/Text	Locations
A	*Achnanthes andicola* (Cleve) Hustedt	8
B	*Achnanthes affinis* Grunow	2, 5, 6, 12, 13, 19, 26, 27, 31, 42, 45, 48
C	*Achnanthes “arburyi”* Mihi	12
D	*Achnanthes exilis* Kützing	1, 4, 6, 8
E	*Achnanthes exigua* var. *heterovalva* Krasske	8, 24
F	*Achnanthes lanceolata* Brébisson	3, 5, 6, 7, 10, 12, 13, 16, 17, 18, 19, 25, 26, 27, 28, 30, 31, 42, 45, 48, 50, 51
G	*Achnanthes lanceolata* var. *bimaculata* Hustedt	5
J	*Achnanthes lanceolata* var. *elliptica* “fa. *J*”	16, 42, 48
K	*Achnanthes Hungarica* Grunow	1, 3, 6, 9, 16, 26
K[1]	*Achnanthes Hungarica* Grunow	No location cited
M	*Achnanthes japonica* Kobayasi	3, 24
N	*Achnanthes conspicua* var. *brevistrata* Hustedt	2, 3
O	*Achnanthes coarctata* DeBreb.	4, 25
P	*Achnanthes brevipes* var. *parvula* (Kützing) Cleve	No location cited
S	*Achnanthes “hyalinus”* Mihi	16
	Appendix to form 8 S. *Achnanthes “hyalinus”* Synonymous with J. R. Carters *Achnanthes “parallela”*. The form is rather scarce on slide 848 “1 Reed Spring Wood”, Hartshill or Caldecote to be correct. Length 10µ Breadth 3µ Stria not discernable to me at present but Carter says “about 35 in 10µ”. Also the genus is *Achnanthes* and not *Stauroneis* as I had thought, for he says “can only see one raphe and the two valves are slightly different”.  The form IS difficult to resolve and I would not rule out the possibility of the form as a *Stauroneis*.	
T	*Achnanthes conspicua*?	2
	Appendix to form 8 T *Achnanthes conspicua* Hustedt This form is from Slide 751, a burned mount from the Corporation Quarry, Mancetter Road. Length 20µ Breadth 5µ Stria count approximately 15 in 10µ The form is not isolated on the slide, therefore many more. This is one of the larger ones. Outline linear-lanceolate with broad rounded ends. Axial area lanceolate or only slightly, so stria shew very little increase to ends. Stria gently radiate. Note the 4 central stria, all more pronounced than the rest and the “stauros” in the centre is broken by a small short stria.  I have no record yet of the major side.	
U	*Achnanthes Peragalli* Peter	24
V	*Achnanthes japonica* Kobayasi	24
Not figured	*Achnanthes flexella* (Kützing) Brun	3
Not figured	*Achnanthes brevipes* Agardh	No location cited
Not figured	*Achnanthes brevipes* var. *parvula* (Kützing) Cleve	4

Plate 8 *Achnanthes* - Bory (continued)

Figure	Species/Text	Locations
Not figured	Achnanthes “pseudo affinis”	44[2]
Not figured	*Achnanthes lanceola*ta var. *rostrata* Hustedt	5, 12, 19, 25, 29
Not figured	*Achnanthes lanceolata* var. *elliptica* Cleve	19, 25, 26
Not figured	*Achnanthes lanceolata* var. *elliptica* “fa. *H*” Mihi	16
Not figured	*Achnanthes lanceolata* var. *elliptica* “fa. *W*” Mihi	16
Not figured	*Achnanthes lanceolata* var. *elliptica* fa. *ventricosa*	16
Not figured	*Achnanthes lanceolata* var. *elliptica* “fa.”	No location cited
Not figured	*Achnanthes brevipes* C.Agardh	No location cited

Plate 8

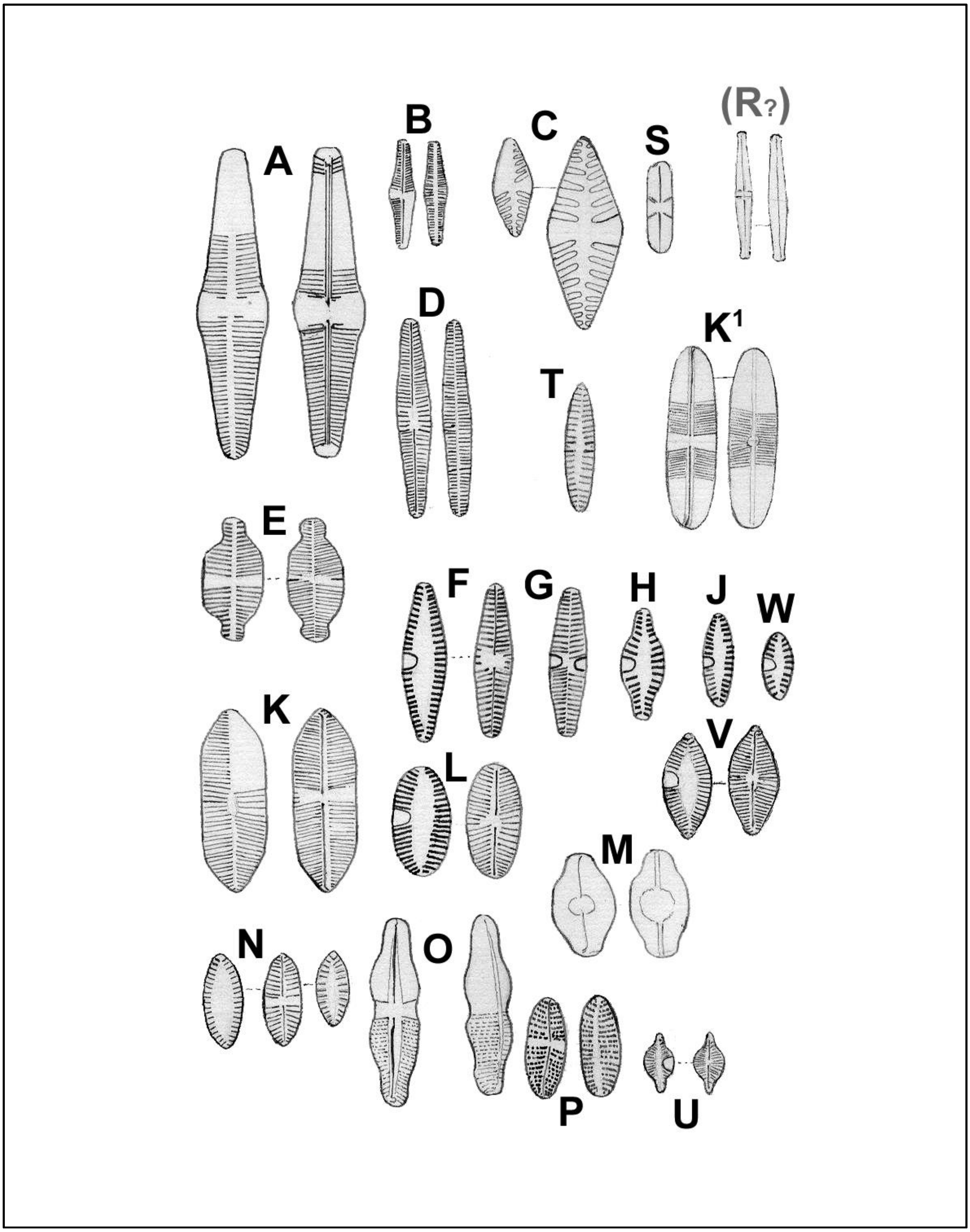


Plate 8^1 *Achnanthes* (continued)

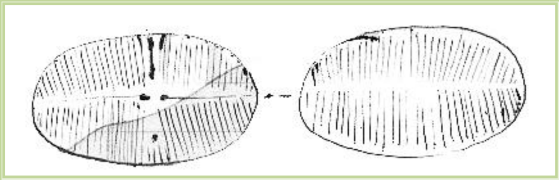
Figure	Species/Text	Locations
A	*Achnanthes "Suttonia"* Mihi	24
	See *Navicula* Appendix to form 8^1 A *Achnanthes "Suttonia"* Slide 950 ~~This small round form L10 Breadth 6 Stria 30 in 10μ is I feel an *Achnanthes* and is depicted as well as I am able to see. Drawn to a larger scale the features seem to be:~~  ~~I am not too sure of the puncta in the major valve, whether detritus or not!, but the opposing single stria is much more prominent than the rest.~~ Note late – The form COULD be a very small *N. roteana*.	
B	*Achnanthes plonensis* Hustedt	23
	Appendix to form 8^1 B *Achnanthes Plonensis* Slide 1115 Sheepy Light Length 15μ Breadth 6μ Stria at centre ± 15 in 10μ and features as sketched.	
C	*Achnanthes ~~"tiddlei"~~ N. dismissa* Hustedt	23
	See 1294, 1405 Appendix to form 8^1 C ~~*Achnanthes "tiddlei"*~~ *Navicula devissima* Hustedt Sheepy Mill Race. Slide 1122 Length 9μ Breadth 4μ Stria 15-20? In 10μ	
D	*Achnanthes kryophila* J.B.Petersen	24
E	*Achnanthes taeniata* Grunow	55
	(1282) Appendix to form 81 E *Achnanthes taeneata* Frog Pond Slide 1282 	
Not figured	*Achnathes Haukiana* Grunow	48
Not figured	*Achnanthes minutissima* var. *cryptocephala* Grunow	16, 42

Plate 8[1]

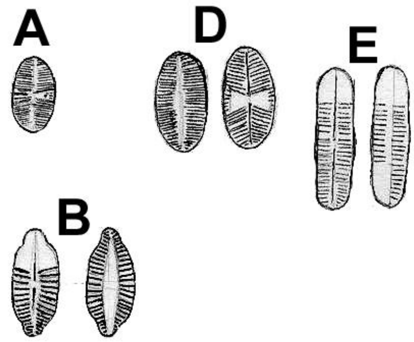


Plate 9 *Rhoicosphenia* - Grunow

Figure	Species/Text	Locations
A	*Rhoicosphenia curvata* (Kützing) Grunow	1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 24, 26, 29, 30, 50, 52
B	*Rhoicosphenia curvata* (Kützing) Grunow	1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 24, 26, 29, 30, 50, 52
	Between the forms 9A and 9B one can find those of all the intermediate sizes. Some waters will produce very nice large, robust and others down to the smaller varieties. The plant, as enumerated, is found all over the district and practically all types of waters, ditches, ponds, large pools, etc.	

Plate 9

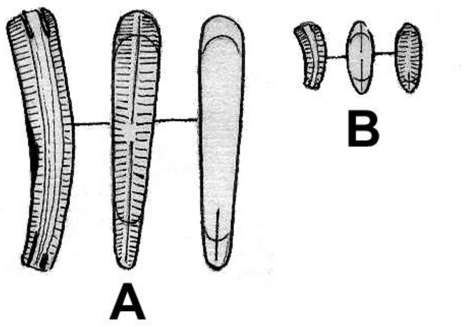


Plate 9^1 *Mastogloia*

Figure	Species/Text	Locations
A	*Mastogloia elliptica* var. *danseii* (Thwaites) Grunow	45
	Appendix to form 9^1A Croft Road Brickpit Slide 1145 *M. elliptica* var. *danseii* is quite common on this site and to date 1967 is the only one noted. A particular feature is that the classic description says – “Stria radial throughout”. Many of the Croft Road forms are divergent at the ends, possibly a habitat feature.	

Plate 9[1]

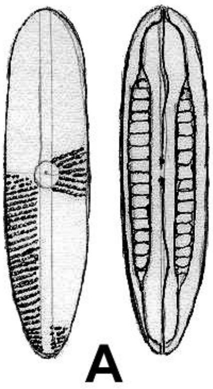


Plate 10 *Amphipleura* - Kützing

Figure	Species/Text	Locations
A	*Amphipleura pellucida* Kützing	1, 3, 42, 44
H	*Amphipleura pellucida* fa. *"obtusa"*	24
	Appendix to form 10 H Slide 846 Sutton Weir Length 57µ Breadth 9µ Rather an obtuse form hence my "*obtusa*".	
J	*Amphipleura rutilans* (Trentepohl ex Roth) Cleve	19, 50

Plate 10 *Frustulia* – Agardh

Figure	Species/Text	Locations
B	*Frustulia vulgaris* Thwaites	1, 3, 4, 5, 7, 12, 15, 16, 17, 19, 24, 25, 26, 28, 29, 33, 42, 45, 48
C	*Frustulia vulgaris* Thwaites	1, 3, 4, 5, 7, 12, 15, 16, 17, 19, 24, 25, 26, 28, 29, 33, 42, 45, 48
	Frustulia vulgaris var. *capitata* Krasske	15
D	*Frustulia rhomboides* (Ehrenberg) DeToni	13
	Appendix to *Frustulia* forms 10 B, C, D *vulgaris* which is reasonably frequent is recognised by the slightly radial stria at centre viz. 10 *C. saxonica* is generally rhomboid in outline. Both forms need high grade equipment to resolve the stria.	
Not figured	*Frustulia rhomboides* var. *saxonica* (Rabenhorst) DeToni	13

Plate 10 *Gyrosigma* – Hassall

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">E</td><td>Gyrosigma Kützingii (Grunow) Cleve</td><td>1, 2, 5, 7, 11, 12, 15, 19, 52</td></tr>
<tr><td colspan="2">Appendix to Gyrosigma 10 E, F, G
The Gyrosigma of the district are generally accuminatum, attenuatum, Kützingii and are apt to be rather confusing to the newcomer of the study. Briefly the points are as follows:
<table>
<tr><th></th><th>attenuatum</th><th>accuminatum</th><th>Kützingii</th></tr>
<tr><td>Length</td><td>150-240µ</td><td>100-200µ</td><td>80-120µ</td></tr>
<tr><td>Breadth</td><td>23-26µ</td><td>15-20µ</td><td>12-15µ</td></tr>
<tr><td>Long Stria</td><td>*10-12 in 10µ</td><td>*18 in 10µ</td><td>24-26 in 10µ</td></tr>
<tr><td>Cross Stria</td><td>14-16 in 10µ</td><td>18 in 10µ</td><td>20-23 in 10µ
*In this form the central stria are slightly radiate.</td></tr>
</table>
*These then are the quick recognition features.</td></tr>
<tr><td>F</td><td>Gyrosigma accuminatum (Kützing) Rabenhorst</td><td>1, 2, 16, 19, 28</td></tr>
<tr><td>G</td><td>Gyrosigma attenuatum (Kützing) Rabenhorst</td><td>3, 5, 13, 18, 19, 26, 50</td></tr>
<tr><td>Not figured</td><td>Gyrosigma strigia</td><td>29</td></tr>
<tr><td>Not figured</td><td>Gyrosigma Spenceri var. nodulifera</td><td>19</td></tr>
</table>

Plate 10

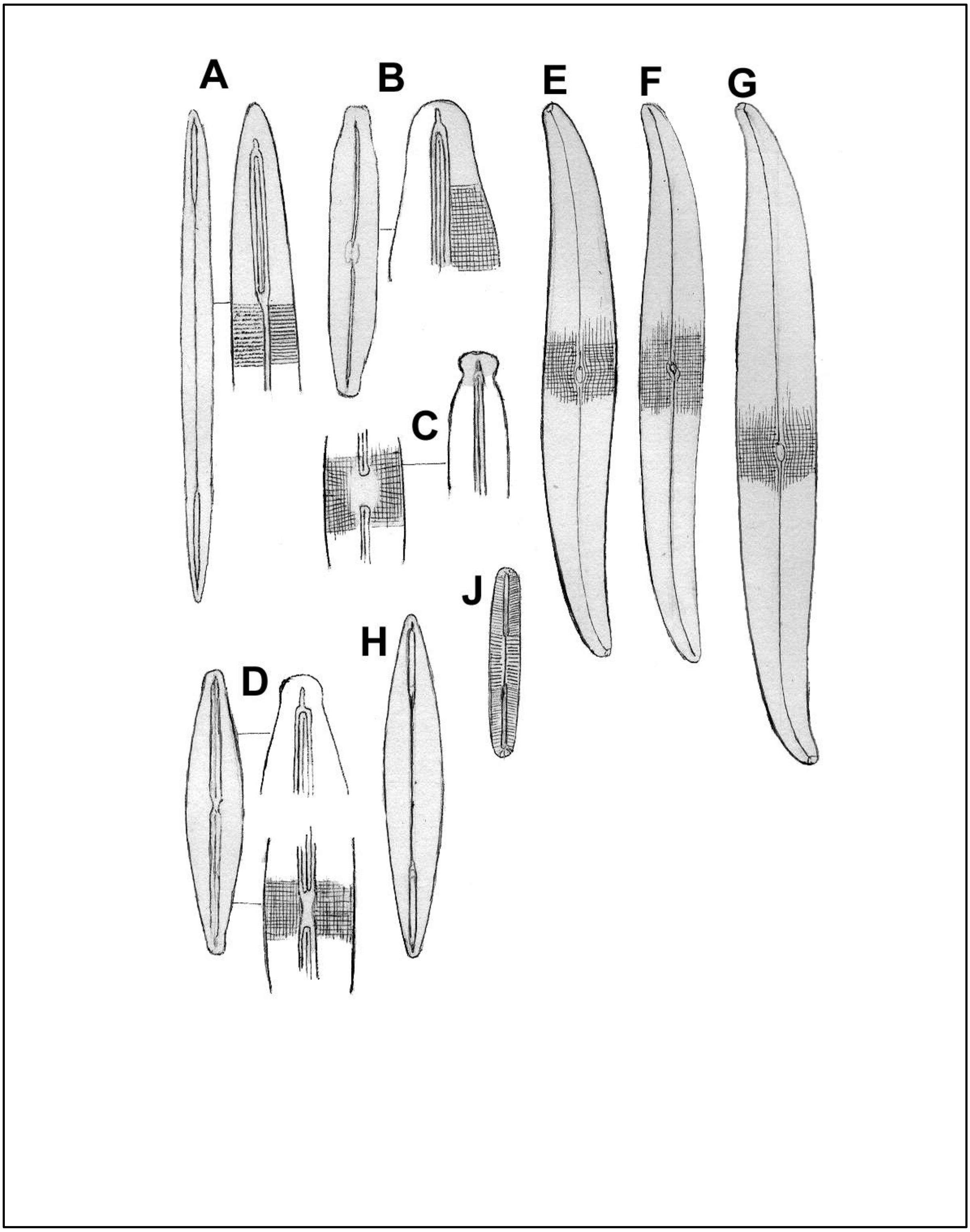


Plate 11 *Caloneis* – Cleve

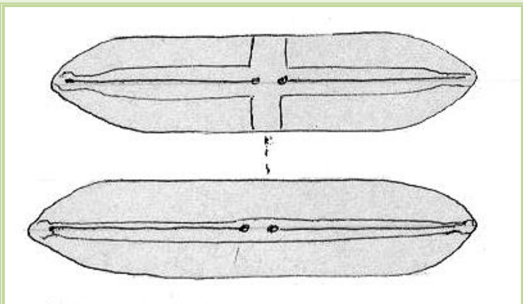
Figure	Species/Text	Locations
A	*Caloneis amphisbaena* (Bory) Cleve	2, 7, 10, 11, 12, 15, 19, 24, 26, 29, 44, 45
	Appendix to form 11 A Croft Road Brick Pit Slide 1145 *Caloneis amphisbaena* is present but is not very capitate. There is a tendency to be just rostrate, rather like *subsalina*, the brackish water counterpart! – possibly due to the unusual habitat here.	
B	*Caloneis bacillum* (Grunow) Mereschkovsky	5, 7, 12, 16, 19, 28
C	*Caloneis bacillum* (Grunow) Mereschkovsky	5, 7, 12, 16, 19, 28
D	*Caloneis ventricosa* var. *peisonis* Hustedt	1
E	*Caloneis bacillum* (Grunow) Mereschkovsky	5, 7, 12, 16, 19, 28
F	*Caloneis ~~silicula~~ ventricosa* (Ehrenberg) Cleve	1, 3, 5, 7, 9, 11, 16, 17, 18, 19, 29, 42, 44
G	*Caloneis ventricosa* var. *gibberula* (Kützing) Grunow	1, 12
	Appendix to form 11 G Seeswood Pool Slide 894 The dimensions of this form are Length 20µ Breadth 4½µ Stria 22 in 10µ and is about the low limit quoted by Hustedt. This form has the wide central area also the long gap in the stria.	
H	*Caloneis ventricosa* var. *tumida* Hustedt	1
J	*Caloneis Schumanniana* (*truchus*) (Grunow) Cleve var. *linearis*	1
K	*Caloneis Schumanniana* var. *biconstricta* Grunow	1, 2
L	*Caloneis ventricosa* var. *truncatula* Grunow	1, 7, 8, 9, 12, 16, 19, 20, 26, 29
	Appendix to forms 11 L, M *Caloneis silicula* var. *truncatula* On the Astley Castle Pool Slide No.832 contains a plant, so:-  These of course are the A and B sides of Hustedt's figures 364A and 364B. When seen separate can give rise to some confusion – the feature is quite common also in the genus *Pinnularia* – notably *viridis*.	
M	*Caloneis ventricosa* var. *truncatula* Grunow	1, 7, 8, 9, 12, 16, 19, 20, 26, 29
N	*Caloneis bacillum* var. *lancettula* (Schul.) Hustedt	12
O	*Caloneis Schummaniana* var. *"major"*	23
	Appendix to form 11 O *Caloneis Schumanniana* var. *"major"* Length 110µ Breadth 15µ Stria 16 in 10µ I have my doubts of this form being an auxospore of *Schumanniana* – BUT there is no deformity, so I wonder!	

Plate 11 *Caloneis* – Cleve (continued)

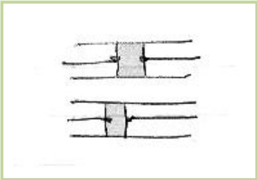
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>P</td><td>Caloneis “hyalina”</td><td>24</td></tr>
<tr><td></td><td colspan="2">Appendix to form 11 P
Caloneis “hyalina”
Slide 951
Sutton
Length 34µ Width 7µ Stria ? Very fine
I am fairly sure a Caloneis by the general appearance but COULD be mistaken! The frustules is complete and on focussing thro’ the stauros on the one side is not opposite the other!

The axial area is very narrow in this form.</td></tr>
<tr><td>Q</td><td>Caloneis bacillum (Grunow) Mereschkovsky</td><td>5, 7, 12, 16, 19, 28</td></tr>
</table>

Plate 11

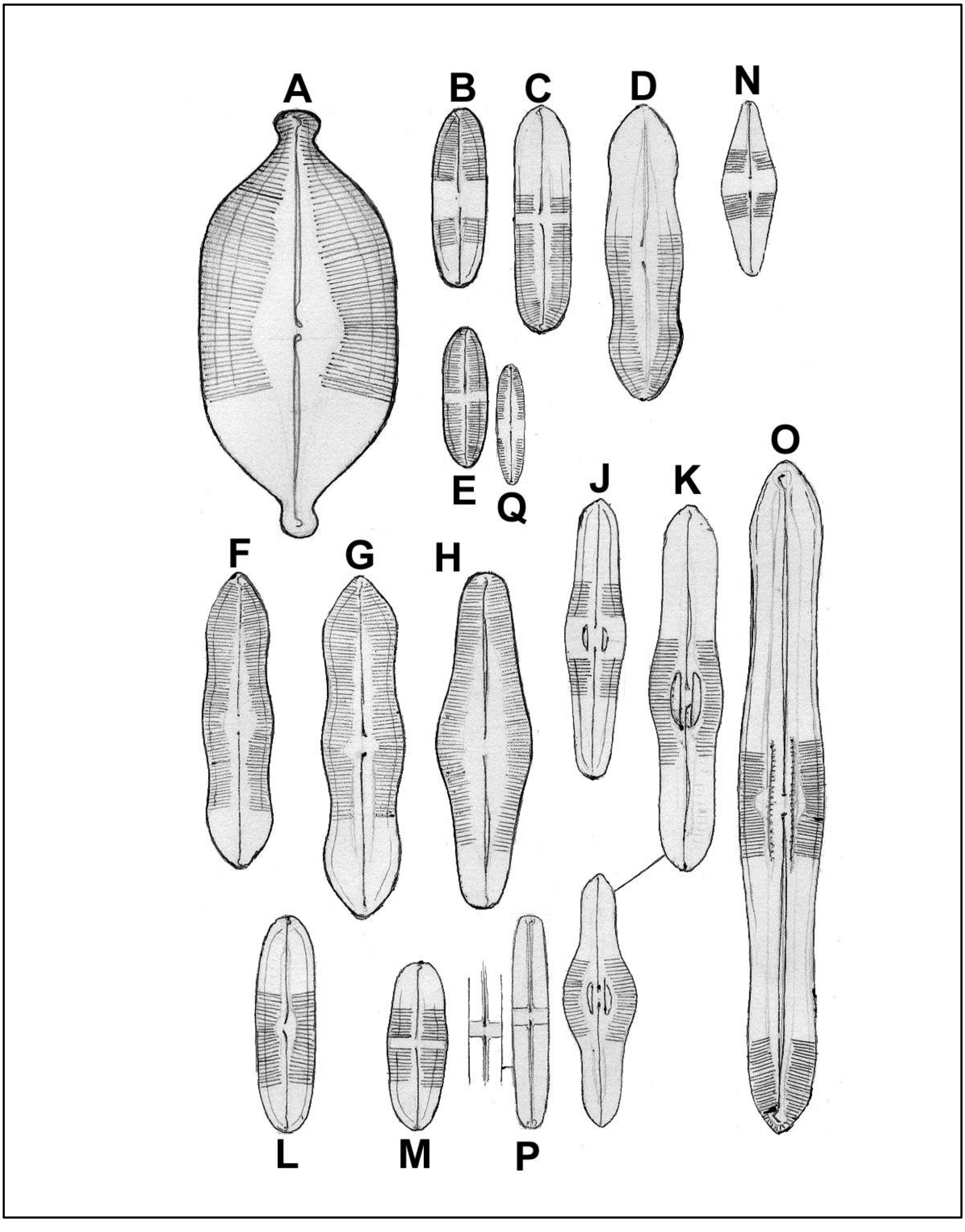


Plate 12 *Neidium*

Figure	Species/Text	Locations
E	*Neidium affine* var. *amphirhynchus* (Ehrenberg) Cleve	1, 5, 7, 8, 10, 17, 18, 24
L	*Neidium capitatum* McCall	1, 5, 7, 15
M	*Neidium affine* (Ehrenberg) Pfizer	24
S	*Neidium affine* var. *amphirhynchus* (Ehrenberg) Cleve	No location cited
T	*Neidium affine* var. *amphirhynchus* (Ehrenberg) Cleve	18, 48

Plate 12

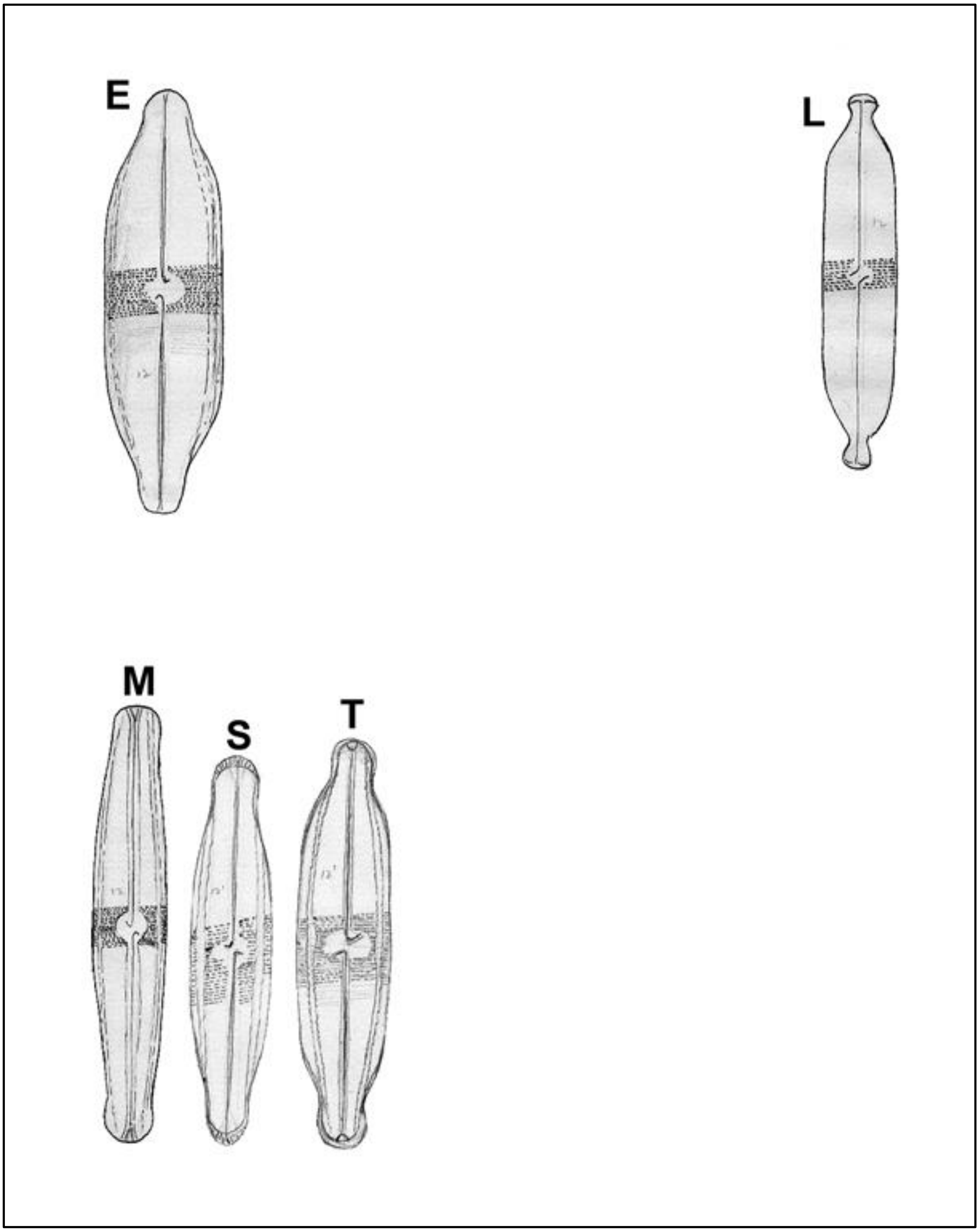


Plate 12^{1} *Neidium* (continued)

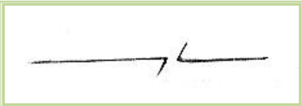
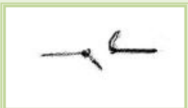
Figure	Species/Text	Locations
F	*Neidium iridis* fa. *maxima* (Cleve) Hustedt	17
G	*Neidium iridis* (Ehrenberg) Cleve	1, 9, 18
O	*Neidium iridis* "fa. *Suttonia*" Mihi	24
	Appendix to form 12^{1} O *Neidium "Suttonii"* Slide 951 Sutton Park Length 75µ Breadth 25µ Stria 15 in 10µ I think this is of the *viridis* group but there is one point which constitutes a problem to me. i.e. the raphe type.  And this is not to my way of thinking a *viridis* raphe! Later (1969) – The form *Neidium dilatatum* fig. 1167 of A.Cleve-Euler fits reasonably well!	
P	*Neidium iridis* "fa. *Suttonia*" Mihi	24
	Appendix to form 12^{1} P *Neidium "Suttonii"* Slide 951 A variation on form "O". Note the construction of the stria. It is possible the constricted form is a New forma!	
D	*Neidium iridis* var. *amphigomphus* (Ehrenberg) Tempere et Peragallo	1, 10, 19, 44
Q	*Neidium iridis* var. *amphigomphus* (Ehrenberg) Tempere et Peragallo	26, 18
	Appendix to 12^{1} Q. *Neidium iridis* var. *amphigomphus* (Ehrenberg) HVH. Slide 1053 River Avon. This is as near to Hustedt's *amphigomphus* as is possible to get. I do notice, though, he shews raphe hooks as:-  whereas these are:-  in the River Avon form.	

Plate 12[1]

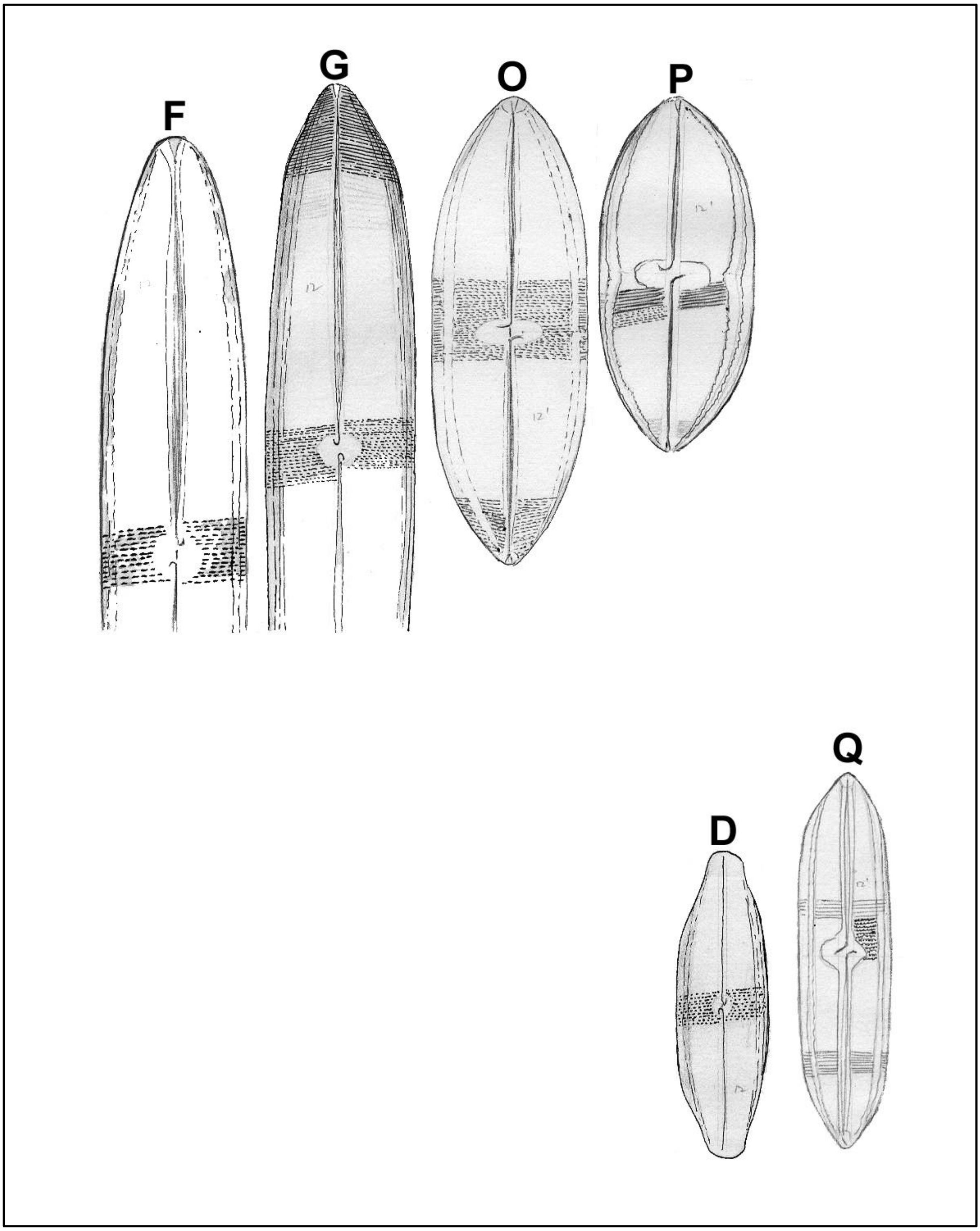


Plate 12^2 *Neidium* (continued)

Figure	Species/Text	Locations
R	*Neidium Koslowi* var. *parva* Mereschkovsky	19
N	*Neidium “sylvaticum”* J.R.Carter	16
	Appendix to form 12^2 N *Neidium “sylvaticum”* Valve, oval-lanceolate, ends rounded about 25μ long and 5μ wide. Rhaphe straight with terminal hooks turned nearly at right angles. End fissures probably bifid – longitudinal space narrow and slightly lanceolate to the centre. Central space large and circular reaching nearly to the margin. Stria radiate at the centre and towards the ends parallel. 25 in 10μ somewhat obscurely punctuate. Longitudinal line not very obvious, marginal. Spring Wood. 1 reed – Caldecote JRC says:- I do not see this form as part of *bisulcatum* because of the radiation of the stria, which is far too strong and the large size of the central space – further the stria do not break up into such definite stria as *bisulcatum*.	
O	*Neidium iridis* “fa. *obliqua*”	18
	Appendix to form 12^2 O Slide 1201 Oldbury Reservoir Length 67μ Breadth 15μ Stria 22 in 10μ I have an idea this is a form of *Koslowi* by virtue of the stria direction, being pronounced as for *Koslowi* but the stria are very much finer than Hustedt allows. Later – This is a form of *viridis* with very oblique stria!	
J	*Neidium bisulcatum* (Lagerstedt) Cleve	7, 24
H	*Neidium dubium* (Ehrenberg) Cleve	1, 9, 24
K	*Neidium dubium* “fa. *“apiculatum”*	24, 29
P	*Neidium dubium* fa. *constricta* Hustedt	24

Plate 12[2]

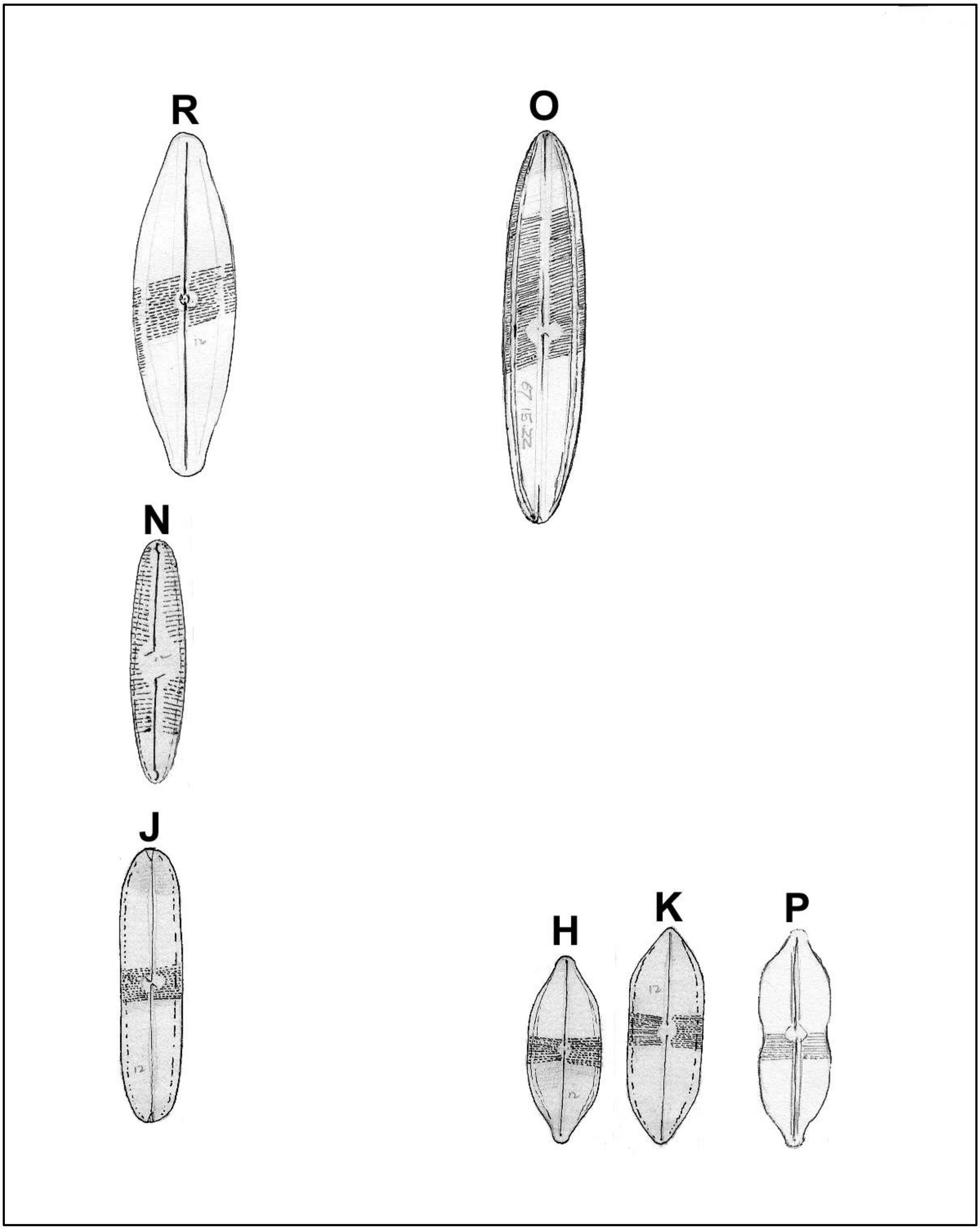


Plate 12[3] *Neidium* (continued)

Figure	Species/Text	Locations
A	*Neidium product[a][um]* "fa. *capitata*"	5, 29
B	*Neidium product[a][um]* fa. "*longiceps*"	1, 19, 26, 29
C	*Neidium product[a][um]*	1, 5, 6, 19, 29

Plate 12[3]

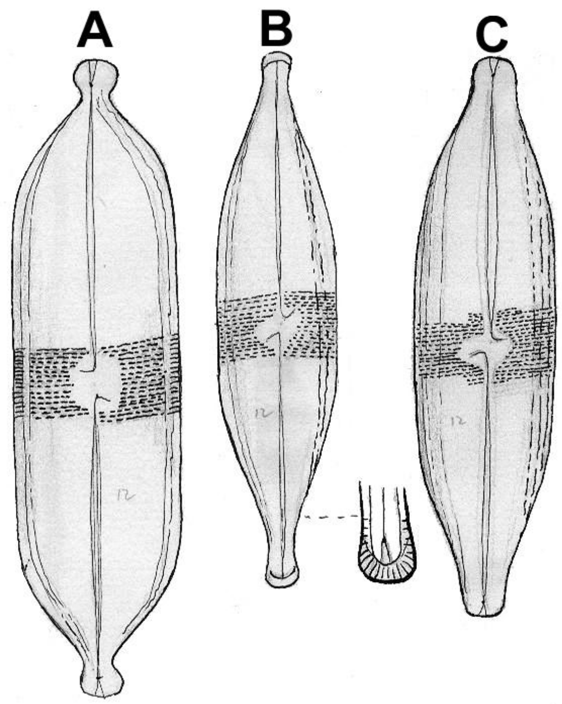


Plate 13 *Diploneis* – Ehrenberg

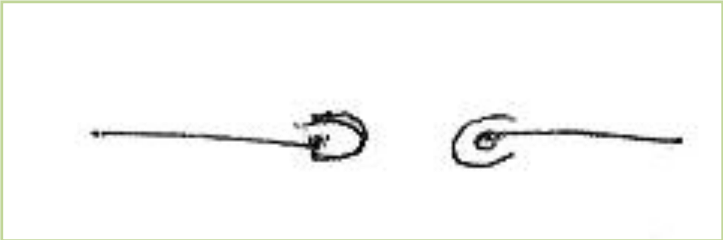
Figure	Species/Text	Locations
A	*Diploneis ovalis* (Hilse) Cleve	1, 2, 3, 12, 26, 42, 45, 48
AA	*Diploneis vacillans* (A.Schmidt) Cleve	18
C	*Diploneis Petersenii* Hustedt	24
D	*Diploneis ovalis* var. oblongella (Nägeli) Cleve	26
E	*Diploneis didyma* Ehrenberg	26, 44
	Note – not a contamination!	
F	*Diploneis oculata* (Brébisson) Cleve	24, 44
G	*Diploneis bioculata* Grunow	19
	Appendix to 13G *N(?). bioculata* Grunow Slide 880 Length 35µ Breadth 12µ Stria 28 in 10µ This form I do not consider to be *pygmaea* but is nearer *biocculata* – Notice the raphe ends for  Only present in the marine form and not in *pygmaea*.	

Plate 13

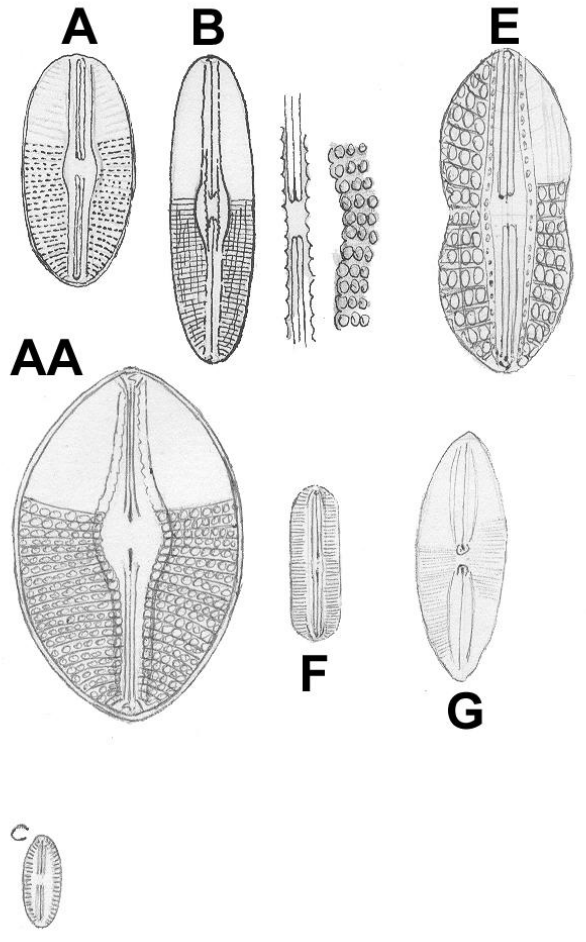


Plate 14 *Stauroneis* – Ehrenberg

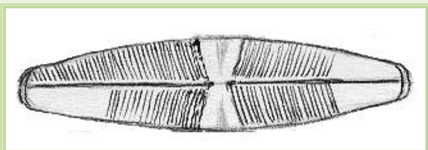
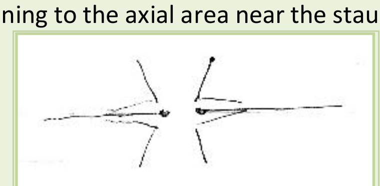
Figure	Species/Text	Locations
B	*Stauroneis acuta* W.Smith	1, 11, 18
H	*Stauroneis anceps* Ehrenberg	1, 3, 5, 7, 8, 9, 16, 18, 19, 20, 26, 27, 28, 31, 33, 42, 48
HH	*Stauroneis anceps* Ehrenberg	18
J	*Stauroneis anceps* fa. *gracilis* (Ehrenberg) Cleve	1, 19
K	*Stauroneis anceps* fa. *linearis* (Ehrenberg) Hustedt	5, 17
A	*Stauroneis phoenicentron* Ehrenberg	1, 3, 5, 7, 8, 9, 10, 16, 17, 19, 48
Q	*Stauroneis Montana*?	25, 28
	Appendix to form 14 Q *Stauroneis Montana* Slide ? Caldecote Lane Length 15µ Breadth 3-4µ Stria coarse in centre and very fine at ends. I think the nearest is *Stauroneis Montana* and falls within the description laid down by Hustedt fig. 418 M. Europe.	
C	*Stauroneis Smithii* Grunow	5, 12, 16, 19, 24, 26, 28, 29, 42, 48
CC	*Stauroneis Smithii* Grunow	5, 12, 16, 19, 24, 26, 28, 29, 42, 48
L	*Stauroneis muralla* Lund (*Stauroneis ? thermicola*)	16
F	*Staroneis gracillima* Hustedt	6, 18
O	*Stauroneis agrestis* Petersen	16, 28
E	*Stauroneis pygmeae* Krieger	6
N	*Stauroneis producta*	24, 42
	Appendix to form 14 N *Stauroneis producta* Slide 851 Sutton Park Length 25µ Breadth 8µ Stria 30+ in 10µ The nearest I can relate this form to is *Stauroneis producta*. The ends are a little broad to those figured by Hustedt in Rabenhorst 1154 etc.	
R	*Stauroneis* ~~lapponica~~ *palustris* Hustedt	9, 24
	Appendix to form 14 R *Stauroneis palustris* Hustedt Slide 1164 Length 23µ Breadth 6µ Stria 25-30 in 10µ The outline of the form is pretty well as depicted in 14 R. Stria break down to fine puncta – slightly more spaced in centre.  The central area has two thickened wedges of silica. There is a slight lanceolate opening to the axial area near the stauros. 	
P	*Stauroneis Kreigeri* fa. *undulata* Hustedt	5, 19, 24, 50

Plate 14 *Stauroneis* – Ehrenberg (continued)

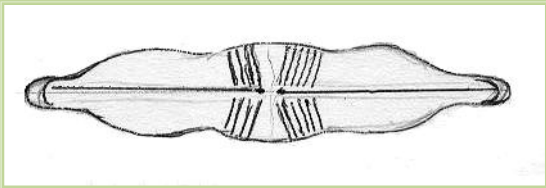
Figure	Species/Text	Locations
D	*Stauroneis legumen* (Ehrenberg) Kützing	5, 16, 48
	Appendix to form 14 D Slide 1169 (A4131 material) *Stauroneis legumen* This form I take to be *legumen* is within the dimensions but ends more produced and stria very radiate. 	
M	*Stauroneis obtusa* “fa. *rostrata*”	2
	Stria 14 in 10µ Appendix to form 14 M *Stauroneis obtusa* “fa. *rostrata*” Rare on slide 690, Mancetter Road Corporation Quarry Length 85µ Breadth 22µ Stria 13-14 in 10µ Note the form *obtusa* is 3:1 ratio (this is 4:1) 25µ to 80µ long, 5µ to 13µ Breadth, 10 to 24 stria in 10µ “*Pseudo-obtusa*” is:- Length 85µ Breadth 22µ Stria 13-14 in 10µ NO reasonable septa at end NO restriction at centre of valve So I think too remote to be included in *Stauroneis obtusa*. See Patrick and Reimer Plate 30. Fig. 8.	

Plate 14

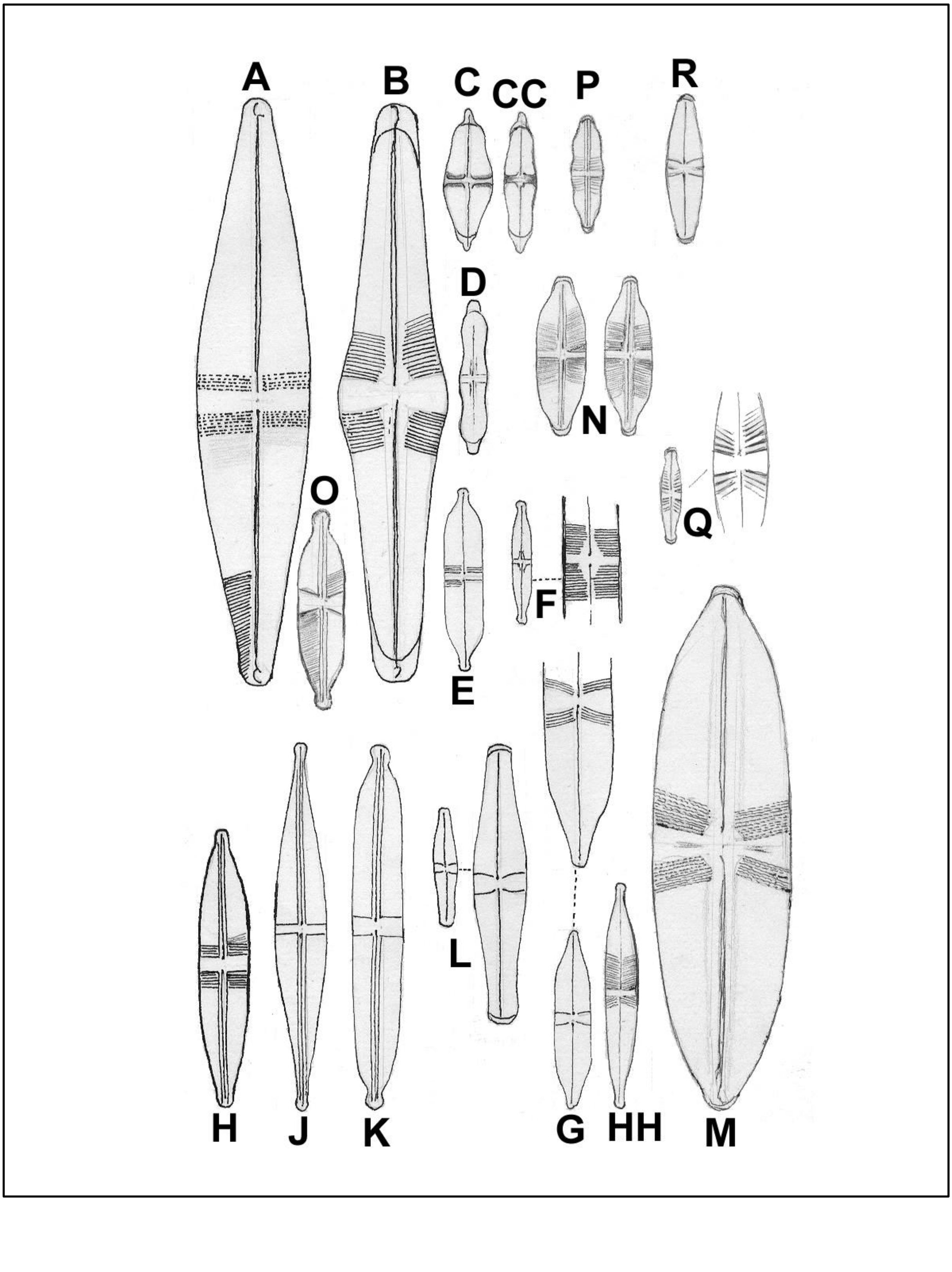


Plate 15 *Anomoeoneis* - Pfitzer

Figure	Species/Text	Locations
A	*Anomonoeoneis sphaerophora* E.Pfitzer	5, 9, 16, 18, 26
B	*Anomonoeoneis exilis* (Kützing) Cleve	2, 18, 26, 27
Not figured	*Anomonoeoneis exilis*(Kützing) Cleve	No location cited
	(not figured) Appendix to form 15 C *A. (exilis) vitrae*. The form I have called *N. aukeri* is *A. vitrae* – see remarks for 16^3U	

Plate 15

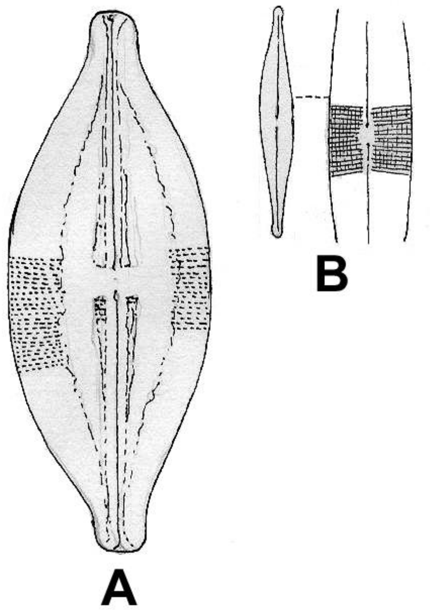


Plate 16 *Navicula* - Bory [Section *Orthostichae* (Cleve)]

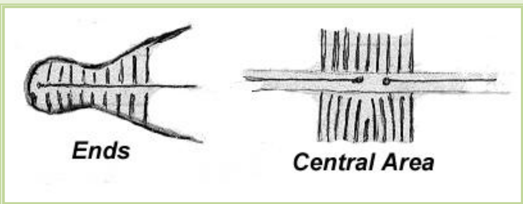
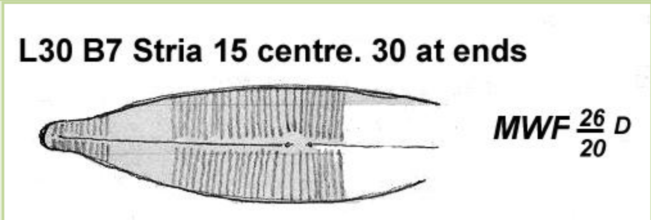
Figure	Species/Text	Locations
A	*Navicula cuspidata* Kützing	1, 2, 3, 5, 8, 9, 11, 12, 16, 19, 20, 26, 29, 44
	Appendix to forms 16 A, B, C *Cuspidata* group *Navicula cuspidata* is by far the commonest of the three forms in the district and can be easily identified. *N. ambigua* occurs with the type and can be recognised by the produced ends. *Heribaudi* is rather a rarity of the district and is easily identified by the central radial stria as against the two other allied forms.	
Not figured	*Navicula craticula* Ehrenberg	19
B	*Navicula cuspidata* var. *ambigua* (Ehrenberg) Cleve	1, 6, 8, 9, 19, 20, 26
	Appendix to forms 16 A, B, C *Cuspidata* group *Navicula cuspidata* is by far the commonest of the three forms in the district and can be easily identified. *Navicula ambigua* occurs with the type and can be recognised by the produced ends. *Heribaudi* is rather a rarity of the district and is easily identified by the central radial stria as against the two other allied forms.	
Not figured	*Navicula cuspidata* var. *ambigua* fa. *craticula*	20
C	*Navicula cuspidata* var. *Heribaudi* Peragallo	No location cited
	Appendix to forms 16 A, B, C *Cuspidata* group *Navicula cuspidata* is by far the commonest of the three forms in the district and can be easily identified. *Navicula ambigua* occurs with the type and can be recognised by the produced ends. *Heribaudi* is rather a rarity of the district and is easily identified by the central radial stria as against the two other allied forms.	
D	*Navicula halophila*?	44[2], 45
	Appendix to form 16 D *Navicula halophyla* Slide 1116 Alvecote 2 This form which is present in one or two on the slide is very near to what must be the typical form. The only difference I can note is that the central stria are slightly wider. This point is not mentioned or depicted by Hustedt in Rabenhorst Vol.3.pt.1. page 69. Fig. 1209.	
DD	*Navicula halophila* fa. *subcapitata* Østrup	18
	Appendix to 16 DD *Navicula halophila* fa. *capitata* Oestrup Length 45µ Breadth 105µ Stria faint and about 18-20 in 10µ This is the nearest I can get to this form but I question Hustedt (Middle Europe) when he says ends "Stark convergent" as I do not think so! The rest is as for the type 16D. 	

Plate 16 *Navicula* - Bory [Section *Orthostichae* (Cleve)] (continued)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">K</td><td>Navicula “halophilloides” Mihi</td><td>16</td></tr>
<tr><td colspan="2">Appendix to 16 K
Navicula “halophilloides”
See Slide 1188 – quite a number of forms.
This form is from Slide 848 Spring Wood 1 Reed and for convenience sake at present have named “halophilloides”. It is near to halophila but I cannot be sure it is within this spps. orbit.


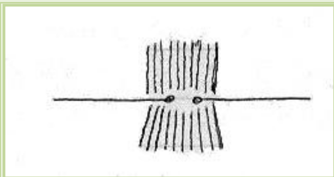
Note: The central area is small and forms a slight oval shape. Central stria wider than at ends. Central stria parallel.
Polar stria slightly radiate but very little.
Central stria are VERY slightly radiate and has to be carefully looked for. A similar form occurs Fast Stream, Bradgate Park, Leicestershire.
John Carter states he thinks a narrow form of Navicula gregaria but I say no, for these ends are too broad and not MY idea of gregaria – also I understand gregaria, the central stria are more radiate on one side than the other.

This feature in gregaria can be seen quite easy.</td></tr>
<tr><td rowspan="2">E</td><td>Navicula gregaria Donkin</td><td>1, 5, 9, 13, 16, 17, 19, 26, 28, 29, 31, 33, 44, 45, 47, 48, 50</td></tr>
<tr><td colspan="2">(see 19^5 L (Navicula cryptocephala) for comparisons of gregaria and cryptocephala)
Appendix 16 E
Navicula gregaria
This is a fairly prevalent form, very small and most active when seen in the living state. I find the most easy way to recognise is the difference in stria radiation of the central area, for one side the stria are nearly parallel and the other noticeably radiate.</td></tr>
</table>

Plate 16

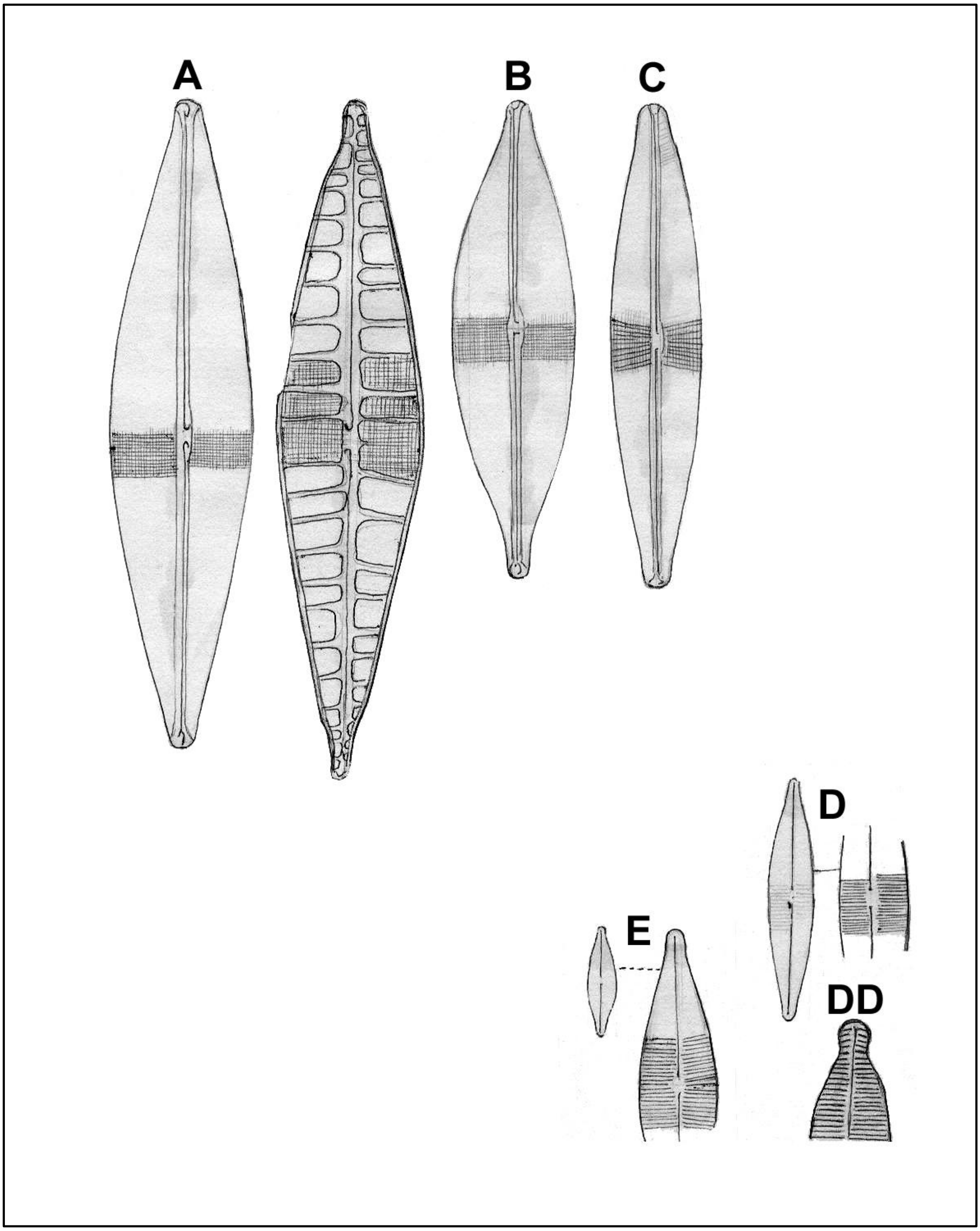


Plate 16[1]

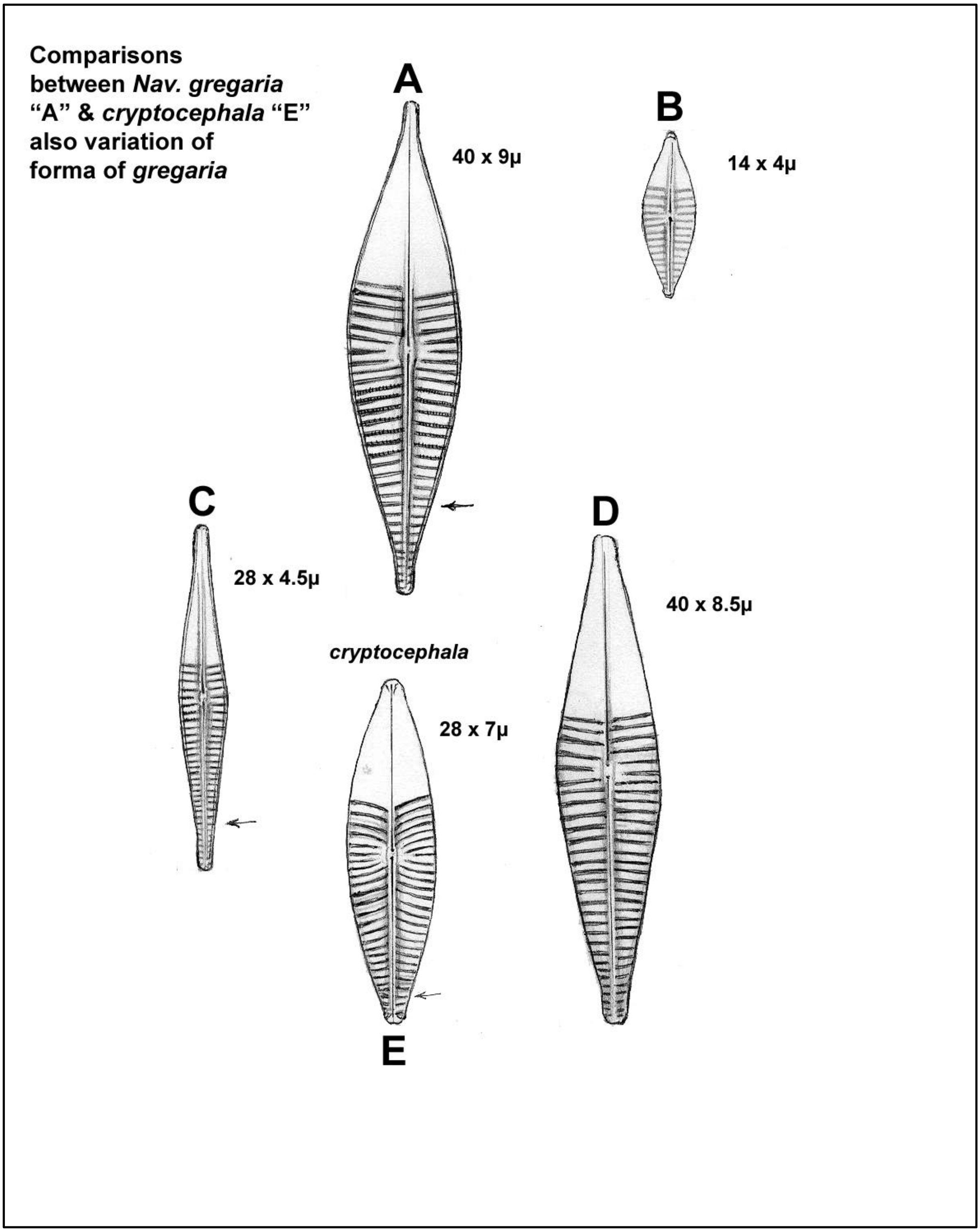

Comparisons
between *Nav. gregaria*
"A" & *cryptocephala* "E"
also variation of
forma of *gregaria*
A
40 x 9µ
B
14 x 4µ
C
28 x 4.5µ
D
40 x 8.5µ
cryptocephala
28 x 7µ
E

Plate 16² *Navicula* – Bory (continued) [Section *Mesoleiae* Cleve]

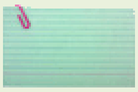
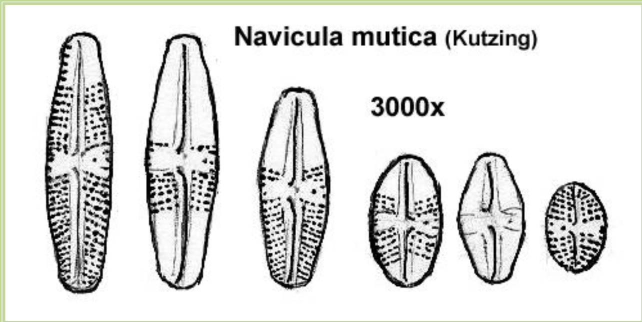
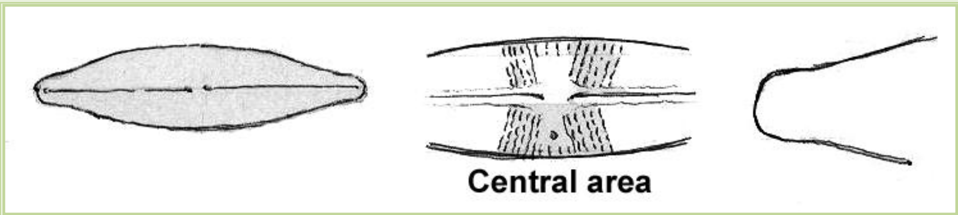
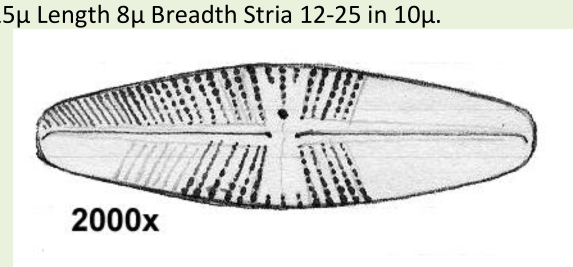
Figure	Species/Text	Locations
J	*Navicula mutica* Kützing	3, 4, 16, 25, 44
	 Water Tower Gate – Mancetter Road, Nuneaton Slide 1285 etc. See also Realgar Slide  This slide, which is practically a pure gathering or growth, depicts the form in many of its outlines also, I think, runs to "fa. *Cohnii*". As far as I am able to ascertain "fa. *Cohnii*" has a lower Length x Breadth ratio or a more obtuse form than the type *Navicula mutica*. Appendix to form 16² J *Navicula mutica* Slide 753 Length 25µ Breadth 7µ The ends of the form are figured rather too broad and are more like so:-  Some ends run to the last figure above.	
N	*Navicula mutica* Kützing	7
	Appendix to form 16² N *Navicula mutica* Jees Tarmac Plant Slide 356 Although I place this form in *Navicula mutica* at the present I am a little dubious because of the puncta pattern. It will be observed that in the form under notice the puncta decrease in size from the edge of the frustules to the raphe in a most outstanding way, also the stria increase in number per 10µ to the ends. Frustule dimensions 25µ Length 8µ Breadth Stria 12-25 in 10µ.  I would say the form is quite an attractive little form!	

Plate 16^2 *Navicula* – Bory (continued) [Section *Mesoleiae* Cleve]

Figure	Species/Text	Locations
H	*Navicula mutica* var. *capitata* Østrup	4
	Appendix to form 16^2 H *Navicula "mutica* var. *capitata"* Slide 753. See also slide 1285 (Water Tower Gate) This very small but distinctive form occurs on a small patch of concrete by the ironwork gate at the entrance to the Water Tower situated in Mancetter Road. The tiny pool of water being fed by a weep hole from the bank. For many months of the year may be completely dried out but wet Winters and Springs result in ¼inch of water. To my knowledge *mutica* is not known in the capitate form and is possibly a new variety. I DO NOT like the designation "var." and am of the opinion that many of the so called varieties of diatoms should be relegated to "forma" states as the variation is brought about by change to or unusual habitat. I do not take the pH of any habitat but I have an idea that this small site becomes very alkaline and in consequence influences the growth of the plant. The dimensions of the form "*capitata*" are Length 17µ Breadth 9µ Stria 15 in 10µ at ends.	
S	*Navicula mutica* var. *lanceolata* Frenguelli	29
A	*Navicula mutica* var. *Goppertiana* Bleisch	48
B	*Navicula mutica* fa. *Cohnii* Hilse.	16
T	*Navicula paramutica* Bock	No location cited

Plate 16²

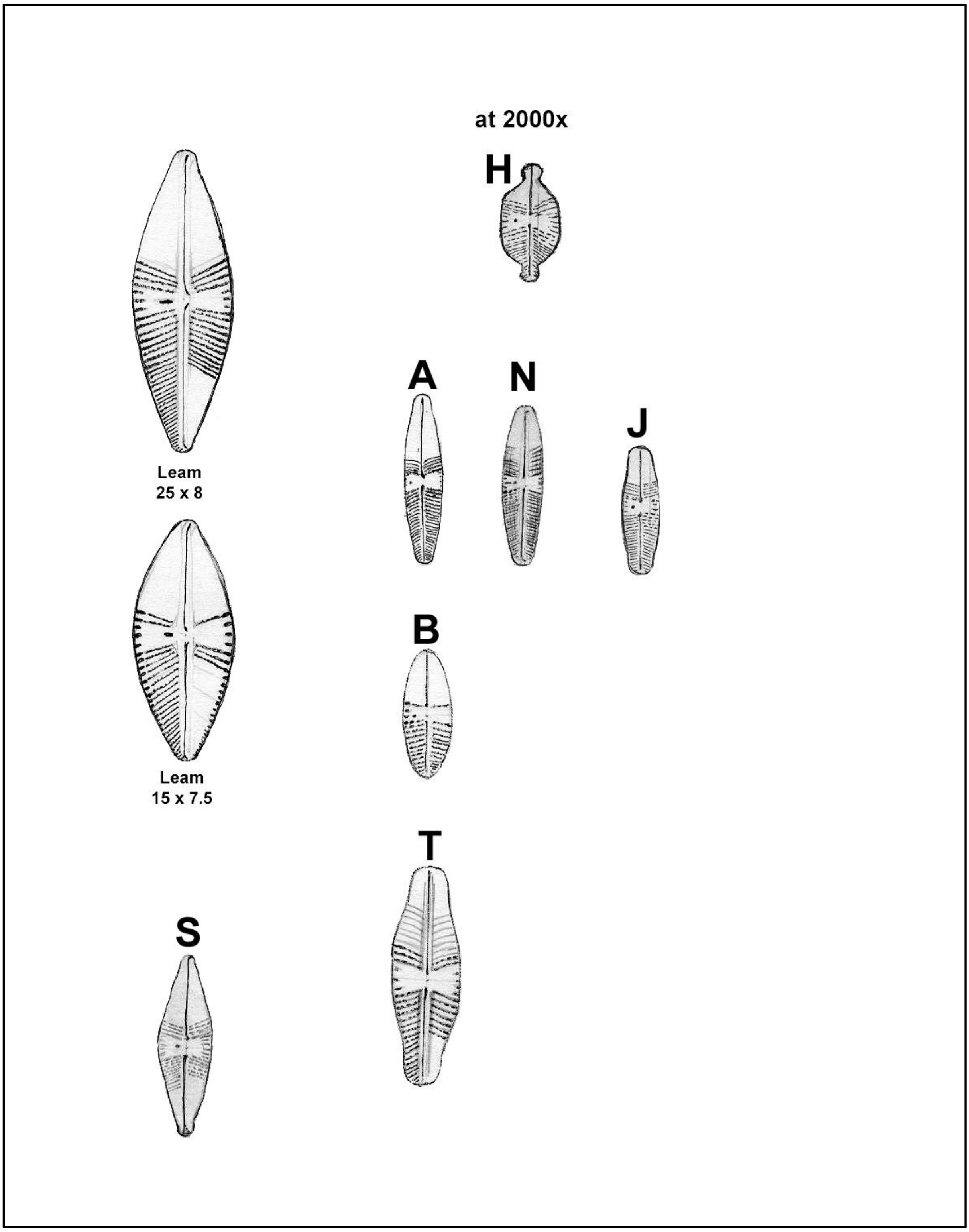


Plate 16^3 *Navicula* – Bory (continued)

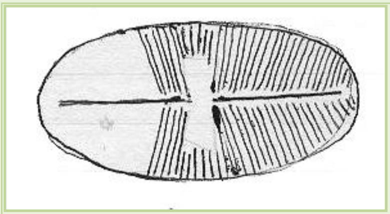
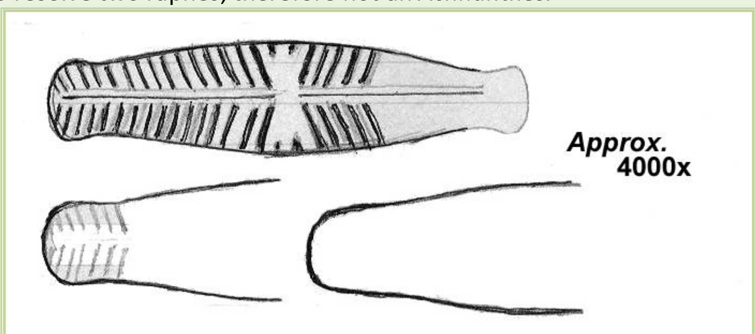
Figure	Species/Text	Locations
R	*Navicula grimmei* Krasske	24
	Appendix to 16^3 R. *Navicula grimmei*. Slide 851 Sutton Park The form falls in the size quoted for this plant and the rest of the description fits. I am fairly sure of the identification but of course with these very small forms the raphe terminals are often difficult to see and diagnose.	
T	*Navicula “Arburyi”* Mihi	31
L	*Navicula rotaena* (Rabenhorst) Grunow	24
Not figured	*Navicula Hustedtii* Krasske	31
O	*Navicula lapidosa* Krasske	24, 26
	Appendix to form 16^3 O *Navicula lapidosa* River Avon Slide 1051.  Length 11µ Breadth 6µ Stria faint and about 30 in 10µ, very radial. The form is actually a little more rhomboidal in outline than is depicted.	
P	*Navicula “Avoniana”* Mihi	26
F	*Navicula seminulum* var. *radiosa*?	1, 16
	Appendix to form 16^3F See also 1188 Very Frequent This diatom is fairly frequent on slide 848 – 1 reed Spring Wood. The form depicted (at about 4000x) measured:- Length 15µ Breadth 4µ Stria approximately 18 in 10µ (Actually as small as 10µ x3µ). The form is as depicted but there is a slight variation with the ends. I thought at first I was dealing with the genus *Achnanthes* for I could not resolve two distinct raphes but J. R. Carter assures me he was able to resolve two raphes, therefore not an *Achnanthes.*  The stria are equidistant through the valve. The 4 central ones are more robust than the rest. Note: The ends of the valves in some specimens are quite capitate but the feature is lost in the smaller forms where the outline is rostrate – this latter feature is as figured by Hustedt in Middle Europe fig. 443. The raphe of this form is usually difficult to resolve so as to shew upper and lower. Although I have recorded the form at Camphill Pool 1078 the Camphill form is difficult to resolve the stria but I think very closely related.	
G	*Navicula ”parasoides”* J.R.Carter	16
U	see *Anomoneoneis*, is *A. vitrae*	44^2

Plate 16³ *Navicula* – Bory (continued)

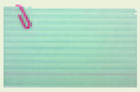
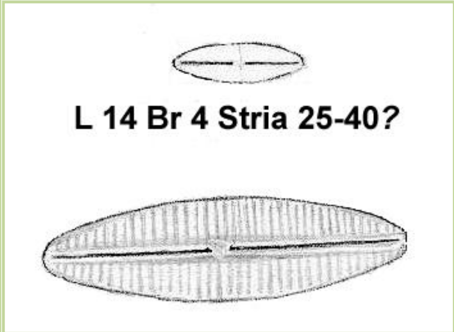
Figure	Species/Text	Locations
W	*Navicula "pseudo-sub-molesta"*	48
	 Slide 1157 Stream on A4131 (16³ W)  I have an idea that this form is of *submolesta* Hustedt Group. See 1904 fig. 1380, page 252/4 part 2. The ends of the form in question are somewhat hidden but I suspect are slight rostrate.  (an added note by J.R.Carter on the original insert – "Don't see this one!")	

Plate 16[3]

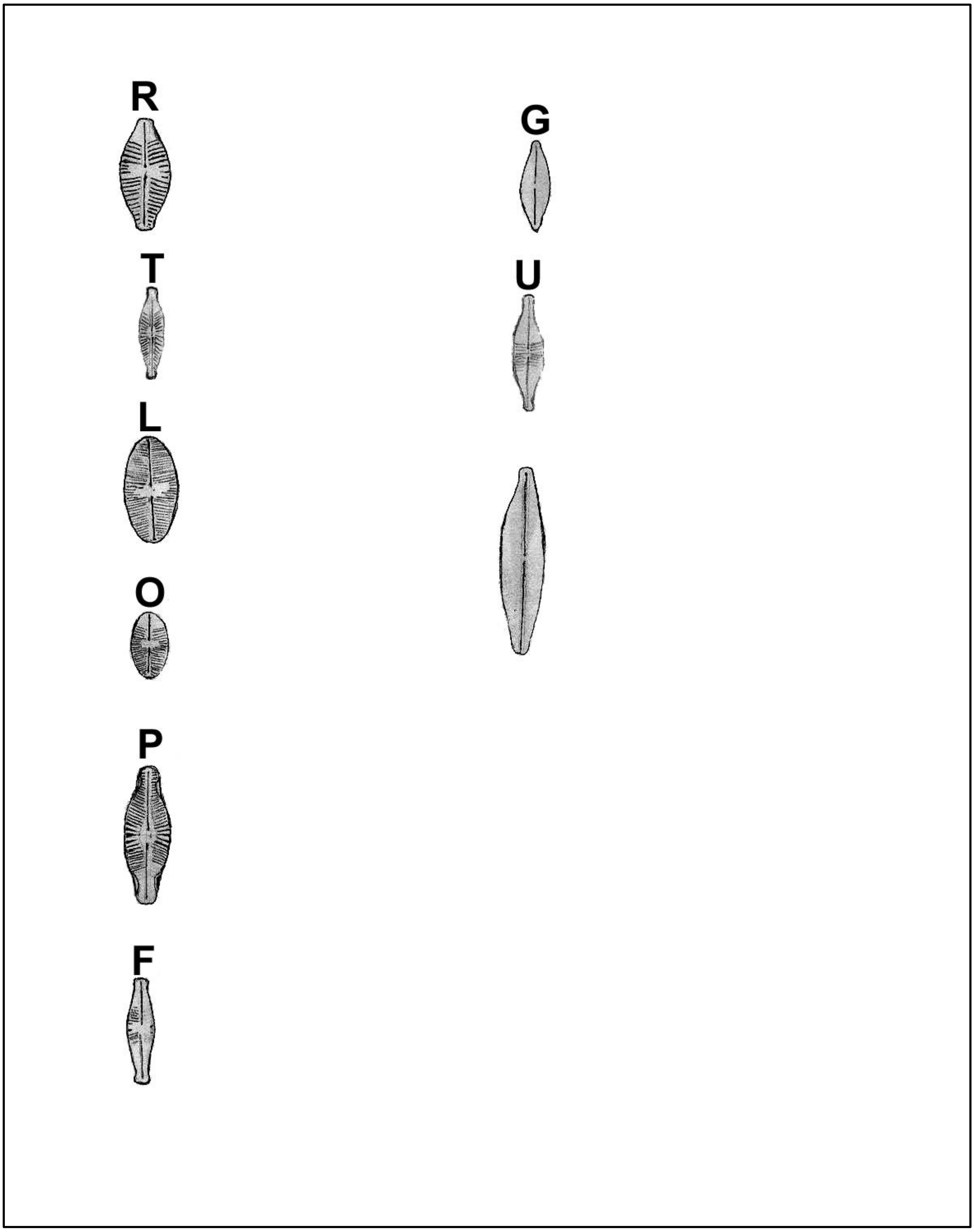


Plate 17 *Navicula* (continued) [Section *Entoleiae* Cleve]

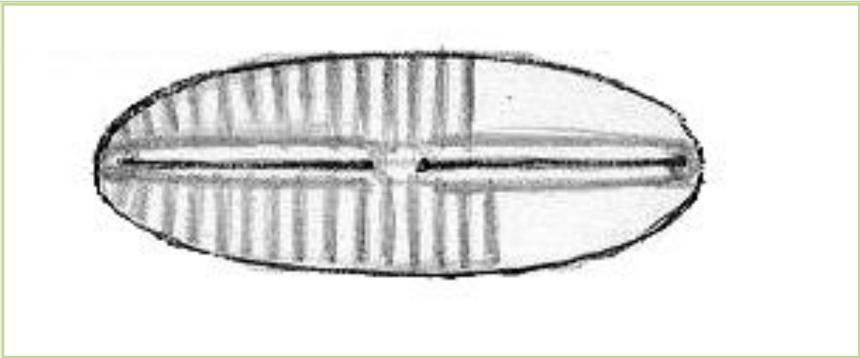
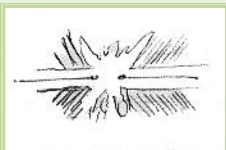
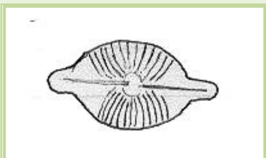
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>N</td><td>Navicula binodis Ehrenberg</td><td>19, 44</td></tr>
<tr><td>X</td><td>Navicula fluviatilis Hustedt</td><td>53</td></tr>
<tr><td></td><td colspan="2">Appendix to form 17 X
Dove Valley
Slide 1264
Navicula fluviatilis Hustedt
Length 12µ Breadth 5µ Stria 21 in 10µ
See Rabenhorst pg.158 Fig.1004
I am pretty confident the form is as identified, features fit reasonably and habitat in moss, aerophile correct.
</td></tr>
<tr><td>J</td><td>Navicula “doubfulia” Mihi</td><td>24</td></tr>
<tr><td></td><td colspan="2">See Achnanthes pages (Achnanthes Peragalli)
Appendix to form 17 J
<s>Navicula “doubfulia”</s> Achnanthes Peragalli
Slide 851
Sutton Park
Length 11µ Breadth 6µ Stria very faint but estimate 25-30 in 10µ.
On examining J. R. Carter’s Achnanthes Peragalli Brun et Herib., there is a possibility that this is within the orbit. The general plan of the stria suggests a pattern like Peragalli but the diatom is difficult to resolve.

The general outline also has Achnanthes Features.
Later. With careful lighting and oblique I can make the stria to be seen. The central area somewhat rounded.

I still cannot say whether Navicula or Achnanthes
Have now found a complete frustules and it is definitely Achnanthes Peragalli Petersen.</td></tr>
<tr><td>G</td><td>Navicula “Suttonia” Mihi</td><td>24</td></tr>
<tr><td></td><td colspan="2">Appendix to form 17 G
Navicula “Suttonia”
Slide 851
Sutton Park
I am at a loss at the present time to identify this form although I quote stria as “? 20 in 10µ” they are difficult to resolve, being very faint and not well defined. Also, I am not sure as to the section of Navicula it belongs.</td></tr>
</table>

Plate 17 *Navicula* (continued) [Section *Bacillares* Cleve]

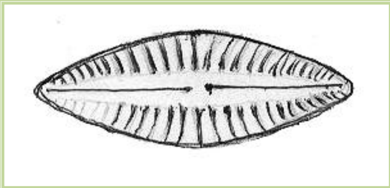
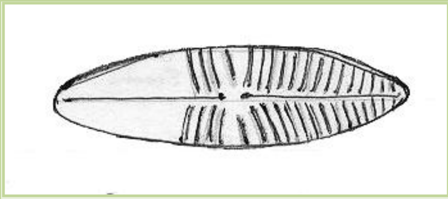
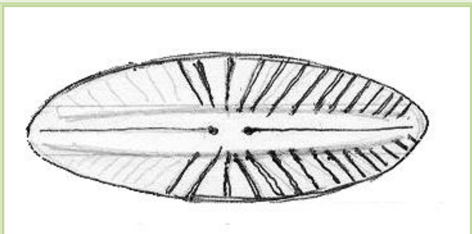
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>S</td><td>Navicula “Volksii”</td><td>48</td></tr>
<tr><td></td><td colspan="2">Appendix to form 17 S
Nav “volksii”
Slide 1158
Length 13½µ Breadth 5½µ Stria 15-25 in 10µ (approximately)
Outline as depicted and note very wide axial area.
I do not think an Achnanthes.
See Navicula excelsa.

(Rather too many stria!)</td></tr>
<tr><td>R</td><td>Navicula “Alpha”</td><td>48</td></tr>
<tr><td></td><td colspan="2">Appendix to form 17 R
N. “alpha”
Slide 1158
Length 18µ Breadth 5½µ Stria 15 in 10µ

This small form does not appear to be one of the lineate for I cannot see any lineations or ridge. Therefore this excludes the form from cincta or any of its varieties.
Axial area quite narrow and note the two central stria are NOT opposite but more or less as depicted. The form is definitely Navicula NOT Achnanthes.</td></tr>
<tr><td>O</td><td>Navicula Buderi Hustedt</td><td>19, 23, 50</td></tr>
<tr><td>Y</td><td>Navicula excelsa Krasske</td><td>48</td></tr>
<tr><td></td><td colspan="2">Appendix to form 17 Y
N. excelsa Karke
Slide 1157 (also Slide 1285)
Stream on A4131
This form is definitely present in the gathering and is as depicted by Hustedt page 164 Fig. 1298.
</td></tr>
<tr><td>A</td><td>Navicula pupula Kützing</td><td>3, 6, 7, 8, 9, 12, 19, 26, 28</td></tr>
<tr><td>L</td><td>Navicula pupula var. capitata Skvortzov & Meyer</td><td>9</td></tr>
</table>

Plate 17 *Navicula* (continued) [Section *Bacillares* Cleve]

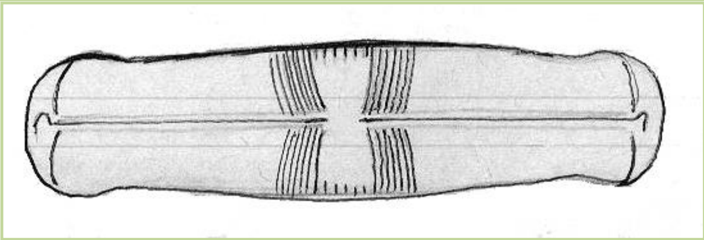
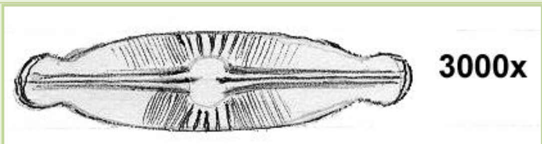
Figure	Species/Text	Locations
C	*Navicula pupula* var. *capitata* Skvortzov & Meyer	8, 9, 16, 20
	Appendix to form 17 C Length 46µ Breadth 12µ It is noted here, the same central area as for form 17 F depicted above.  The form is accepted as *N. pupula* var. *capitata* but is larger than the limits laid down.	
H	*Navicula pupula* var. *elliptica* Hustedt	24
	Appendix to 17 H. *N. elliptica* Slide 851 Sutton Park Note this form does not exhibit the end features:  As for type, at least I cannot see under sp. in M and E. (?) Length 22µ Breadth 6µ Stria 15+ in 10µ over (??? At ends) See *N. Fennich* Hustedt In Rab. 1387?	
D	*Navicula bacillum* Ehrenberg	3, 6, 9, 19, 44
E	*Navicula bacillum* fa. *elliptica* Hustedt	6, 9
M	*Navicula pupula* fa. *rostrata* Hustedt	28
	Appendix to form 17 M Slide 1059 Drain from Jees Tip "*N. pupula* fa. *rostrata*" MiHi This is quite a small form Length 20µ Breadth 5µ and Stria quite coarse at centre, approximately 12 in 10µ but the rest are very fine. Central quite large – raphe is on a ridge as for *pupula* type. I am sure is closely related at least.  There is one point of this form with which I am not happy and that is the thickness of the central stria:- In all the *pupula* the central stria do not thicken to this extent and can be seen to long and short. The thickening in this form is most pronounced and ~~with my equipment~~ are the only stria to be seen! Further note on the 1159 slide (A4131) I can see the whole of the stria quite clearly, and is the same form.	
B	Un-named	No location cited
W	*Navicula pseudo-inclinata* Mihi	23?
	Appendix to form 17 W *N. "pseudo" inclinata* Hustedt Slide 1193 Sheepy Ditch Length 16µ Breadth 6µ Stria ?15 in 10µ clear to ends. The nearest I can find is *N. inclinata*. The form is fairly frequent on the slide but is rather 'fraily' formed and I do not think is form 17 V as the stria are more radiate and outline quite elliptic.	

Plate 17 *Navicula* (continued) [Section *Bacillares* Cleve]

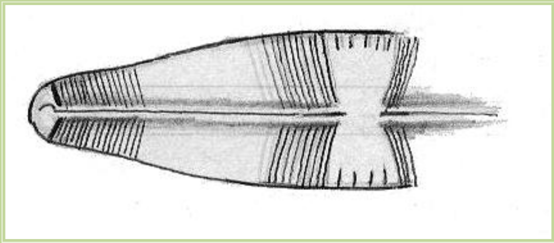
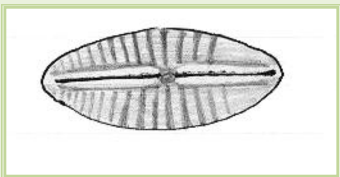
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">F</td><td>Navicula pupula var. pseudopupula “fa. elliptica”</td><td>19</td></tr>
<tr><td colspan="2">Appendix to form 17 F
Length 34µ Breadth 8µ Stria 20+ in 10µ
Note: This form in the central area is as for N. pupula var. psuedopupula Hustedt with the very short stria. See Rabenhorst figures 1254 x and y, but of course the outline is elliptical whereas 1254 is linear.
Quite possible the form is undescribed.

The form was noted in the River Anker gathering Slide 879. The river at this point is, of course, a large lake due to mining subsidence but visited by many wildfowl.</td></tr>
<tr><td>T</td><td>Navicula Witrockii (Lagerstedt) Tempere et Peragallo</td><td>16</td></tr>
<tr><td rowspan="2">K</td><td>Navicula ~~“pupuloides” or bacilliformis var. cruciata Hustedt~~ Witrockii (Lagerstedt) Tempere et Peragallo</td><td>9</td></tr>
<tr><td colspan="2">Appendix to form 17 K
Navicula ~~“pupuloides”~~ Witrockii fa. frusticulus
Length 35µ Breadth 9µ Stria 13 in 10µ
This form is rather unusual and I am a little doubtful as to whether it is not an auxospore of something else – pupula and bacillum, as the central area exhibits “auxiliary puncta and pitting”. Another possibility is N. bacilliformis var. cruciata Hustedt The Length, Breadth and Stria do fit but central area a little too many stria. No illustration of var. cruciata to check with.
Later – this form IS Witrockii fa. frusticulus.</td></tr>
<tr><td rowspan="2">P</td><td>Navicula demissa Hustedt</td><td>23</td></tr>
<tr><td colspan="2">Appendix to 17 P
Navicula demissa Hustedt
Slide 1122
Sheepy Mill Race
Length 15µ Breadth 4µ Stria 15-20? In 10µ (possibly 15).
Brit. Record for the Sp.
</td></tr>
<tr><td>Q</td><td>Navicula pupula var. pseudopupula (Krasske) Hustedt</td><td>19</td></tr>
</table>

Plate 17 *Navicula* (continued) [Section *Bacillares* Cleve]

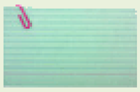
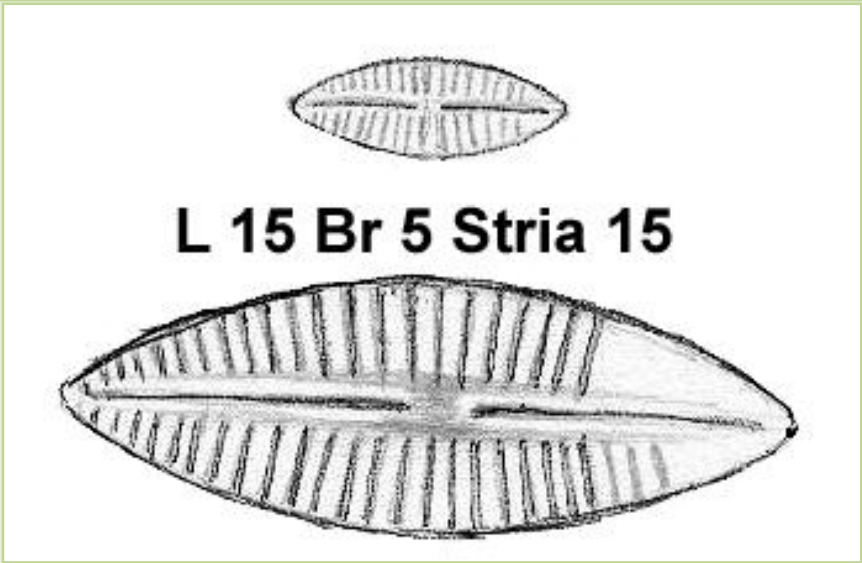
Figure	Species/Text	Locations
V	*Navicula Witrockii* fa. *frusticulus* Hustedt (Oestrup) A.Cleve-Euler	16, 48
	 Slide 1157 Small Stream on A4131. Nr. Mancetter.  I cannot decide whether this small form is an *Achnanthes* or not. It is quite common on the slide. I think a form of *N. muralis*. Later Note: *Muralis, aprestis, pseudomuralis* are all so near together that it seems futile to separate merely on the degree of striae radiation.	
Not figured	*Navicula pseudo-demissa*	48, 50

Plate 17

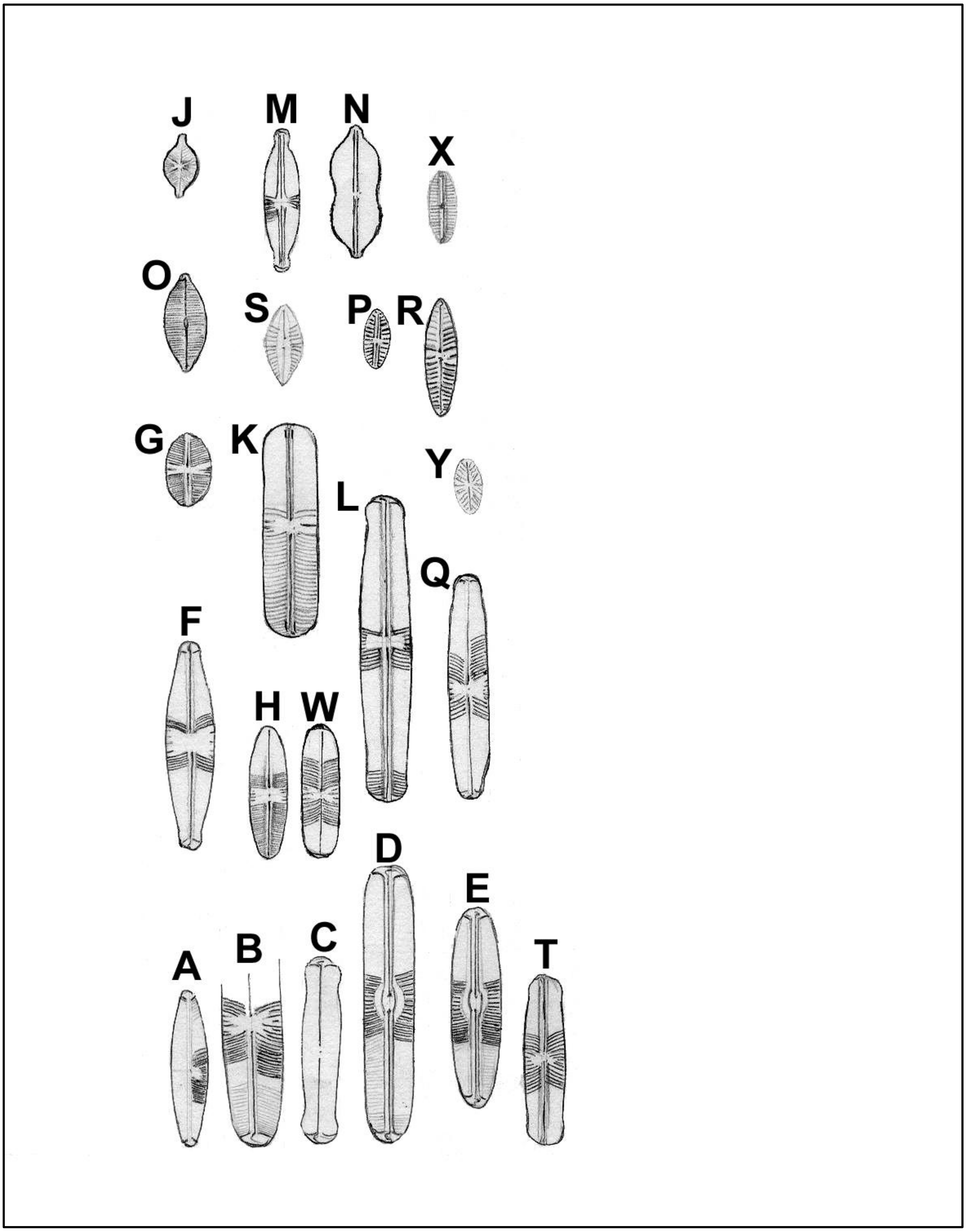


Plate 18 *Navicula* (continued) [Section *Decipientes* Cleve]

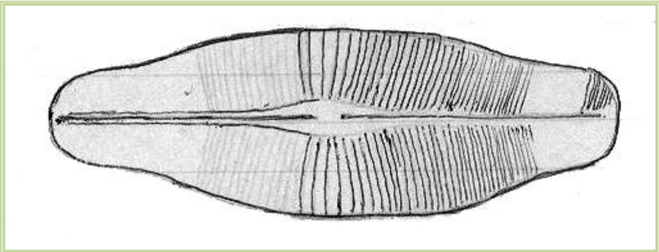
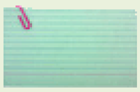
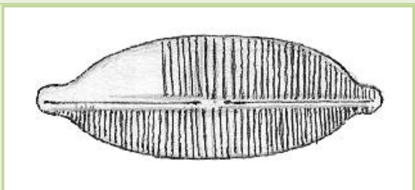
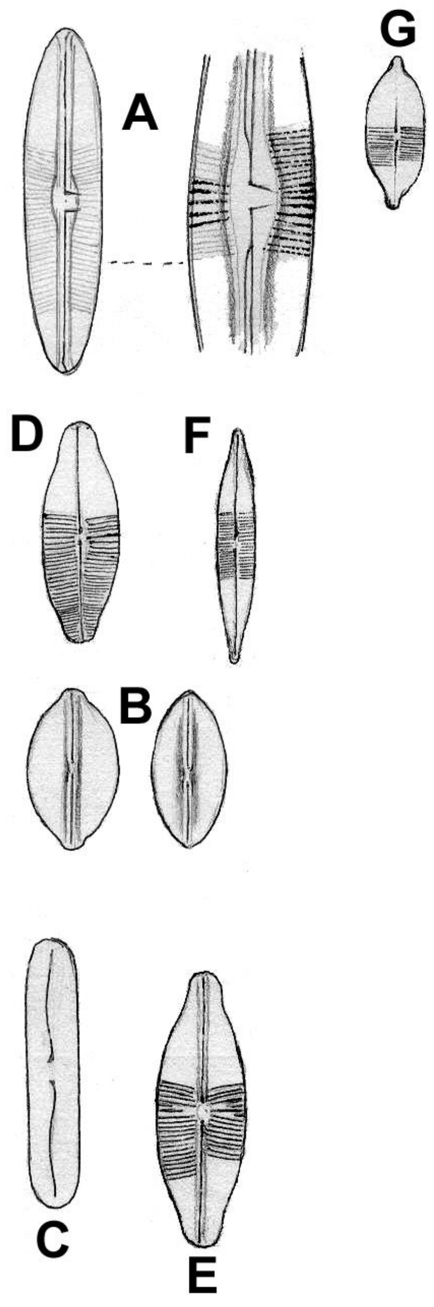
Figure	Species/Text	Locations
A	*Navicula gibbula* Cleve	5, 25
	Length 31µ Breadth 8µ Stria 18 in 10µ Centre, 20 in 10µ ends This is the first record for the district and is just as the type in Rabenhorst 1180/1	
D	*Navicula crucicula* ? var. *obtusata* Grunow	23
	Appendix to form 8 D Slide 850 Sheepy Mill I take this form to be *Navicula crucicula* var. *obtusa* Grunow But have not seen Grunow's original. Length 27µ Breadth 11µ Stria 13 in centre 20+ at ends. The form is very similar to that figured 471 in Middle Europe (*crucicula*) but the *crucicula* of Hustedt in Rabenhorst is considerably different, quite apiculate ends! Which one is correct? According to Cleve-Euler the ends of *crucicula* range from narrow to broadly rounded – var. *obtusata* of Grunow is as I have depicted. 	
E	*Navicula crucicula* var. or *Navicula protracta*	25
F	*Navicula longirostris* Hustedt	12
G	*Navicula accomodata* Hustedt	19, 43, 47, 48, 50
	Appendix to form 18 G *N. accomoda* Hustedt Slide 1095 Cosby, Leicestershire The dimensions of this form are Length 20µ Breadth 7µ and outline as figured – see also form 1208 in Rabenhorst page 65. I have no doubts of the form's identity.  *Navicula accomoda* – Hustedt  This form is present in quite a number of sites in the district. It is only this last few months I have noted same but now I can recognise the features quite easily. See fig. 1208 of Hustedt in Rabenhorst. The raphe is not excentric, this is my mistake in sketching. (Yes, I have this one – JRC)	

Plate 18 *Navicula* (Section *Minusculae* Cl.)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>B</td><td>Navicula Kraskei Hustedt</td><td>2, 3</td></tr>
<tr><td rowspan="2">C</td><td>Navicula “pseudocreuzbergensis”</td><td>2</td></tr>
<tr><td colspan="2">Appendix to form 18 C.
Navicula “pseudocreuzbergensis”
The form is rare in cleaning 702 Light. Slide (not entered) of Corporation Quarry at the end of my road. I cannot pin it down definitely as N. Creuzbergensis Krasske
Hustedt quotes:
“Length 30-45µ Breadth 6-8µ Stria 18 in 10µ. Middle slightly radial and the ends very slightly convergent.”
On the form under notice I am unable to resolve any stria!, so possibly over 35 in 10µ. Also the size is 25µ x 5µ, rather under the limits but this latter point does not matter too much.
creuzbergensis is stated to be linear/elliptical with broad rounded ends – the pseudo form is linear only with rounded ends.</td></tr>
<tr><td>To be sketched</td><td>Navicula atomus (Kützing) Grunow</td><td>19</td></tr>
</table>

Plate 18



Navicula occuliformis? Hustedt (Beaufort p.22) Location 16
See JRC list of Spring Wood – his cleaning 2773A
Whilst it would not be impossible to get this marine form here I cannot see what else it is!
Apparently the form is rare in N. Carolina waters.
The form under notice is not well placed on the slide and possible the question should be left over until a better one is found.
Length 11µ Breadth 6µ Stria 30 in 10µ

Plate 18^{1} *Navicula* (Sect. *Hetrostichae*) Cleve

Figure	Species/Text	Locations
A	*Navicula cocconeiformis* Gregory ex Greville	24
	Appendix to 18^{1}A *Navicula cocconeiformis* Slide 851 Sutton Park. This is the first recording to date in the area. Length 18µ Breadth 6µ Stria 25+ in 10µ. Not frequent on the slide.	

Plate 18[1]

A

Plate 19 *Navicula* Sect *Lineolatae*

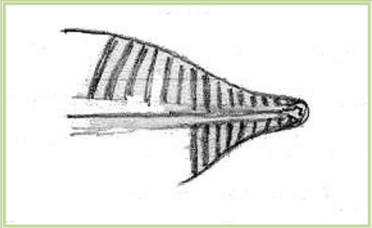
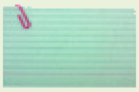
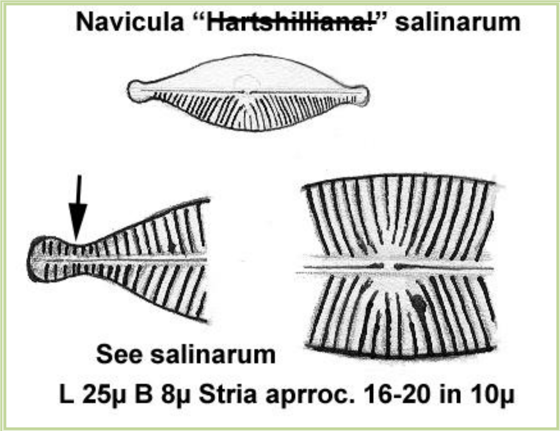
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">A</td><td>Navicula salinarum Grunow</td><td>5, 11, 19, 23, 29</td></tr>
<tr><td colspan="2">Appendix to form 19 A
Navicula salinarum
Slide 850
Sheepy Mill
Quite frequent on the slide and good specimens. 31µ x 11µ, 11 in 10µ for Stria.
Note ends of typical form.
</td></tr>
<tr><td rowspan="2">C</td><td>Navicula salinarum Grunow</td><td>23</td></tr>
<tr><td colspan="2">Appendix to form 19 C
Slide 850
Sheepy Mill
Although the form has the same dimensions as form A I am not altogether happy that this is a “salinarum”. The ends are different and not quite the stria arrangement at the centre. The form is also much more robust than the other “salinarums” on the slide.
Yes, this COULD be salinarum for I have now seen intermediaries which connect central stria and anterior differences.
See also form 19 D. The ends of this quite different.</td></tr>
<tr><td>D</td><td>Navicula salinarum Grunow</td><td>No location cited</td></tr>
<tr><td>E</td><td>Navicula anglica Ralfs</td><td>19, 44</td></tr>
<tr><td>Not figured</td><td>Navicula “pseudo-anglica” Mihi</td><td>12</td></tr>
<tr><td>Not figured</td><td>Navicula “petita” Mihi</td><td>5</td></tr>
<tr><td>F</td><td>Navicula anglica “fa. minuta”</td><td>23, 50</td></tr>
<tr><td>DD</td><td>Navicula “poolei”</td><td>11, 44, 50</td></tr>
</table>

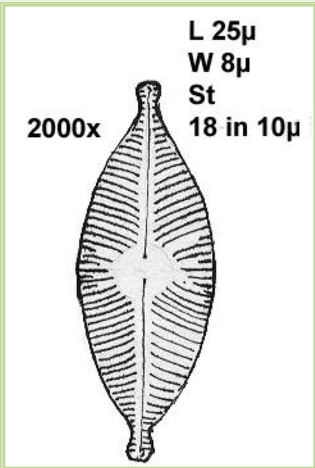
Plate 19 *Navicula* Sect *Lineolatae*

Figure	Species/Text	Locations
Not figured	*Navicula salinarum* “var. *Hartshilliana*” Mihi	7, 16



Jee’s Tarmac Plant, Hartshill
Slide 356





The form is NOT *rhyncocephala* as the central stria are unequally shoretened and ends of frustules quite capitate.
Axial area is very narrow
Note stria radially curved until near ends and then as far as I can see are at right angles to raphe.
Stria type difficult to determine ?lineate.
See JRC marked slide from River Avon, Stanford:- a very similar form but one difference i.e. the changeover is nearer the centre, 35% from end.

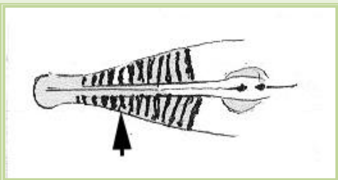


Plate 19

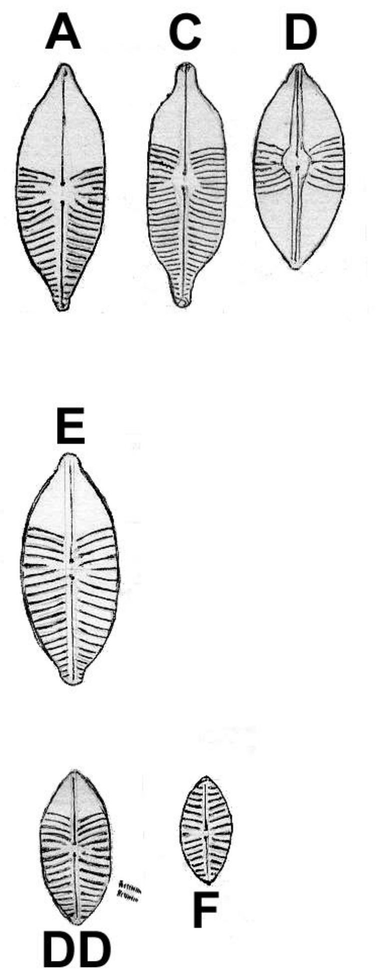


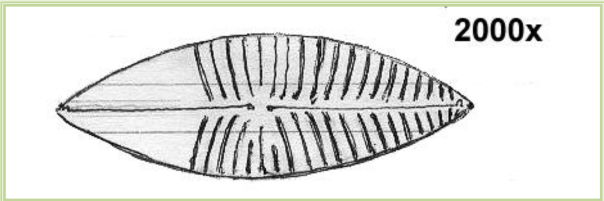
Plate 19^{1} *Navicula* (continued) Section *Lineolatae* Cleve

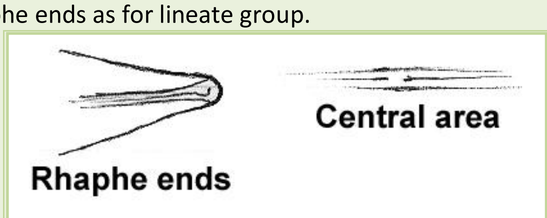
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">B</td><td>*Navicula* ~~*viridula*~~ *avenacea* (Rabenhorst) Brébisson</td><td>1, 5, 7, 10, 13, 14, 15, 16, 17, 19, 29, 31, 33, 44, 48, 50</td></tr>
<tr><td colspan="2">*Navicula viridula* var. *avanacea* DeBreb. 19^{1} B
This is the correct name for the form depicted.</td></tr>
<tr><td rowspan="2">H</td><td>*Navicula avenacea* fa. "*obtusa*" Mihi</td><td>16, 19, 23, 44, 50</td></tr>
<tr><td colspan="2">Appendix to form 19^{1} H
Navicula "viridula fa. *obtusa"*
This form is not to be confused with the obtuse form D as it is very closely related to 19 B and I think possibly a local variation.
The central area is as for the type B
The stria and lineation as for type B
The stria direction as for type B
There is a minute point i.e. the centre raphe

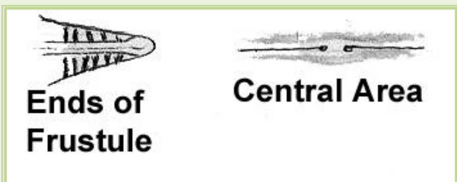
A very slight tendency to a thro' ridge on one side – but I think a point that need NOT be specific.
Length 31µ Breadth 12µ Stria 12 in 10µ central 14 in 10µ ends
On slide 161 from the River Anker the form is not an isolated one!
Also found on slide 859. Spring Wood – Caldecote and not rare. Sheepy Mill too - Slide 1123</td></tr>
<tr><td rowspan="2">M</td><td>*Navicula avenacea* fa. *inflata* Mihi</td><td>13</td></tr>
<tr><td colspan="2">Appendix to form 19^{1} M
River Anker – Caldecote
Slide 53
"fa. *inflata*"
A variation of the Leamington form 40µ long 10µ wide Stria 12 in 10µ. Lineations same as Leamington form. The difference being outline only, ends narrower and a more tumid form. Raphe type central.
Ends:-

</td></tr>
<tr><td>Q</td><td>*Navicula avenacea* fa. *non-rostratum*</td><td>No location cited</td></tr>
</table>

Plate 19^{1} *Navicula* (continued) Section *Lineolatae* Cleve

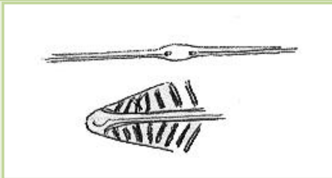
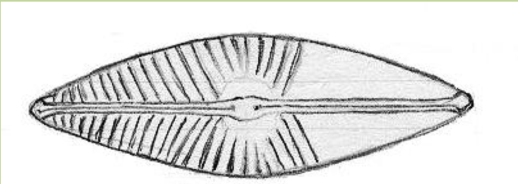
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">L</td><td>Navicula “pseudo-menisculus” Schumann</td><td>29</td></tr>
<tr><td colspan="2">Appendix to form 19^{1} L
Navicula pseudomenisculus
River Leam
Slide 1032
This is yet another of the small lanceolate lineate forms. The dimensions are
Length 20μ Breadth 7μ Stria 12 in 10μ
Having seen N. miniscululus Schum. consider this to be the form.


Hustedt quotes the dimensions of menisculus as:
Length 18-50μ Br 8-12μ Stria 9-11 in 10μ
One, of course, finds diatoms out of the quoted limits and of course menisculus is generally a brackish form but it must NOT be overlooked. The River Leam at this point does, I am sure, receive saline water resulting in an unusual “freshwater flora”.
The stria are composed of lineations but not like the normal brackish form I find in Anglesey sites.</td></tr>
<tr><td rowspan="2">E</td><td>Un-named</td><td>24</td></tr>
<tr><td colspan="2">Appendix to form 19^{1} E (see later illustration)
Weir, Sutton Park
Slide 846
Length 28μ Breadth 9μ Stria 10 in 10μ
Note the apiculate ends of this form generally. I cannot relate to a salinarum.</td></tr>
<tr><td rowspan="2">O</td><td>Navicula ?</td><td>29</td></tr>
<tr><td colspan="2">Appendix to form 191 O
N. “parameniscululus”
Slide 1032
River Leam
The form is not common on the slide.
Length 35μ Breadth 9μ Stria 12 in 10μ, slightly wider in centre.
Lineations NOT distinct. Change over very near end as for rhyncocephala. Central area large. Stria not long and short. Raphe ends as for lineate group.


Central area quite subcircular, not angular.</td></tr>
<tr><td rowspan="2">N</td><td>Navicula “paramenisculus”</td><td>24</td></tr>
<tr><td colspan="2">Appendix to form 19^{1} N
Slide 851
Sutton Park
Length 37μ Breadth 10μ Stria 15 in 10μ - N.B. NOT to be confused with form M – N is a much lighter built form.


The change over to radiate stria is very close to end.</td></tr>
</table>

Plate 19^1 *Navicula* (continued) Section *Lineolatae* Cleve

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>To be sketched</td><td>Navicula lacustris (Agardh) Schutt</td><td>3</td></tr>
<tr><td>To be sketched</td><td>Navicula menisculus Schumann</td><td>1, 12, 29</td></tr>
<tr><td rowspan="2">P</td><td>Navicula var. HH</td><td>1</td></tr>
<tr><td colspan="2">Appendix to form 19^1 P
Navicula var. “HH”
Slide 745
Length 35µ Breadth 10µ Stria 10 in 10µ
Axial area not very small. Central area as shewn. Outline as shewn, definitely lineate but rather faint. Raphe threadlike. Very possibly to be same spp. As 19^1 HH.</td></tr>
<tr><td>R</td><td>Navicula</td><td>No location cited</td></tr>
<tr><td rowspan="2">F</td><td>Navicula</td><td>5</td></tr>
<tr><td colspan="2">Appendix to form 19^1 F
Navicula. Slide 735
The dimensions of this form are as follows:-
Length 33µ Breadth 10µ Stria 12-13 in 10µ
The form is definitely lineate and I can resolve these but they are not as coarse as rhyncocephala. – quite common on the slide.
The following points should be noted:-
Axial area very narrow and lined both sides of central area. Polar end of raphe as for all lineatae.

Stria radiate to very close to ends, same as rhyncocephala. Central area quite large and stria with the odd one or two shortened. The outline of the form is as menisculus – but is NOT this form.

approx. 2000x
The stria are depicted rather heavy. The form is much lighter in construction and this factor applies on material from other habitats in the area.</td></tr>
<tr><td rowspan="2">HH</td><td>Navicula</td><td>1, 23, 24</td></tr>
<tr><td colspan="2">Appendix to form 19^1 HH
Slide 951.
Sutton Park
Length 30µ Breadth 10µ Stria 10 in 10µ (slightly wider at centre)
This form has many points similar to form 19^1 F but principally the central area is smaller. The axial area is not too narrow but slightly lanceolate. Stria are finer than 19^1 F, polar ends of raphe not so defined as 21 F, much smaller in area. Raphe on a ridge – ridge does NOT follow through centre – see 21 H type.

Change over of stria takes place at the same point as 19^1 H.
I can resolve the lineations but not like a menisculus – neither is the form menisculus.</td></tr>
</table>

Plate 19[1]

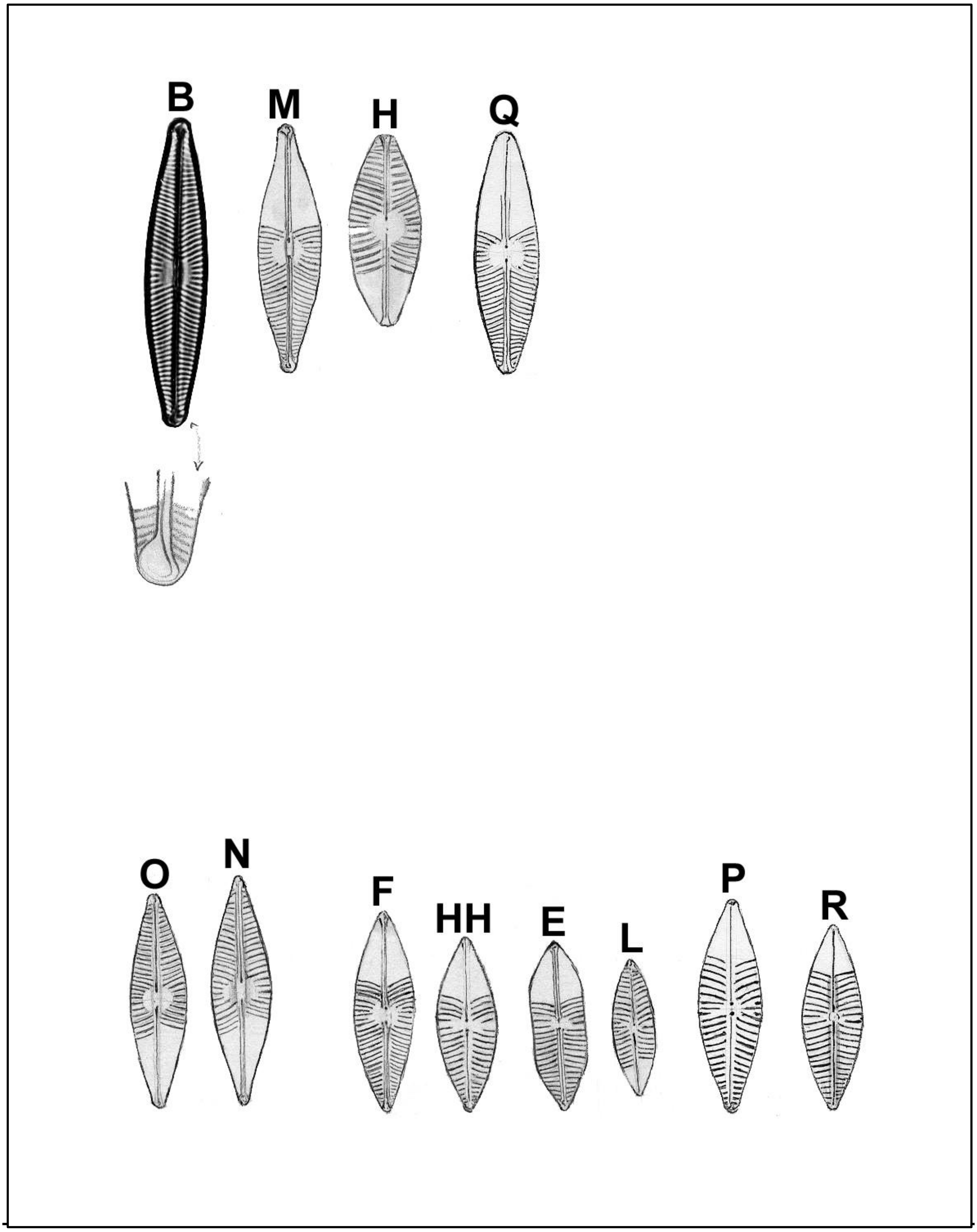
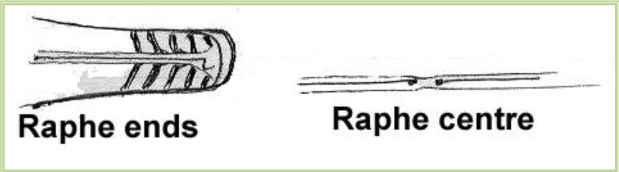
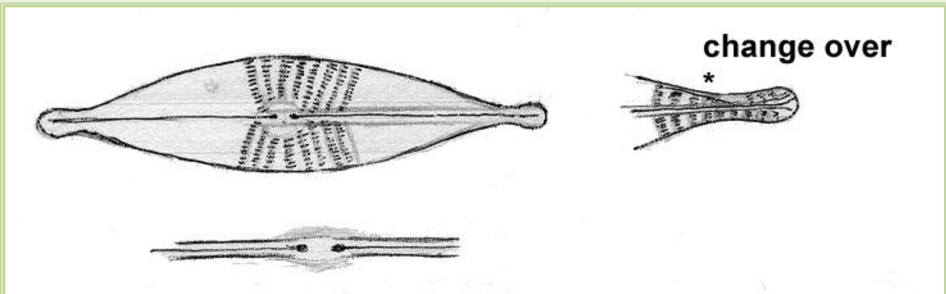
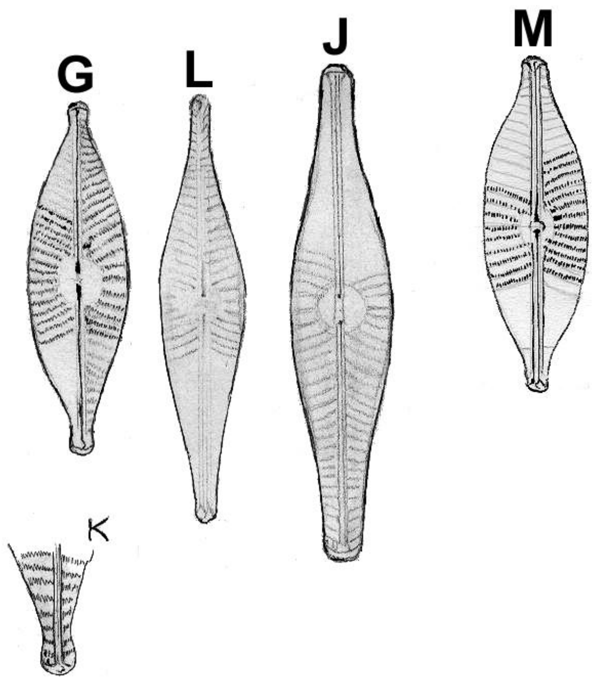


Plate 19^2 *Navicula* (Sect. *Lineolatae* Cleve)

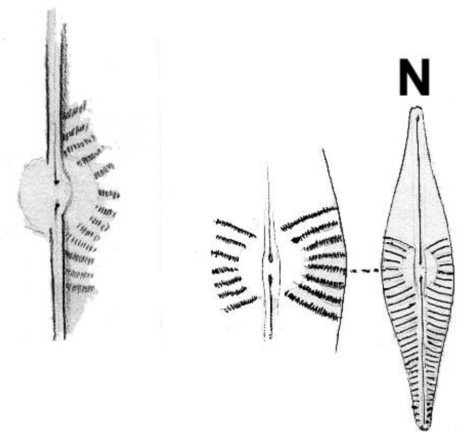
Figure	Species/Text	Locations
G	*Navicula rhyncocephala* Kützing	1, 5, 7, 8, 9, 12, 16, 18, 19, 28, 29, 44
J	*Navicula rhyncocephala* var. “~~pseudo~~”	1, 5, 7
	Appendix to form 19^2 J At the time of writing I am not able to decide on the taxonomy of this form. Whether related to *rhyncocephala* or *viridula* or some other form. If anything this form is nearest to 19 B. The same raphe system and also the secondaries of the stria very similar – much finer than *vulpina*, *arenacea* or *rhyncocephala* – in these forms the lineations are all coarse but 19^2 J form much finer. Length 65µ Breadth 12µ Stria 7-8 in 10µ in centre, 10 in 10µ at ends.  	
L	*Navicula rhyncocephala* var. “~~pseudo-rhyncocephala~~”	1, 18, 24
K	*Navicula rhyncocephala* var. “~~capitata~~”	19, 26
	Appendix to 19^2 K-(continued) Slide 1052 River Avon etc. It is interesting to note that during the examination of slide 1052 the capitate form of *rhyncocephala* was again noted for this particular area. Previously the original was from the River Avon, Stanford Hall some few miles away – and now the identical form with very definite capital ends.  The rest of the features also tallying. Appendix to form 19^2 K An extended search of slide 421/1 will reveal rather capitate forms of what are surely *rhyncocephala*! Length 45µ Breadth 11µ Stria 10 in 10µ On slide 965 from Stanford Hall is an identical form Length 51µ Breadth 13µ Stria 10 in 10µ. Lineations 20? In 10µ. Lineations very coarse, stria slightly wider at centre.  	
M	*Navicula rhyncocephala* var. “~~Donkinia~~”	44
N	*Navicula rhyncocephala* Kützing	5, 19, 25, 26
	Type (not capitate form)	
To be sketched	*Navicula simplex* Krasske	10

All of the above are forms of *rhyncocephala*

Plate 19[2]



Appendix 19 G
Rhyncocephala of
944 slide



APPENDIX †19B

24.10.63.

Dear Horace,

We seem to have got ourselves into a bit of a jam with regard to this Nav. viridula and its allies but do not despair it looks as though every diatomist up to now has been in the same mess. I propose that we should be the first two who are perfectly clear exactly what this thing is and in order to do that you must forgive me if I become somewhat dogmatic and maybe a bit rude. I have certain well defined ideas on the subject. Lets have a look at the position-- it seems something like this :-

2 a) Species defined by Kutzing in 1844 <u>with a one seventh achromat</u> and said to have as characteristics' circular area and striae very pronouncedly punctuate.

b) Since then there have been at least 16 vars made some on the outline (Fair enough but these should have been merely forms-- see later), some on other characteristics which are quite illegitimate.

3 From the above it seems quite reasonable to take it that no diatom which has a superficial resemblence to viridula in say, striae count, degree of radiation thereof or just' the look of the thing' can be considered unless it has two things viz. a coarse punctation and a circular central area.

4 Now What do the people say who knew Kutz. and saw his specimens? First P.T. Cleve. Valve lanceolate with subrostrata obtuse ends 50 to 70 m. long and 10-15m br. Axial area not distinct, central area large orbicular, Str. 10 in 10m. <u>coarsely lineate</u>, radiate and a little more distance in the middle and slightly convergent at the ends.

<u>Van H.</u>

5 Very nearly the same with emphasis on the circular area and the robustness of the striae.

<u>Von Schonfeldt</u>

6 The same--- clear circular central area and striae clearly lineate,

<u>Meister</u>

7 The same but no mention of the type of striation,

8 <u>Hustedt</u> in Bac. Mentions all the points we have outlined.

In view of ~~this~~ all this lot I cannot see why any diatomist insists on placing forms with irregular central spaces or with closely lineate striae in viridula. It seems to me to be only sense to keep em all out. Now Brebisson saw this and made his N.avenacea which he defined as a bit smaller than viridula and with more acute end and although it has a circular central area the striae are very finely lineate much like some of those you have drawn in your bits and pieces. Not only are these striae different in degree of size but I think that they are a different type of construction but it is very hard to be really certain of this. According to P.T. Cl. avenacea connects N. rhyncocephala with viridula but there are many other forms which may equally well do this.

In the early 50's Fraser Bastow found great dollops of viridula in Devon and his observations at the end were that the form is very polymorphic as far as outline is concerned even to the shape of the ends, also that the degree of silicification can vary and give stronger or weaker forms particularly in the area bordering the raphe (I myself have verified this) but he sticks to the two basic things for the species characterisation-- the space and the lineation. Now I thing we should be a bit more definate on the courseness of the lineation and my measurements give me from 25 to 29 in 10m. What do you make 'em?. Whilst this is not very coarse it is far removed from the avencea type which is 36 to 40 and often takes some counting. I am enclosing a slide of material which I have reason to believe quite possibly came from W. Smiths collection and was the material he described viridula from the Brit. Diat. 1853. You will see the difference in outline and slight ones in raphe accent.

Perhaps you might go further with me and agree that it is perhaps not the actual degree of striae coarseness which helps to delineate the species as the fact that it is so very easy to resolve-- it must be very 'deep cut' and also very oblong in shape. On the above then I would put all the following in viridula as forms and not vars.--

capitata,major,minor,abbreviata,alisoviana,genuina, hankensis (but I have not seen this one) pamirensis Hust;slesvicensis

and I would throw out as sep.sp.
avenacea and avenacioides Mayer.

Well that seems a Hell of a lot for something which I realise on reading it thro' that you probably have in your head already-- however it clears the air for me. Just one last point about var abbreviata. A.CleveEuler will have this as a separate sp. and dexribes as with a very small central area dnd striae up to 17 in 10m but she seems to upset the boat with having a form maxima of this and describing that very nearly as a typical viridula--- as I said at the beginning we are not the only ones who have trouble. A close examination of my slide will shew abbreviata with striae at about 12 in 10m and I think these are only the termination of a particular clone. I wonder what the auxospore looks like?

Whilst on the subject another pet hobby horse of mine comes up and that is the difference between this and rhyncocephala for on my slide you will see a few of the latter and notice that the lineations of the striae are more delicate (more rounded?) and tend to run the length of the valve in straight lines not curving much round the central nodule whereas viridulas (in a good spp.) can be seen to have lineations which take a very definate curve at the centre-- like vulpina and others. The whole sub-group is getting so complex that I am sure that we shall have to take this characteristic into account and open a new one perhaps Circulae or something similar.

Now this slide 449 is most interesting. First you have here a very typical viridula which agreed in every particular with the original description. Then you have Brebisson's avenacea which is immediately seen to be a little finer str. not much wider at the centre and with lineations which are difficult to resolve (I make these between 37 and 41 in 10m). Then you have the smaller stumpy viridula type. I really think this is just a small viridula for these reasons striation agrees in all particulars but there is a little variation in the shape of the central space. According to Lund (soil Diat.) when a clone grows old and the form gets smaller

15 certain differences tend to creep in and amongst them is the reduction in the number of striae in the whole diatom. It therefor follows that the number of striae distributed about the central area will tend to be less in the small forms and indeed this is what I have observed. In the larger viridulas we often see three and occassionally four shortened striae which gives the central area a chance to be more orbicular than when there are only two striae there and then the space has a tendency to appear transversallt quadrante but all the same I still seem to see the basic circular area but this may only be because I want to you know. You have on this slide a few rhyncocephala in which the degree of straie lineation curvature round the central area is greater than the ones I have in my collection--- can it be that salinity has anything to do with this--- what a lot we don't know eh? Glad you sent this slide I have seen a N. clementicides which has upset some of my notioms-- I'll have another think about that one.

16 Slide 421 is all viridula I think and might nearly be the same ~~xx~~ stuff as my type slide of ?Smiths. Its fairly evident how the var abbreviata arose from the fact that in the small forms the central striae are compressed so if you take a count across the centre there will be more str. in 10m. Here the rhyncocephalas change over so slightly in the curvature of striae.

Your slide 787 from the Weaver and the circular one you are worried about is I think a form of <u>Stephanodiscus hantzschii</u>, in fact there are many specimens here which are what I call typical and very much like the ones I find all over. I think that this peculiar shape is often due to the fact that the depth of each cell varies and there is often a little compression which transfers itself to the top and causes some deformity. I have watched a deep cell compress and seen the fold up round the valve disc in such a way that the disc was apparently left inside an irregular ring of silica and this is the cause of seeing so many where the ring of puncta seems to be inside the edge of the valve. In the smaller specimens of this diatom it is always difficult and often impossible to see the double lines of dots at the ~~xxx~~ edge. If you have not already spotted it you have Nitzschia ignorata Krasske on this slide-- I don't see it very often.

17 Now Your drawings. Probably I am only too ignorant here.

745/I Certainly not rhyncocephala and not my ~~rx~~ rhyncocephaloides I think the fact that you cannot see the lineations is positive.

421/1. If I have the right one I think you are up against a type
18 of rhycocephala and if so should appear much different
especially in the centre of the valve. I have attempted to
drawn what I consider the essential difference on your
B & P. sheet but my draughtsmanship does not compare with
yours.

19 421/2 Is I think, probably really the same sp as the above.

787. I seem to think this is really a radiosa forma genuina
Mayer, but I am a bit worried about the centre striae.
20 According to both Mayer and Astrid Cl. the central striae
can be a bit varied and very often I have noticed an odd
short one but your has one side quite l. and s.o have been
trying to find a note on this one sided type of formation
and the form from which I made it but for once my record
system has let me down.

21 R. Leam Your drawing of avenacea is about type. Hustedt is
wrong in including in viridula and the striae count varies
from 10 to 12 at the centre to about 14 to 15 at the ends.
See also Slide L53 for interesting forms

The other Nav from Leam-- if you cannot easily
see the striae it is <u>not</u> viridula.

421/4 Not unusual to find this type in viridula.

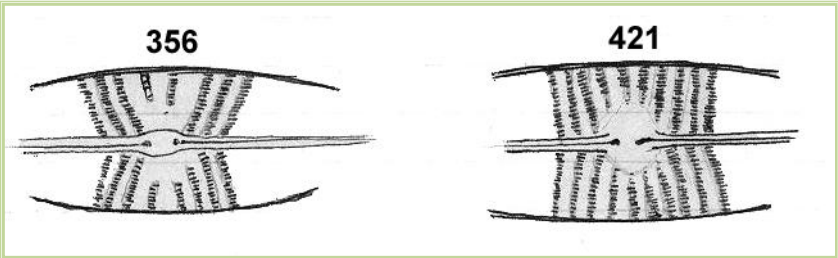
445/4 You have drawn this far more as I think viridula
is-- with robust lineations.

421/5 Near viridula v.abbreviatum.

449/2 ditto perhaps nearer still but the striae
(according to A.Cl.) are a bit wide. As I said
before she makes it a sep.sp. with st. at 14/17
and them puts a blasted var into that with straie
at 10 and so upsets the whole applecart.

22 Well Horace that's it and I'm afraid that it is
perhaps a case of the blind leading the blind but this is
the only way-- to hammer the points out and be absolutely
certain of what is quite common species and how far we are
going to stretch the description to fit the forms which we
are sure fall into it. I think we must recognise certain
salient points about certain species and stick to 'em.
If we don't we find duplicating going on which clutters up
the nomenclature which is already bad enough.

Plate 19^3 *Navicula* – Sect. *Lineolatae* Cleve

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">C</td><td>Navicula viridula var. slesvicensis (Grunow) Cleve</td><td>1, 6, 10, 12, 15, 16, 17, 19, 26, 28, 29, 31, 33, 44, 50, 52</td></tr>
<tr><td colspan="2">Navicula viridula var. Sclesvicensis 19^3 C
This is the correct name for the form depicted.
Appendix to form 19^3 C
On the slide 421 from Spring Wood, Hartshill this form is very common. A search of the slide reveals the general dimensions 35µ to 50µ which is within the scale. There is, however, some slight variation in the degree of radiation of the central stria, some forms being more parallel.
Slide 356 from Jee’s Tarmac Plant gives forms with, again, a central variation, such as very much wider spacing than the normal.


The two forms often shew difference of the raphe ridge but I am fairly sure that there is a case of variation in silicification by habitat. The central stria of form 421 exhibits a ghost effect which I feel is another effect of silicification by habitat.
There are a number of forms on 421/1 down to 35µ in length which give rise to “forma obtusa” (See 19^3 D form taken from 735) from a slide in Red Wharf Bay, Anglesey. This obtuse form only attains the length of 25µ whilst still 10µ wide.
This of course could be a form from the end of a clone when the ratio of Length x Breadth departs from the normal.</td></tr>
<tr><td>D</td><td>Navicula viridula var. slesvicensis (Grunow) Cl.eve</td><td>5, 14</td></tr>
<tr><td>E</td><td>Navicula viridula var. slesvicensis (Grunow) Cleve</td><td>19, 45</td></tr>
<tr><td rowspan="2">F</td><td>Navicula viridula var. slesvicensis (Grunow) Cleve</td><td>?</td></tr>
<tr><td colspan="2">Appendix to form 19^3 F
Slide 1199
Drain from Judkin’s Tip
The form is quite frequent on this slide and is more lanceolate than the usual. I think still within the orbit.
Length 52µ Breadth 11µ Stria 9 in 10µ</td></tr>
<tr><td rowspan="2">To be sketched</td><td>Navicula peregrina (Ehrenberg) Kützing</td><td>19</td></tr>
<tr><td colspan="2">Slide 1164</td></tr>
</table>

Plate 19[3]

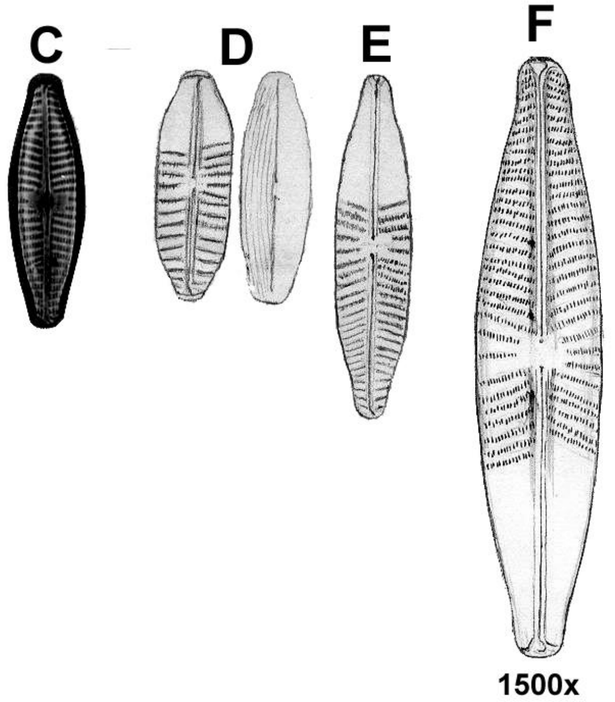
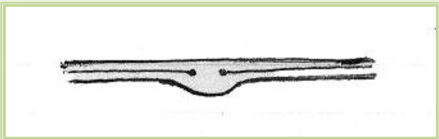


Plate 19^4 *Navicula* – Sect. *Lineolatae* Cleve

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">A</td><td>Navicula viridula Type (Kützing) Ehrenberg</td><td>1, 2, 19, 29</td></tr>
<tr><td colspan="2">Fig. 19^4 A Appendix
Navicula <s>vulpina</s> viridula Kützing
For a while I was rather mislead by this form and then realised here was <s>vulpina</s> viridula and an excellent speciemen. Hustedt’s illustration in his Middle Europe page 297 illustration 504 is rather on the schematic side and the central area becomes confusing.
An examination of the description by Hustedt reads as follows:

Outline Linear-lanceolate Yes
Ends NOT rostrate — Note the ends of the form are slightly rostrate See photo
Stump rounded ends — Yes
50-140µ long — Yes
10-20µ broad — Yes
(Specimen 55µ x10µ Stria 8 in 10µ in centre, 10 in 10µ at ends)
Axial area small — Yes
Central area large — Yes
Stria radial and convergent — Yes
Clearly “lineate” — Yes
The stria in the centre wider — Yes
And closer at the poles — Yes
Often with coarser stria at The centre — Yes

Habitat – “The littoral of large standing waters. Widespread and not scarce”
See slide 745/3
Camp Hill Pool, Nuneaton
A point of note is the central area of the ridge.


Navicula viridula Kützing 19^4 A
During October of 1967 I visited the British Museum in order to solve my queries concerning N. viridula, N. viridula var. slesvicensis, N. viridula var. avenaceae DeBreb and N. vulpina (see my small black loose leaf Books on these forms)
Mr. Robert Ross, Head of the Cryptogamia Section was able to shew me Herr. Kützing’s original slide of viridula and this was without doubt the 19^4 A form (my “vulpina”)
Photograph by N. I. Hendey</td></tr>
<tr><td rowspan="2">L</td><td>Navicula viridula (Kützing) Ehrenberg</td><td>No location cited</td></tr>
<tr><td colspan="2">Type
See 19^2 L for illustration</td></tr>
</table>

Plate 19[4] *Navicula* – Sect. *Lineolatae* Cleve

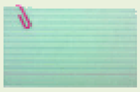
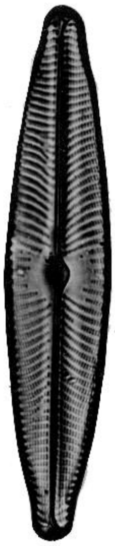
Figure	Species/Text	Locations
B	*Navicula "Mancetteri"* Mihi	48
	 Slide 1157 Taken from stones on A4131 Stream nr. Mancetter.  Length 32µ Breadth 8µ Stria approximately 15 in 10µ Form belongs to *lineatae* group. Raphe on ridge. End quite produced and have typical end of lineate forms.  Axial area lanceolate One or at the most 2 short stria at centre. Note change over is far from the ends so cannot be related to *rhyncocephala* or *cryptocephala* but possibly to *simplex*. Do not confuse with *gregaria*, a similar outline form. 2727H "Cannot be sure I have seen this one" JRC	

Plate 19[4]

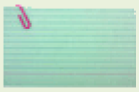
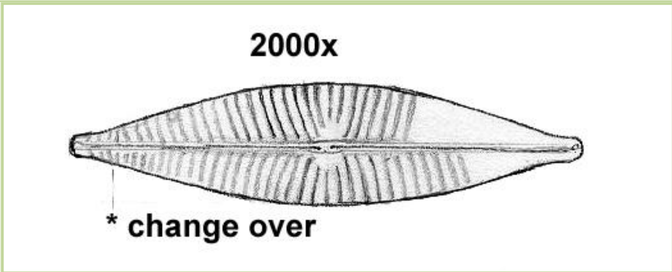
A

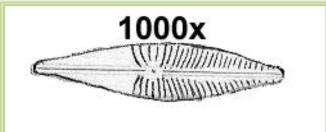


(Photograph)

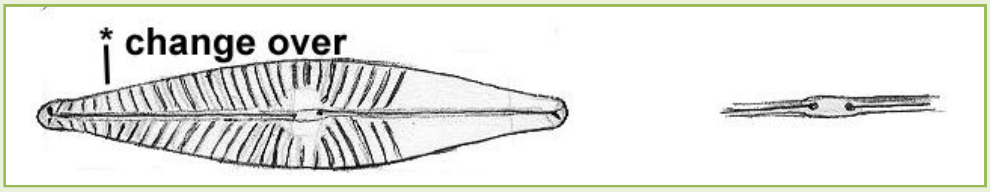
L

Plate 19[5] *Navicula* (Sec. *Lineolatae*)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">A</td><td>Navicula cryptocephala Kützing</td><td>1, 2, 3, 4, 5, 8, 9, 13, 19, 20, 25, 26, 28, 29, 31, 32, 44, 45, 50, 52</td></tr>
<tr><td colspan="2">
Appendix to form 19[5] L?
Navicula cryptocephala
Slide 894
Seeswood Pool
Dimensions: 35µ x 7µ Stria 15 in 10µ
Lineations very faint, raphe threadlike and very faint. Axial area VERY small. Central area is NOT large. Ends produced. Middle terminals very close, ridge runs throughout centre. Central stria a tendency to long and short.

Navicula cryptocephala type (Ex. J. R. Carter)
Length 27µ Breadth 6µ
Stria - radiate to very close to ends. Axial area very tight. Small circular central area.
Ends slightly produced.


Stria perhaps a little more radiate than depicted.


Note: not a good likeness at this size. The 2000x is nearer the mark.

Appendix to form 19[5]A
Slide 1195
Twycross
Navicula cryptocephala plentiful on slide.
Length 35µ Breadth 10µ Stria 18/21 in 10µ
Lineations most indistinct, not as clear as radiosa


The form is a little more slender and lanceolate than depicted.
</td></tr>
<tr><td>Not figured</td><td>Navicula cryptocephala var. veneta (Kützing) Rabenhorst</td><td>3, 5, 6, 7, 9, 12, 13, 19, 28, 45, 48, 50</td></tr>
<tr><td>Not figured</td><td>Navicula cryptocephala var. intermedia Grunow</td><td>6</td></tr>
<tr><td>Not figured</td><td>Navicula “Hartshilliana” Mihi</td><td>7, 16</td></tr>
<tr><td>Not figured</td><td>Navicula “Twycrossiana” Mihi</td><td>51</td></tr>
</table>

Plate 19[5]

A

Plate 20 *Navicula* Section *Lineolatae*

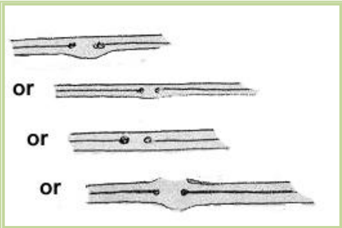
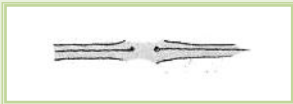
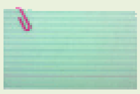
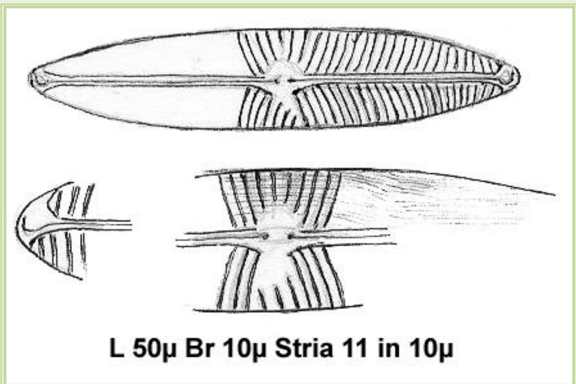
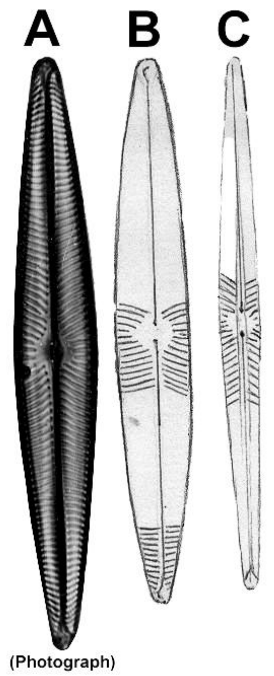
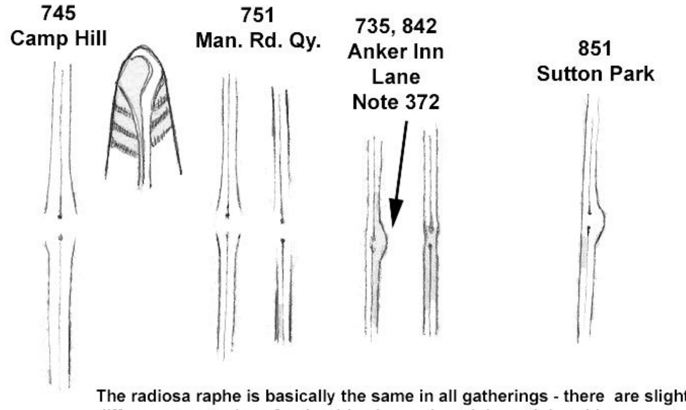
Figure	Species/Text	Locations
A	*Navicula radiosa* Kützing	1, 2, 3, 5, 6, 7, 9, 11, 16, 18, 19, 20, 26, 27, 29, 42, 44, 45
	Appendix to form 20 A, B *Navicula radiosa* Kützing The plant *Navicula radiosa* when examined clearly shews quite a little difference on one or two points. 1. Outline. This can vary from an acute form to quite a much "fatter" form beyond what may be considered type, such as "A" (photograph by N. I. Hendey) At Polesworth in the River Anker there are forms quite fat and I am sure are still *radiosa* – the only doubt I raise is the Length x Breadth ratio is a little close. 2. Central area can differ quite a bit depending on the stria arrangement. Often one can find forms with the odd one or two short ones but generally all stria are "evenly shortened". 3. The centre of the raphe ridge can also slightly differ:  If the diatom is heavily silicified then of course the feature is like the last feature. 	
B	*Navicula radiosa* (NOT var. *acuta*) Kützing	3, 7, 19
	See 20 A	
C	*Navicula* ~~*angustata*~~	No location cited
	Could be *N. cari* v. *angustata*	
Not figured	*Navicula radiosa* Hustedt	24
	 *Navicula* Sutton Park Slide 948 ~~*Stankochi* Hustedt (Mihi)~~ *A. radiosa* fa.  I do not think this form is *radiosa*! There are too many small but important points which do not fit a typical *Navicula radiosa*: 1. Outline far too lineate 2. Raphe terminals quite large 3. Change from radiate to divergent in the wrong place – too near the ends.	

Plate 20



Navicula radiosa raphes (Central area)



The radiosa raphe is basically the same in all gatherings - there are slight differences as to how far the ridge is continued through but this is a habitat feature & the reaction of silicification.
There are occasions when radiosa has the odd short central stria which upsets the usual pattern. See also para 22 of JRC letter of 21-10-63.
See 842 - J. Blakemore find for N. radiosa with 735 & 842 Type Raphe Centre.

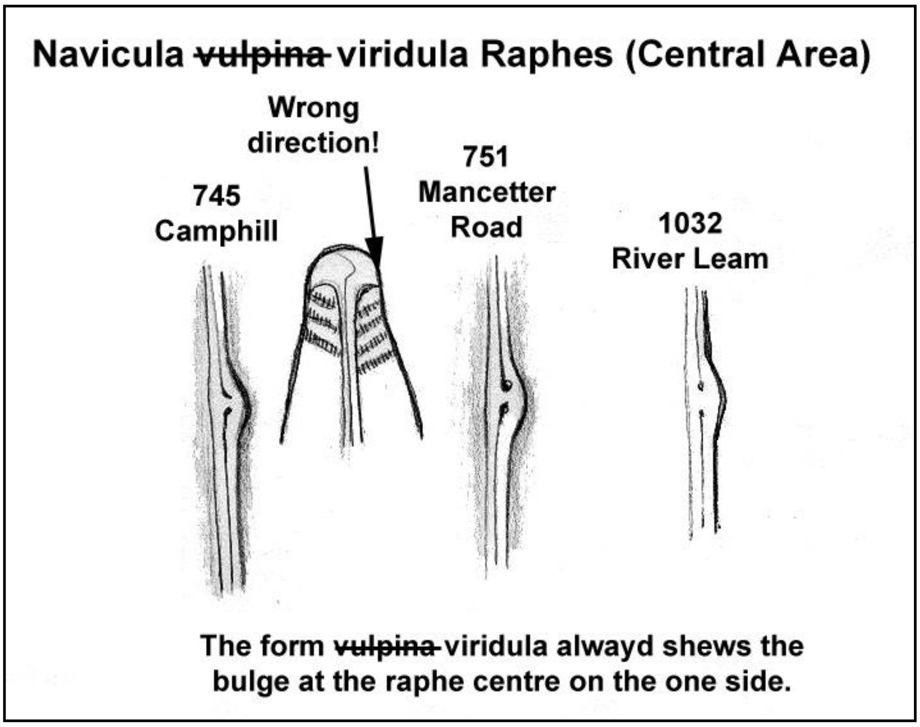

Navicula ~~vulpina~~ viridula Raphes (Central Area)
Wrong direction!
745 Camphill
751 Mancetter Road
1032 River Leam
The form ~~vulpina~~ viridula alwayd shews the bulge at the raphe centre on the one side.

Plate 20[1] *Navicula – Lineolatae* Cleve

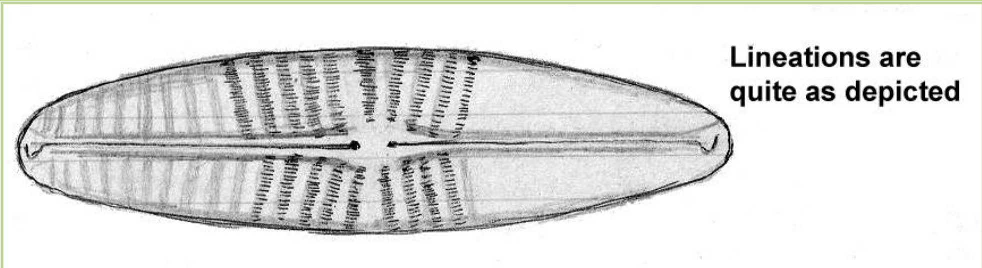
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>H</td><td>Navicula gracilis Ehrenberg</td><td>1, 2, 11, 12, 13, 16, 19, 24, 26, 29, 44</td></tr>
<tr><td>J</td><td>Navicula gracilis fa. “obtusa” Mihi</td><td>16, 29</td></tr>
<tr><td>K</td><td>Navicula gracilis fa. “alpha” Mihi</td><td>29</td></tr>
<tr><td>E</td><td>Navicula lanceolata Ehrenberg</td><td>1, 3, 5, 12, 19, 24</td></tr>
<tr><td rowspan="2">F</td><td>Navicula cincta (Ehrenberg) Ralfs</td><td>16, 24</td></tr>
<tr><td colspan="2">Appendix to 20[1] F
Navicula ??
Sutton Park
Cleaning 801
35µ long 8µ wide Stria 10 in 10µ puncta 25 in 10µ
The outline of this form is NOT radiosa and the seconadries are coarser.
The form too is definitely lineate. Lineations coarser than radiosa!

</td></tr>
<tr><td rowspan="2">L</td><td>Navicula “Shuttingtonia” Mihi</td><td>19, 44</td></tr>
<tr><td colspan="2">Appendix to form 20[1] L
Navicula “Shuttingtonia”
Slide 1110 Marked
Length 35µ Breadth 7µ Stria 15/16 in 10µ wider and coarser at centre.
Central area angular – at least not strictly rounded. Axial area very small. Stria strongly radiate and note especially as NOT divergent at ends, still slightly radiate. Ends of raphe slightly produced. Lineations not clear, but definitely lineate form.
(Query in the cryptocephala region).</td></tr>
</table>

Plate 20[1]

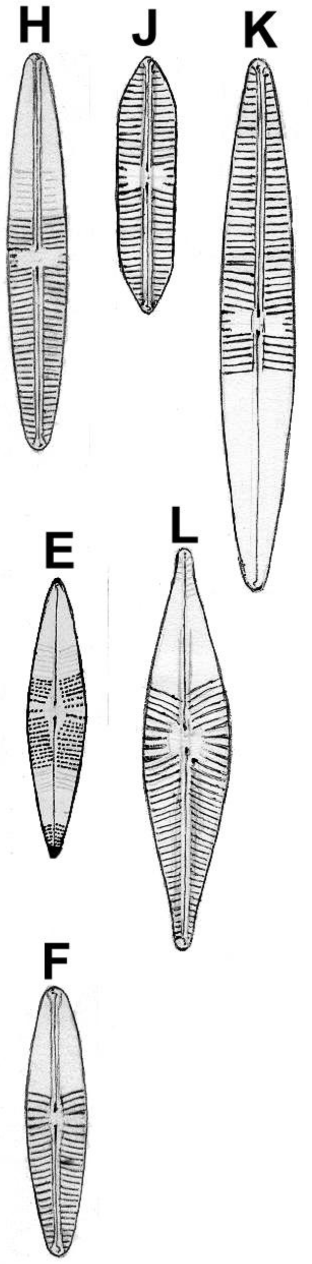


Plate 20^2 *Navicula – Lineolatae* Cleve

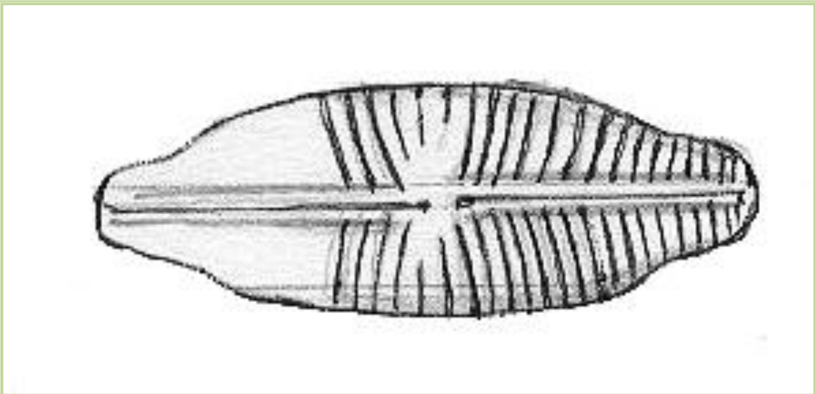
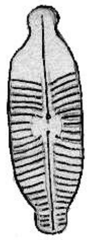
Figure	Species/Text	Locations
G^1	*Navicula dicephala* (Ehrenberg) W.Smith	5, 7, 16, 19, 24, 26, 44, 48
G^2	*Navicula dicephala* (Ehrenberg) W.Smith	No location cited
G^3	*Navicula dicephala* (Ehrenberg) W.Smith	No location cited
J	*Navicula "dicephaloides"* Mihi	24
	Appendix to form 20^2J *Navicula "dicephaloides"* Length 15µ Breadth 7µ Stria 14 in 10µ  This form is rather a mystery to me and the nearest I can identify to is *Navicula dicephala* group.	

Plate 20²

G¹



G²

G³

J

Plate 20[3] *Navicula* (*Lineolatae*)

Figure	Species/Text	Locations
A	*Navicula Rheinhardtii* Grunow	24, 26
B	*Navicula Rheinhardtii* Grunow	24, 26
D	*Navicula oblonga* Kützing	3, 9, 16, 20

Plate 20³

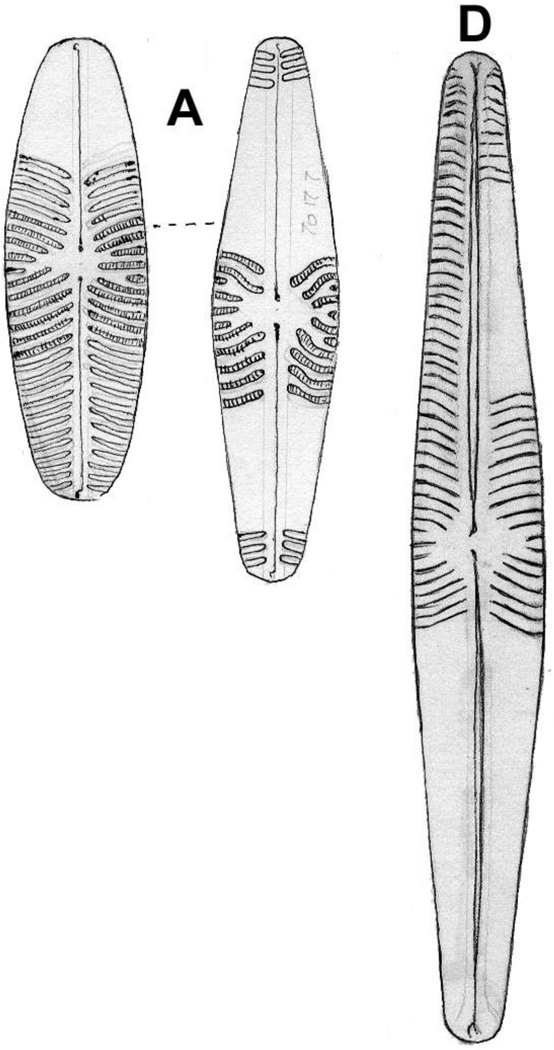


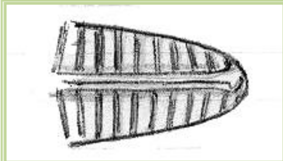
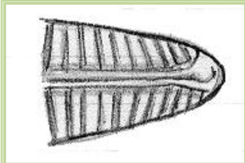
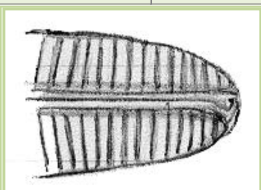
Plate 21 *Navicula* Sect. *Lineolatae*

Figure	Species/Text	Locations
J	*Navicula Hungarica* Grunow	12
B	*Navicula Hungarica* var. *capitata* (Ehrenberg) Cleve	3, 5, 6, 8, 9, 16, 19, 26, 27, 29, 31
L	*Navicula* ~~*cincta* (I have doubts)~~ *digito-radiata* var. *elliptica*	5, 7, 8, 12, 16, 24, 26, 31, 45, 48
	(See 356 marked slide)	
G	*Navicula digito-radiata* ? var. *Heufleri*	5, 12, 25, 26, 28, 29, 43, 52
Not figured	*Navicula "pseudo-cincta"* DeToni	44, 48

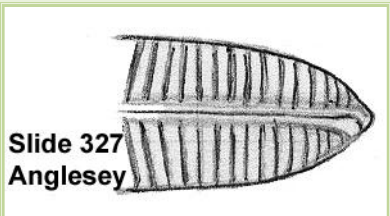
Plate 21 *Navicula* Sect. *Lineolatae* (continued)

Figure	Species/Text	Locations
K	*Navicula digito-radiata* var. *elliptica* Oestrup	12, 16, 19, 24, 45

1979 form 21 K
This is *Navicula digito-radiata* v.*elliptica* Oestrup.
Is a freshwater form and should not have been made a variety – The true *digito-radiata* is a littoral marine form and never found in freshwater. It has coarser stria and always a larger form. I agree, casually they have similarities but there are ecological differences as well as morphological. HGB.
Appendix to form 21 K
Sutton Park - Slide 951 etc.
Length 60µ Breadth 10µ Stria 10 in 10µ
This form exceeds the dimensions of *Navicula cincta* and the stria are coarser.

cincta	Sutton form
Length 20-40µ Breadth 5-6µ Stria 12-17 in 10µ Axial area ENG Slightly lanceolate	Length 60µ Breadth 10µ Stria 10 in 10µ Axial area ENG Slightly lanceolate
	
Hustedt *digito-radiata* Length 50-80µ Breadth 11-18µ Stria approx 9 in 10µ Axial area ENG Not lanceolate	Hendey *digito-radiata* Length 44-84µ Breadth 16-20µ Stria -?- Axial area ENG Not lanceolate
	

The outline of any of these forms vary and not to be taken much note of – I would attach far more importance to the stria directions at frustules ends. The Sutton Park form generally favours *cincta* but is out of Hustedt's range for the form. If the end stria are anything to go on then the form is NOT *digito-radiata* but a form larger than all Hustedt's *cincta*.



A further point against "*digito-radiata*" is *digito-radiata* is often seen with a tendency to an apiculate end also the raphe is not truly central but:-

The central area of *digito-radiata* is generally smaller than the Sutton form also does not tend to a lanceolate axial area.
Croft Road Brick pit Slide 1145
Again this large *cincta* Length 47µ Breadth 9µ Stria 12 in 10µ. Outline a little more lanceolate than form 21 L.

Plate 21 *Navicula* Sect. *Lineolatae* (continued)

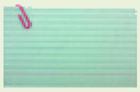
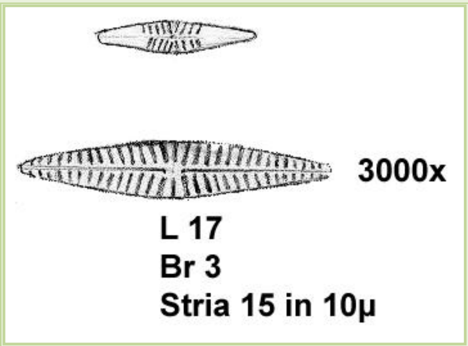
Figure	Species/Text	Locations
M	*Navicula? ~~Cari~~*	1, 16, 19
Not figured	*Navicula odiosa* Wallace var. *odiosa* (Reference: Patrick and Reimer, 1966)	4
	 Right-hand side Water Tower Gate Slide 1286  A very small form of the lineate group. I have frequently noticed same but the closest I can identify is:- *Navicula odiosa* Wallace var. *odiosa*. See Pat. and Rei. Page 570. Diatoms of USA.	

Plate 21

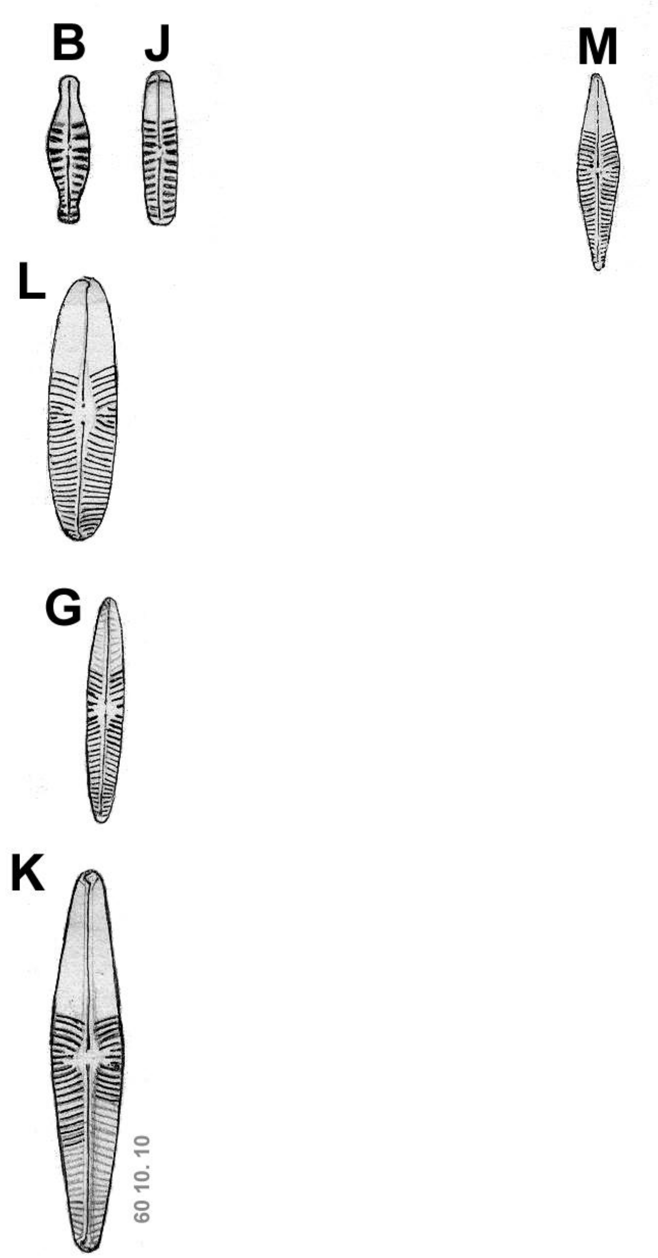


Plate 21[1] *Navicula*

Figure	Species/Text	Locations
A	*Navicula rostrata* Ehrenberg	16, 29, 44

Plate 21[1(A)]

A

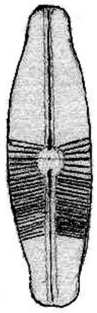
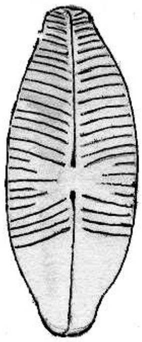


Plate 22 *Navicula* (Section *Lineolatae*)

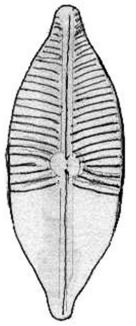
Figure	Species/Text	Locations
B	*Navicula placentula* fa. *rostrata* (Mayer) Hustedt	12, 23, 29
A	*Navicula gastrum* (Ehrenberg) Kützing	1, 2, 12, 19, 26
	Navicula gastrum 22A 26 site River Avon, Stanford Reservoir This form I think is *gastrum* but is below the limits of Hustedt i.e. (25µx12µ) The dimensions of the River Avon form are Length 24µ Breadth 10µ and the ends area little on the narrow side. When compared with the normal *gastrum*. Stria 10 in 10µ running closer at ends ? Could possibly be e*xiguiformis* Hustedt	
C	*Navicula exigua* (Gregory) Grunow	24
Not figured	*Navicula fossilis* Ehrenberg	50

Plate 22

A



B



C

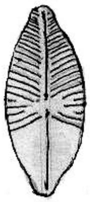


Plate 23 *Navicula* (Section *Lyratae* Cleve)

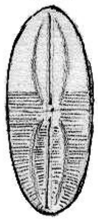
Figure	Species/Text	Locations
A	*Navicula pygmaea* Kützing	1, 5, 19

Plate 23 *Navicula* (Section *Punctatae*)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">B</td><td>Navicula Galikii Pantocsek (amphibola Cleve)</td><td>20</td></tr>
<tr><td colspan="2">Appendix to form 23 B
Navicula amphibola Cleve
This plant is quoted by Hustedt as “amphibola Cleve” but in correspondence with N. I. Hendey he gives the title as amphibola Pant. And the following as synonyms:
Navicula punctata var. asymetrica Lagerstedt
Navicula amphibola var. asymetrica (Lagerstedt) Cleve
Navicula amphibola Heiden
Navicula amphibola var. Orientalis (Kiss.) Zobelina
My first meeting with the form was a gathering from Newborough Warren, Anglesey, N. Wales and due to this habitat was not surprised at the find – but when found in the present Midlands habitat I WAS surprised.
The form is not rare on the “Blakemore” slide 942 – there were about 6.
It would appear to have undergone a few very minor changes in Length x Breadth ratio and stria count but I am fairly sure these are due to habitat. Normally the forms are found in large expanses of slightly brackish waters in Europe (see Hustedt M. Europe).
Of course it could be a migratory bird introduction and now existing here.</td></tr>
</table>

Plate 23

A



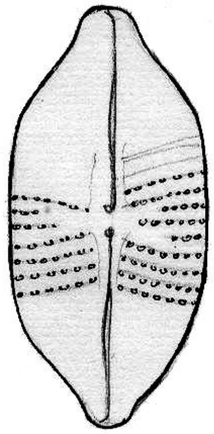


Plate 24 *Pinnularia* (Section *Parallelistriatae*)- Ehrenberg

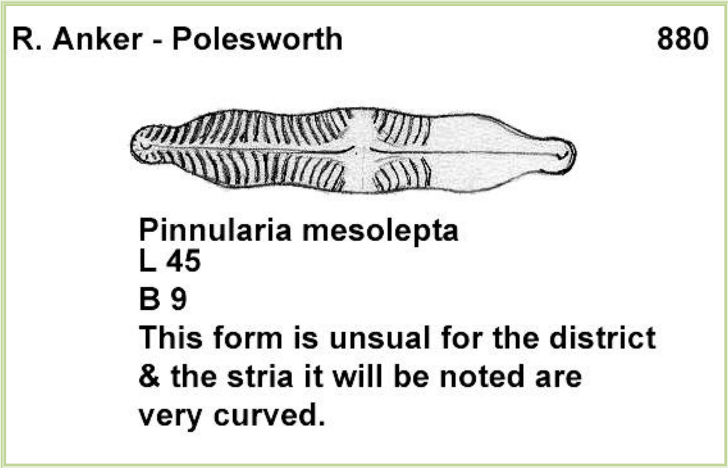
Figure	Species/Text	Locations
D	*Pinnularia sublinearis* (Grunow) Cleve	1
C	*Pinnularia ~~?molaris~~ microstauron* var. *Brebissonii* (Kützing) Mayer	5, 11, 12, 19, 24, 45
A	*Pinnularia mesolepta* (Ehrenberg) W.Smith	1, 5, 6, 16, 17, 18, 19, 24, 28, 32, 33
		
B	*Pinnularia mesolepta* var. *angusta[ta]* Cleve	1, 33, 42
E	*Pinnularia “Suttonensis”*	24
	Appendix to form 24 E *Pinnularia “Suttonensis”* Slide 851 Sutton Park Length 32µ Breadth 8µ Stria 15 in 10µ The axial area of this form is VERY narrow and the raphe threadlike so I cannot place with *viridis* with any degree of confidence. The general features are as depicted. I would say, perhaps, “*paralelastriata*” but cannot be coupled to *Pinnularia sublinearis*, as this form is much narrower 4-5µ broad. Whereas this is 8µ wide, also the stria of *sublinearis* is 21-24 in 10µ this has 15 in 10µ.	
F	*Pinnularia fasciata* (Lagerstedt) Hustedt	16
G	*Pinnularia microstauron* (Ehrenberg) Cleve	24
	Appendix to form 24 G *Pinnularia microstauron* Slide 948 Sutton Park Length 37µ Breadth 10µ Stria 12-13 in 10µ The form is not a stable one, but I think as identified. The stauros not specific but the rest of the characters are within *Pinnularia microstauron*.	

Plate 24

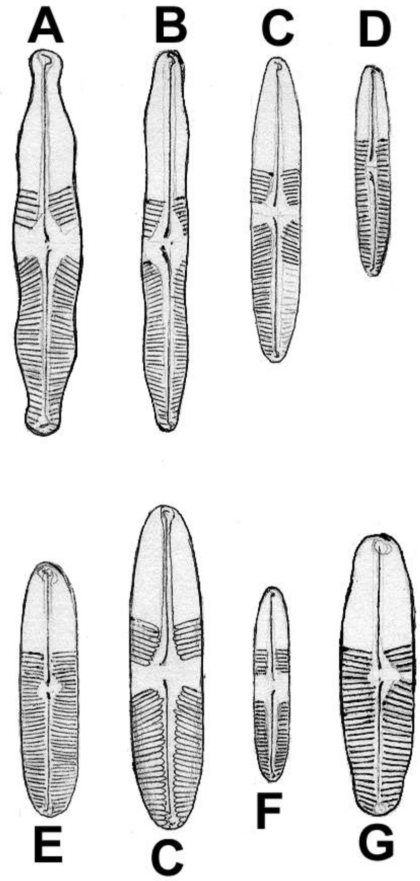
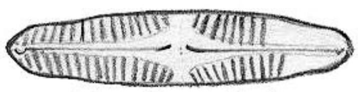
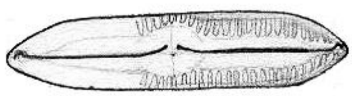


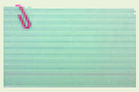
Plate 25 *Pinnularia (Section Capitatae)*

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>N</td><td>Pinnularia interrupta W.Smith</td><td>9, 16, 19, 33, 44</td></tr>
<tr><td>D</td><td>Pinnularia interrupta W.Smith</td><td>9, 16, 19, 33, 44</td></tr>
<tr><td>K</td><td>Pinnularia interrupta fa. minutissima Hustedt</td><td>5, 18, 25</td></tr>
<tr><td>E</td><td>Pinnularia appendiculata (C.Agardh) Cleve</td><td>1, 8, 18, 33</td></tr>
<tr><td>Not figured</td><td>Pinnularia Braunii (Grunow) Cleve</td><td>No location cited</td></tr>
<tr><td>F</td><td>Pinnularia Braunii var. amphicephala (Mayer) Hustedt</td><td>6, 24</td></tr>
<tr><td>G</td><td>Pinnularia Braunii var. amphicephala (Mayer) Hustedt</td><td>6, 24</td></tr>
<tr><td rowspan="2">U</td><td>Pinnularia “Cosbyi” Mihi</td><td>43</td></tr>
<tr><td colspan="2">Stria 10½ in 10µ</td></tr>
<tr><td rowspan="2">Q</td><td>Pinnularia subcapitata W.Gregory</td><td>7, 16, 18, 19, 28, 48</td></tr>
<tr><td colspan="2">River Anker, Polesworth
Slide 880

P. subcapitata
L 35 B 7.5 Stria 14 in 10µ
Stria a little fine, also width is at the limit for length ratio (for microstauron).
The whole of the Pinnularia on this slide are a bit odd! One or two unusual “viridis” forms which are neither here nor there!</td></tr>
<tr><td>Not figured</td><td>Pinnularia subcapitata var. divergens</td><td>7</td></tr>
<tr><td rowspan="2">A</td><td>Pinnularia “Arburyi” Mihi</td><td>5, 9</td></tr>
<tr><td colspan="2">Appendix to form 25 A
Pinnularia “Arburyi”
Slide 833
Length 35µ Breadth 7µ Stria 9 in 10µ
Elliptical linear in outline and truncate ends.
Axial area ½ to ⅓
Stria gently radiate at centre and gently radiate at ends.
Note the stria in the forms are separate.

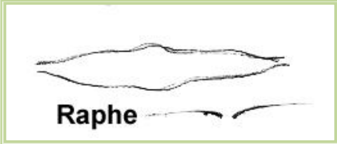
A faint but narrow longitudinal band – the raphe is simple and NOT complex but quite bold.

Arbury Hall Top Pool
Slide 833

Pinnularia “Arburyi” nov.sp.</td></tr>
</table>

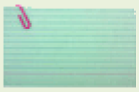
A
(continued)



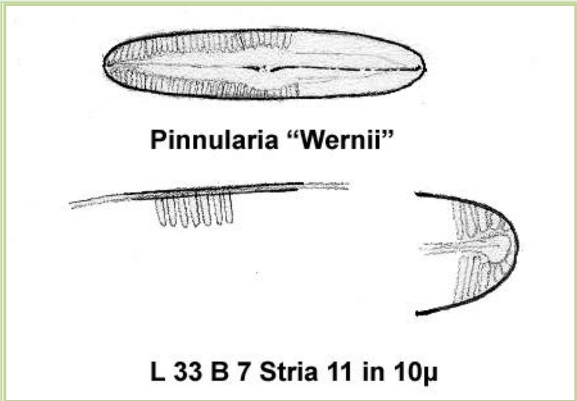
Length 35µ Breadth 7µ Stria 9 in 10µ
Elliptic linear in outline and truncate ends.
Axial area wide ½ to ⅓ of width



Stria gently radiate at centre
Stria gently divergent at ends
Stria separated
A faint but narrow longitudinal band.
Raphe not complex but quite heavy, robust.
See *Pinnularia* “*Wernii*”, the raphe here is very fine but the form is quite close, stria 11 in 10µ and other features similar.



Stream to Beach Dentraeth
Slide 449



This form is very similar to the one from Arbury Hall. See slide 833 “*Arburyi*”.
The stria are slightly in count, but axial and central area the same, stria separate and *Pinnularia* like.
The raphe, however, is not heavy and stout but very fine, central terminals much more distinct.

Stria a little closer than form “*Arburyi*”

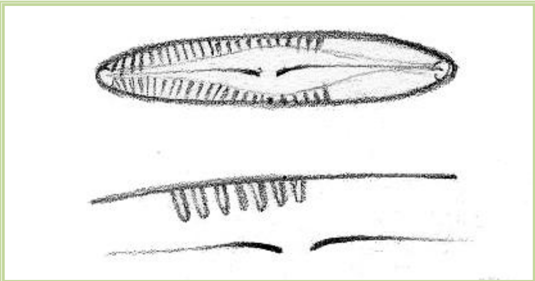
A **(continued)**	J.R. Carter Slide N2 247 (Concrete Wall) See *Pinnularia Wernii* Length 35µ Breadth 7µ Stria 12 in 10µ Outline, central area and raphe the same as for *Pinnularia Wernii*, also degree of radiation of stria. Stria not quite so separate but still on the same idea – both forms as near as possible! See also Anker Inn Lane form J25 Length 30µ Breadth 7µ Stria 12 in 10µ quite separate. See also J.R. Carter's 2832 (form similar to *Arburyi*) Length 31µ Breadth 6½µ Stria 9 in 10µ Ends not truncate but more elliptical. Pennymoor Stream JRC Slide 2832  I think your *Wernii* Horace (note by JRC) Length 31µ Breadth 6½µ Stria 9 in 10µ In the Nuneaton flora I have recorded a form very similar to this in at least two points and also in Newborough Warren.	
C	*Pinnularia irrorata* (Grunow) Hustedt	5, 9, 19
	Arbury Hall Top Pool Slide 833 *Pinnularia ?irrorata*  Length 78µ Breadth 7µ Stria 15 in 10µ Linear/elliptic in outline with slightly rostrate ends. Axial area as depicted. Very faint longitudinal band. Stria at poles follows around frustules. Note the four prominent stria at central area, the same as *Pinnularia "Ship Inn"* Slide 555. *[No indication of where The Ship Inn is located]* It would appear both these forms are allied at least. The nearest I can find is *Pinnularia irrorata* (I have no written description though) See also slide 736, the same form present.	
H	*Pinnularia irrorata* (Grunow) Hustedt	5, 9, 19

Plate 25 Pinnularia (Section *Capitatae*) (continued)

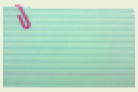
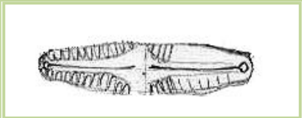
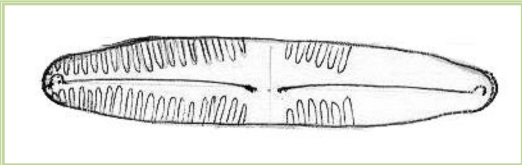
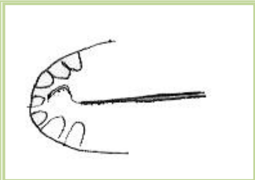
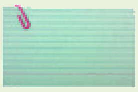
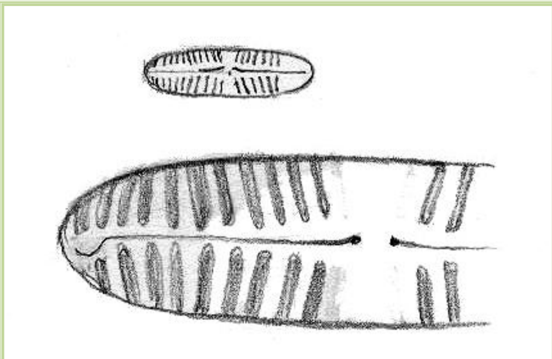
Figure	**Species/Text**	**Locations**
O	*Pinnularia "irroratoides"*	28
	 Drain from Jees tip. Slide 1059  *Pinnularia irroratoides* 25. 0. Length 22µ Breadth 5µ Stria 12 in 10µ  Note raphe curved. End of valve shew stria continuing right around end and this is very noticeable. 	
P	*Pinnularia "irroratoides"* fa. *elliptica*	9, 18, 28
Not figured	*Pinnularia interrupta* W.Smith	28
B	*Pinnularia "Dunniana"*	5
	 Anker Hill Lane Ditch and Pond Slide 736 *Pinnularia ~~"Dunniana"~~ subcapitata* "fa. *elliptica*"  Length 17µ Breadth 5µ Stria 16 in 10µ I am fairly sure this is a *Pinnularia* although the sketch may suggest *Navicula*, it has all the appearance of a small *Pinnularia* such as "*irirorata*"?? Raphe, stria and polar areas. The form is only ½ the size of the small *Pinnularias* of the district. I am now of the opinion that this is a clone end form of *Pinnularia subcapitata* and has lost the rostrate ends. In the New Phytologist Vol.44 No.2 December 1945 (Lund – Observations on Soil Diatoms. Page 93) illustrated a form of *Pinnularia microstauron* which is very close to this form. Unfortunately I have only the illustrations and no dimensions are quoted – but from the apparent size of the sketch it would be about this range.	

Plate 25 *Pinnularia* (Section *Capitatae*) (continued)

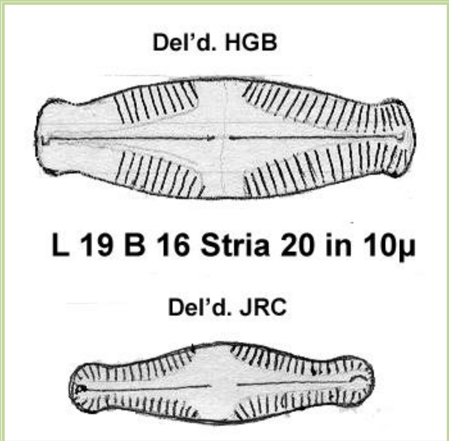
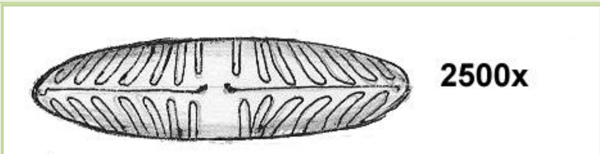
Figure	Species/Text	Locations
J	*Pinnularia "Arburyi"* Mihi	5
L	*Pinnularia globiceps* var. *Krookei*	16, 48
	Appendix to form 25 L Extract from correspondence with J. R. Carter: "*Pinnularia globeiceps* Grev. var. *Krookii* (Grun.) Cleve. Valve lanceolate with contraction before the capitate ends. 18µ long 5µ wide. Raphe straight with well separated central pores not formed to one side. Small hooked terminal fissures. Central area opens out to wide central area to join with a wide stauros area reaching the margin. Stria fairly regularly spaced. Radiate at the centre and divergent at the poles, are visible around the end of the valve leaving terminal fissures in a well defined space about 22-24 in 10µ. The form is in the group *globiceps* – *Krenkeri*, but a smaller form and closer costae, hence the identification as the opening title."  	
M	*Pinnularia "Arburyi"* Mihi	26
R	*Pinnularia polyonca* (Brébisson) W.Smith	1
	(see slide 743)	
S	*Pinnularia intermedia* fa.	23
	Appendix to form 25 S *Pinnularia "Sheepyi"* Slide 1122 River Sence, Mill Pool Length 15µ Breadth 4½µ Stria ?8-9 in 10µ This small and distinctive *Pinnularia* is linear elliptic with broadly rounded ends as figured. Axial area very narrow. Central area very large. Stria at centre at right angles and immediately becoming very convergent. There are only about 7 or 8 stria to each end! I do not think this is *Pinnularia intermedia* for the central stria should be radiate and these are not so!  I recall recording a *Pinnularia* from North Wales Slide 461 which had many similar features and this was according to N. I. Hendey "*Pinnularia intermedia*" but I am a little dubious, the four central stria are against this identification. All the illustrations I have seen of this latter form shew the stria in question as being radiate. Later – I am now of the opinion this IS *intermedia*, at least one of the forms which this diatom assumes. N.B. The central area can be much larger than that figured above.	

Plate 25 *Pinnularia* (Section *Capitatae*) (continued)

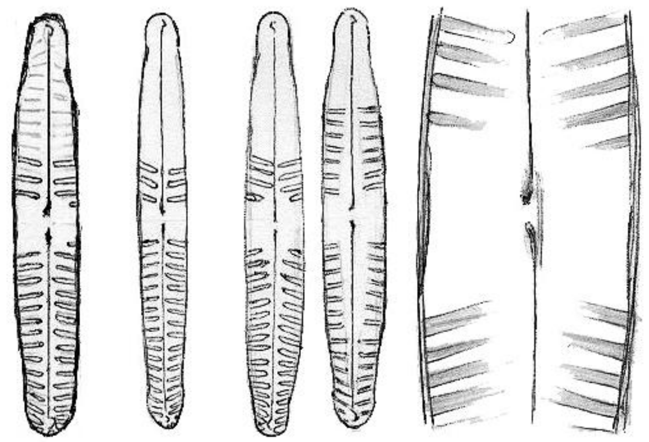
Figure	Species/Text	Locations
Not figured	*Pinnularia intermedia* (Lagerstedt) Cleve	16, 17, 19, 28, 33, 44
	Pinnularia ~~*intermedia* Lagerstedt.~~ *subcapitata* Savage's Field Slide 1097  B 27μ L 45μ Stria 12 in 10μ	
T	*Pinnularia intermedia* fa. *capitata*	51

Plate 25

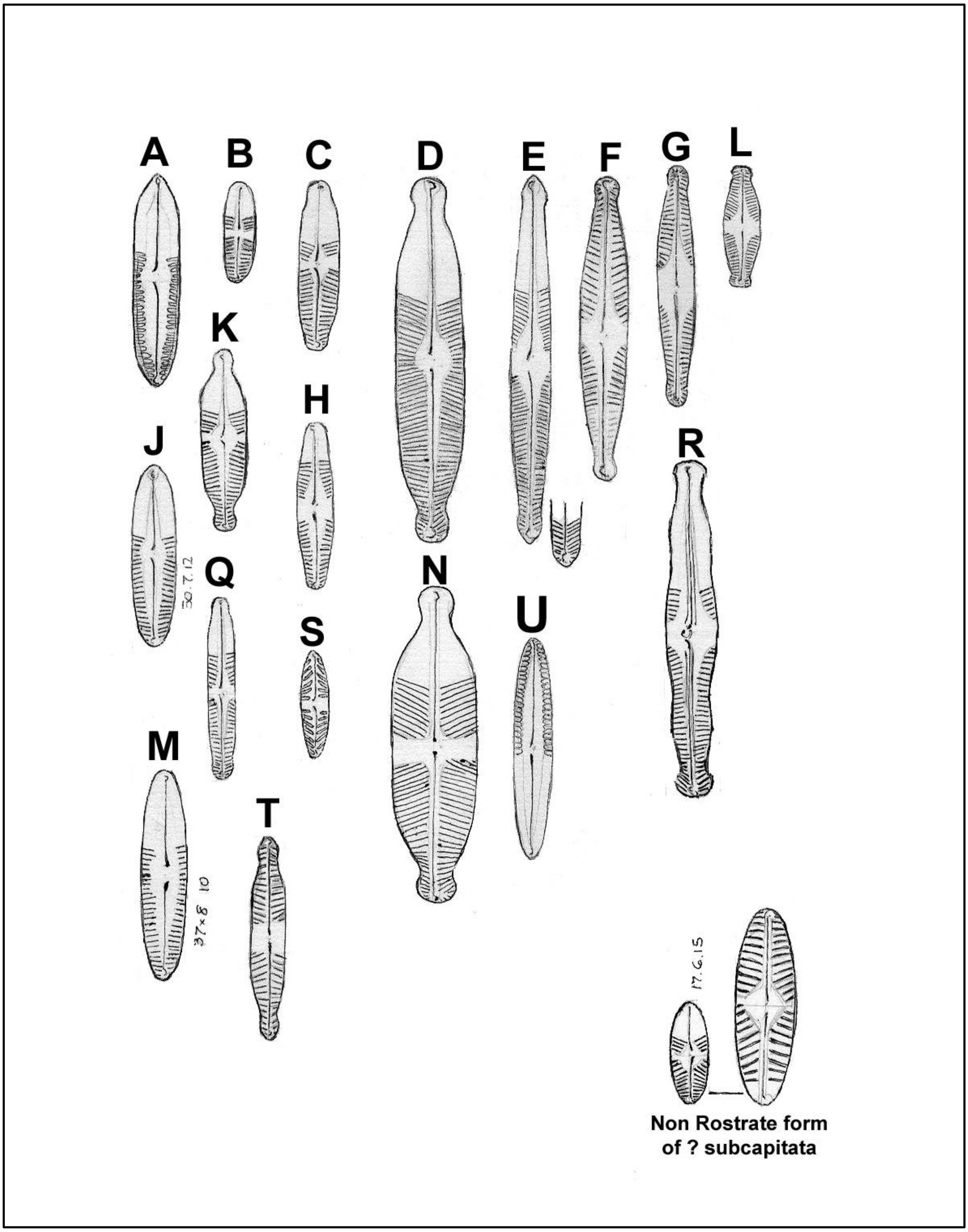

A
B
C
D
E
F
G
L
K
H
J
30.7.12
Q
S
N
U
R
M
37×8 10
T
17.6.15
Non Rostrate form of ? subcapitata

Plate 26 *Pinnularia* (Section *Divergentes*)

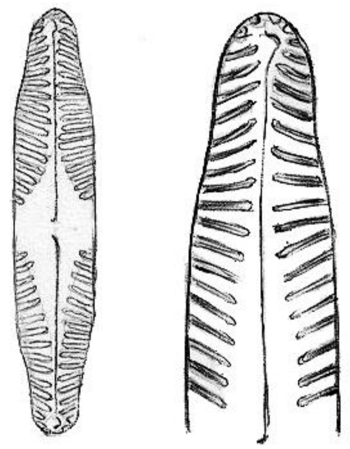
Figure	Species/Text	Locations
F	*Pinnularia microstauron* var. *Brebissoni* (Kützing) Hustedt	5, 15, 16, 17, 19, 28
C	*Pinnularia microstauron* var. *Brebissoni* (Kützing) Hustedt	1, 4, 5, 7, 26, 23, 26, 29, 31, 32, 47, 48
	Also Pinnularia microstauron subcapitata Chinese Pagoda, Ansley – Slide 1070  L 28µ Br 6.5µ Stria 15 in 10µ	
D	*Pinnularia microstauron* var. *Brebissoni* (Kützing) Hustedt	23
Not figured	*Pinnularia microstauron* var. *Brebissoni* ~~fa. *minutissima*~~ (Kützing) Hustedt	4, 5
E	*Pinnularia microstauron* var. *Brebissoni* ~~"*non-axilis*"~~ (Kützing) Hustedt	No location cited
Not figured	*Pinnularia legumen* (Ehrenberg)	18
A	*Pinnularia* ~~*Karelica*~~	26
	Appendix to form 26 A Site 26 J. R. Carter doubts that this form is "*Karelica*" but I think it is or at least very near.	
G	*Pinnularia microstauron* var. *Brebissoni* (Kützing) Hustedt	48
	Appendix to form 26 *Pinnluaria "Karelica"* Slide 1169 - Drain to stream on A4131 Here again is another form. Length 37µ Breadth 10µ Stria 12 in 10µ just under the Hensolt counts (of 40-50µ Length 10-12µ Breadth and Stria 12-16 in 10µ) Although there is a "stauros" on one slide this is not reliable. If the form is not a *Karelica* then I am unable to identify. Note well the exceptional width for the length. (Still a v. *Brebissonia*)	
B	*Pinnularia microstauron* fa. "*Sheepyi*"	23
	Appendix to form 26 B *Pinnularia microstauron* fa. *Sheepyi* Slide 1115 Sheepy LT Length 42µ Breadth 12µ Stria 13-14 in 10µ. Outline as sketched. The nearest I can identify is *microstauron* group. There is no stauros centre but the centre of the form depicted is what I call "filled in", the stria being somewhat uneven in placing. I do not think a *subsolaris* as the stria are too fine 13-14 not 10 in 10µ.	

Plate 26

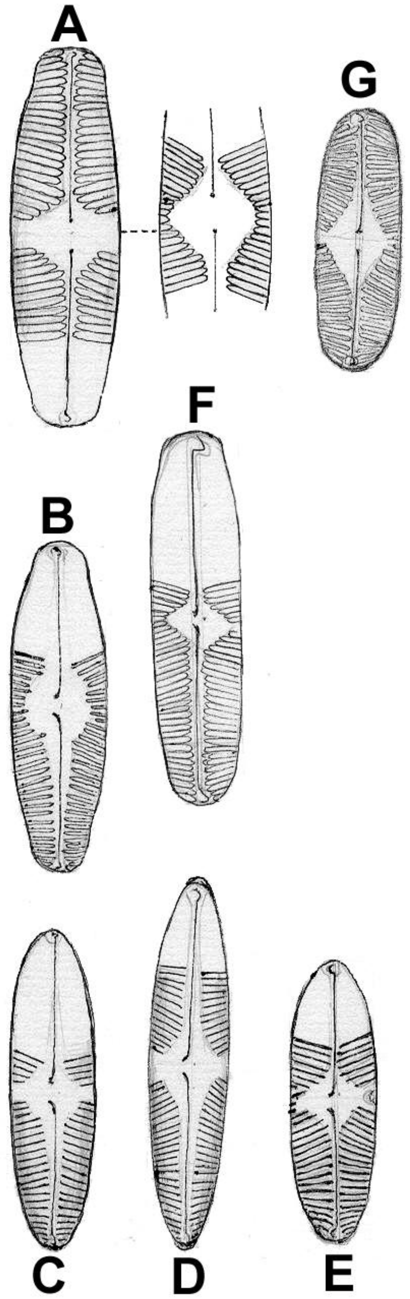


Plate 27 *Pinnularia* (*Distantes*)

Figure	Species/Text	Locations
A	*Pinnularia borealis* Ehrenberg	1, 4, 19, 21, 26, 28, 29
Not figured	*Pinnularia borealis* var. *brevicostata* Hustedt	19, 42
F	*Pinnularia lata* (Brébisson) W.Smith	18
	Appendix to form 27 F *Pinnularia lata* Slide 1201 Site 18 The form figured is about normal for size but on the slide is a good size variation where the Length 73µ Breadth 38µ.	

Plate 27 *Pinnularia* (*Brevistriatae*)

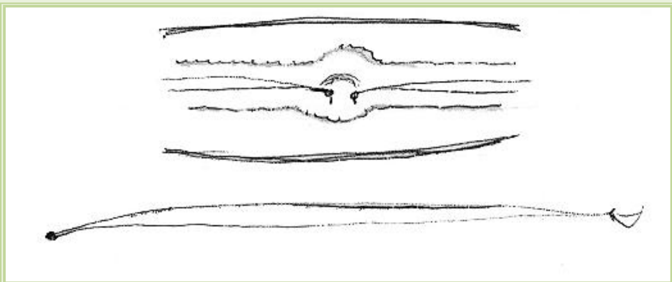
Figure	Species/Text	Locations
B	*Pinnularia hemiptera* (Kützing) Rabenhorst	9, 24
BB	*Pinnularia hemiptera* (Kützing) Rabenhorst	9, 24
E	*Pinnularia hemiptera* (Kützing) Rabenhorst	42
D	*Pinnularia dactylus* Ehrenberg	10
	Appendix to form 27 D *Pinnularia dactylus* The illustration 615 of Hustedt's Middle Europe has small points which are not depicted. Such as the top fold of the raphe, but I am fairly sure the form is *dactylus*. Length 200µ Breadth 30µ Stria 6 in 10µ Hustedt says: 4-5 in 10µ! Length 160-328µ Breadth 30-50µ	
C	*Pinnularia gigas*?	1
	Appendix to form 27 C *Pinnularia* Length 160µ Breadth 28µ Stria 6 in 10µ This form is placed in the sub section until such time as I can correctly identify. There are spps of 120µ Length 22µ Wide and still stria 6/7 in 10µ. Also some slight central area differences:-  Longitudinal bands fall to inner edges! Further form raphe – very little turnover on top!	

Plate 27

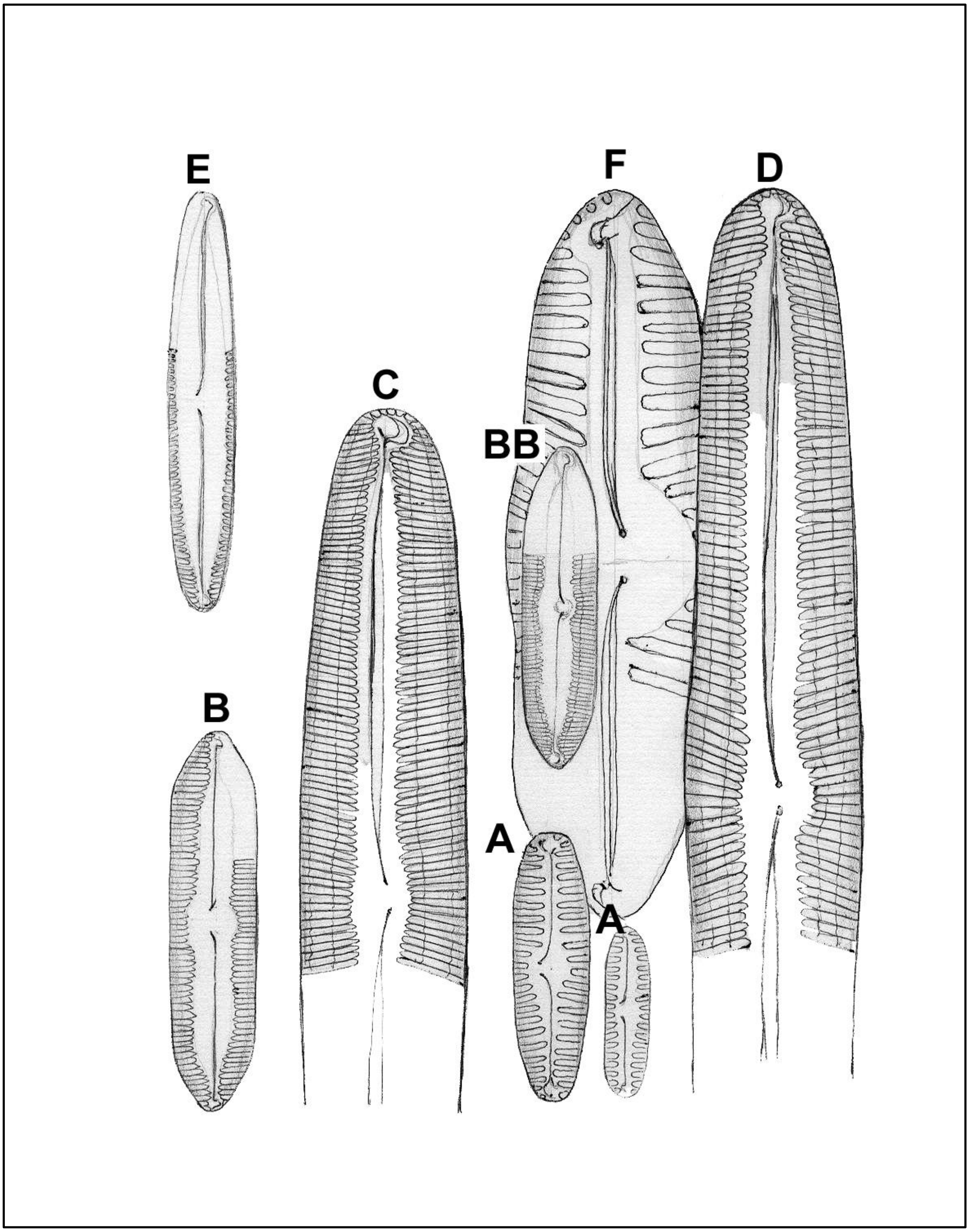


Plate 28 *Pinnularia* (Section *Tabellariae*)

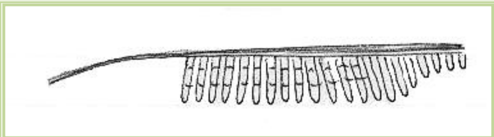
Figure	Species/Text	Locations
C	*Pinnularia ~~gibba~~ isostauron* (Ehrenberg) Cleve	9, 10, 18
	Appendix to form 28 C Oldbury Reservoir Slide 1201 Site 18 The terminal nodules of this form are hidden by detritus somewhat and it is difficult to pin to *Pinnularia gibba,* but I have a strong feeling that this is as identified.	
Not figured	*Pinnularia mesogongyla* Ehrenberg	9
	Slide v1065	
Not figured	*Pinnularia "Caldecottei"*	19
	Not illustrated *Pinnularia "Caldecottei"* J.R.C Valve linear-oval 120µ x 25µ also 90µ x 17µ Rhaphe undulate undulate and complex with comma shaped terminal fissures and central pores turned to one side. Longitudinal area lanceolate with some dilation at the centre forming a more or less rounded central area. Stria radiate at centre and divergent at the poles, strong, evenly spaced about 7 in 10µ. Longitudinal band very wide indeed being nearly the width of the stria. For the greater part of its length the inner edge of the band runs contiguous with the ends of the stria nearest the raphe.	
B	*Pinnularia stomatophora* (Grunow) Cleve	26
A	*Pinnularia "reedii"* Mihi	16, 19
	Appendix to 28 A *Pinnularia rubiana* or *radio* Spring Wood 1 Reed Slide 848 Length 70µ Breadth 9µ Stria 9-10 in 10µ and rather well separated. The raphe is as:-  And a conjectured section would be:  The nearest I can place the form is close to *stomatophora*. There are of course differences but the raphe is the main clue (providing Hustedt's illustration is correct). Note: The stria for *stomatophora* are quoted as 12-13 in 10µ, the form under note is 9-10 in 10µ. 	

Plate 28

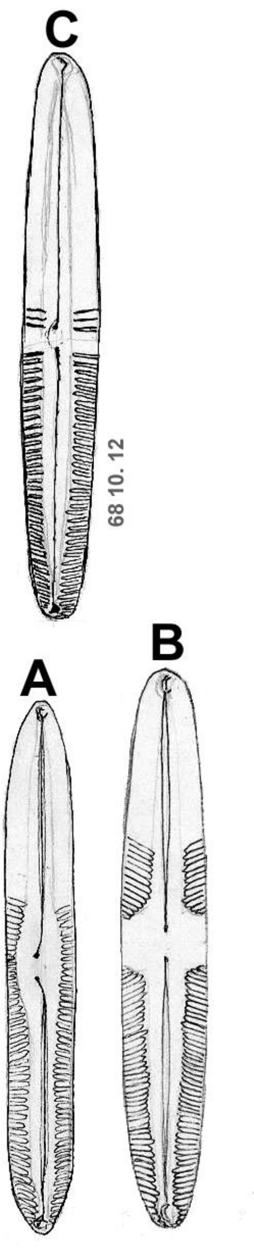


Plate 29 *Pinnularia* (Section *Majores*)

Figure	Species/Text	Locations
A	*Pinnularia major* (Kützing) Rabenhorst	1, 2, 3, 5, 7, 8, 10, 11, 12, 16, 17, 18, 19, 23, 29, 42, 44
B	*Pinnularia major* (Kützing) Rabenhorst	23
	(850 Sheepy) Appendix to 29 B Slide 850 Sheepy Mill *Pinnularia major* of rather extreme shape for type. Quite plentiful at Sheepy Mill, Atherstone. Length 220µ Breadth 25µ Stria 7 in 10µ and 6.5 in 10µ. Longitudinal bands wider than form 29A.	
C	*Pinnularia transversa* (A.Schmidt) Mayer	10, 19, 24
D	*Pinnularia major* (Kützing) Rabenhorst	18, 29

Plate 29

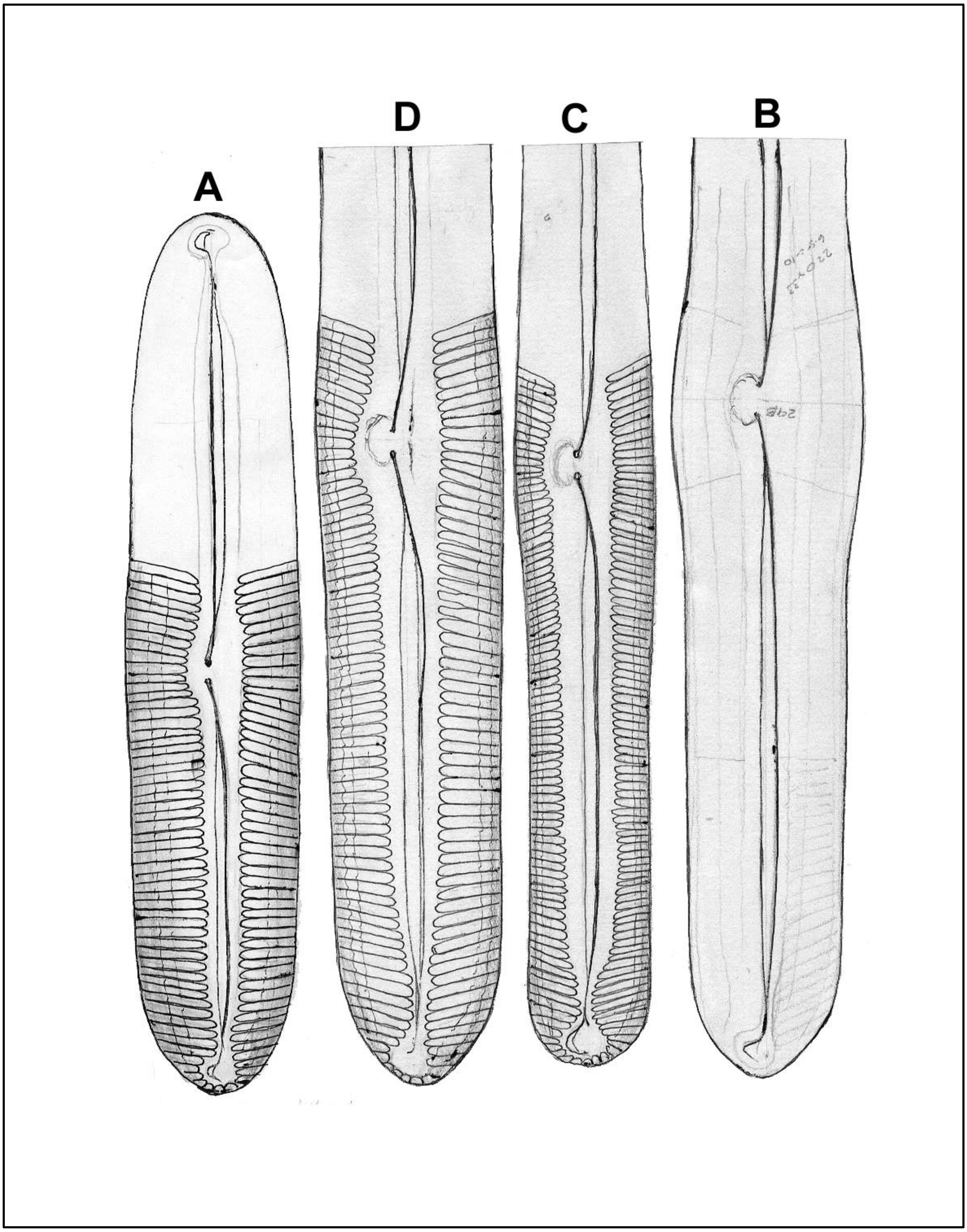


Plate 29[1] *Pinnularia* (*Complexae*)

Figure	Species/Text	Locations
E	*Pinnularia nobilis* Ehrenberg	1, 3, 12, 18
H	*Pinnularia gentilis* (Donkin) Cleve	1

Plate 29[1]

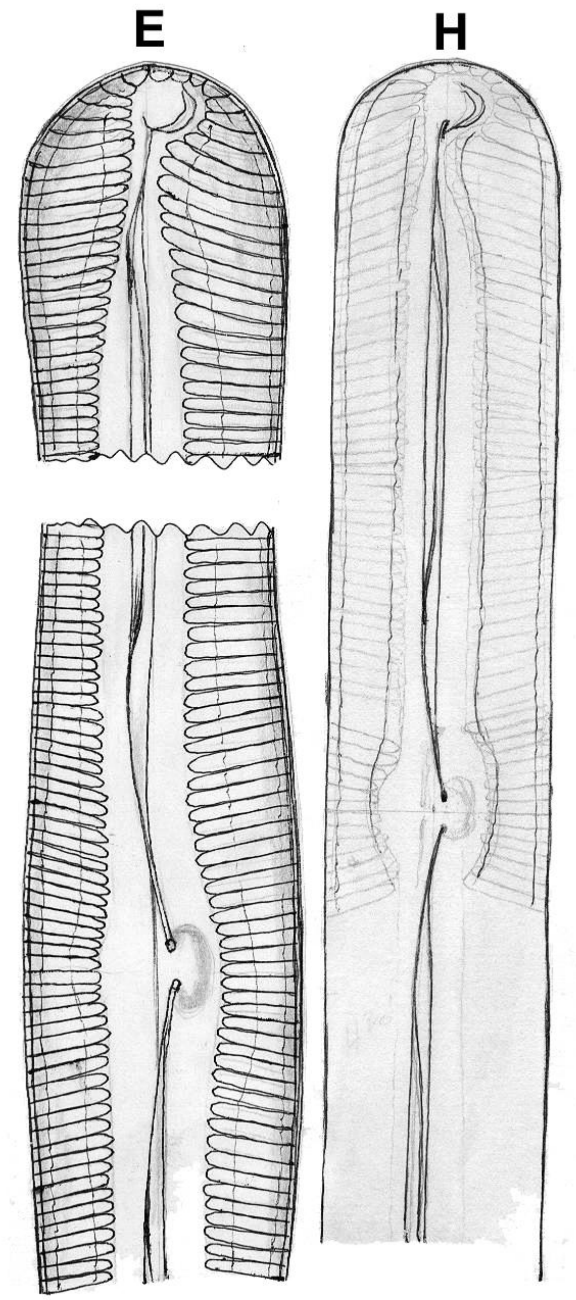


Plate 29^2 *Pinnularia*

Figure	Species/Text	Locations
E	*Pinnularia major* "fa. *Sheepyi*"	23
	Appendix to form 29^2 E *Pinnularia major "*fa. *Sheepyi"* Slide 1115 Length 160 Breadth 28 Stria 6 in 10µ Note: Raphe is excentric and raphe quite simple also axial area very narrow! These could be the point that the form is an auxospore form! Appendix to form 29^2 E *P. transversa* Length 200µ Breadth 22µ Stria 6 in 10µ. A gathering made in the pool in Riversley Park, Nuneaton revealed this form in prolific numbers, the first time I had found same in the district – I had NOT recorded from N. Wales or Cheshire previously – J. R. Carter says 5 or 6 places in Scotland.	

Plate 29[2]

E

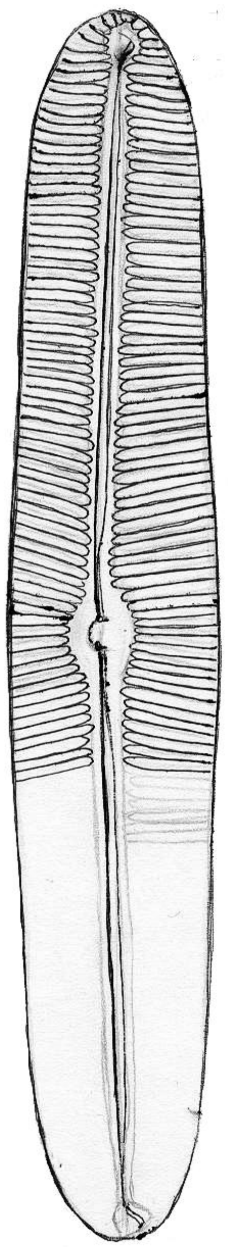
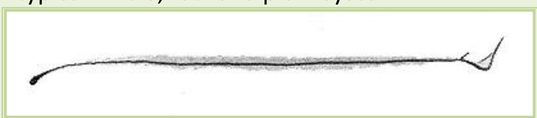
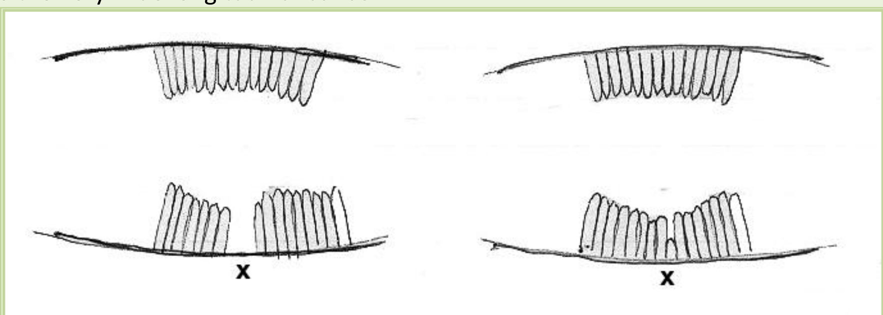
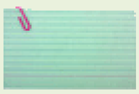
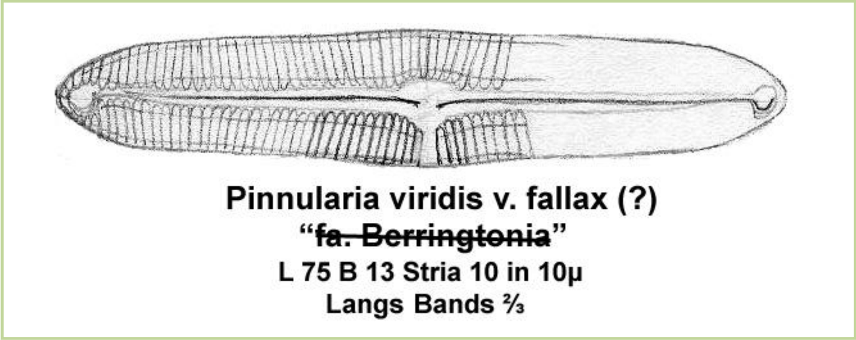
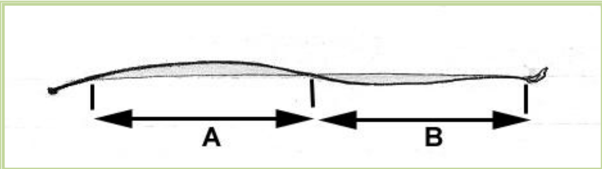


Plate 30 *Pinnularia (Section Complexae)*

Figure	Species/Text	Locations
Not figured	*Pinnularia viridis* (Nitzsch) Ehrenberg	1, 4, 5, 7, 8, 9, 16, 17, 18, 28, 29, 32, 33, 42, 44
P	*Pinnularia viridis* “~~fa. *Avoniana*~~” var. *fallax* Cleve	26, 28
	Appendix to form 30P *N(?). viridis* fa. “*avoniana*” Slide 1052 Length 95µ Breadth 20µ Stria 6 in 10µ This is yet another form I have had to place within the orbit of *viridis* as the form can be contained within the written description quoted by Hustedt but I feel the whole range needs clarifying.	
A	*Pinnularia viridis* “~~fa. *Berringtonia*~~” var. *fallax* Cleve	5, 17
	Appendix to *Pinnularia viridis* fa. *Berringtonia* 30 A Slide 134 Savage’s Field, Mancetter Road (site now built over) Later – considered to be very close to *Pinnularia viridis* v. *fallax* Cl. Length 75µ Breadth 13µ Stria 10 in 10µ The form lies within the orbit of *viridis* and the feature of the missing stria is not an isolated case – see also Maes Caradoc slides from Nant Ffrancon, N. Wales and see Yardley Cottage Pond Slide 889 for similar form with well defined raphe. The raphe system is NOT typical *viridis*, rather a plain system:  The only complexity if should be so – the outer position definite and the inner somewhat hazy. The typical *viridis* raphe:-  Note too the very wide longitudinal bands.  All the forms on slide 734 carry either a complete break or a shortened stria at the most – so there is no constant feature to give variety status – at the most “forma”.  Ditch – Savage’s Field, Mancetter Road, Nuneaton Slide 734	

<table>
<tr><td>A
(continued)</td><td colspan="2">

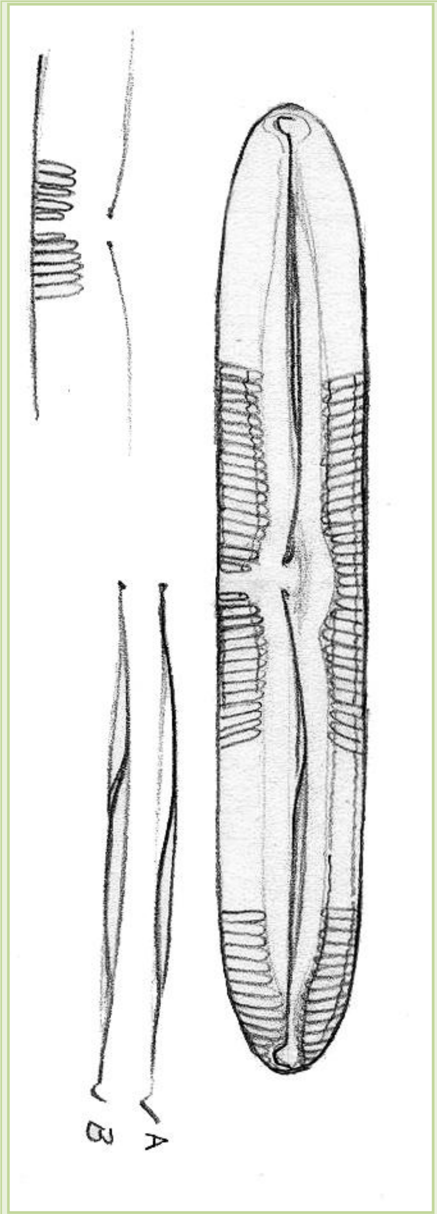
This form comes in the wide orbit of “viridis”.
See also the form from Maes Caradoc in N. Wales.
So far as the raphe system is concerned I cannot see the 50/50 twist which is so typical of the “type viridis”.
The raphe of this form is quite hazy like the raphe of Stauroneis phoenicentron.
Note too the very wide longitudinal bands for a viridis.
NOT all the forms on the slide carry the break in stria on one side. Some have a short stria filling the gap so that the feature cannot be a constant.</td></tr>
<tr><td rowspan="2">B</td><td>Pinnularia <s>viridis “</s><s>fa.</s> <s>Draytonia”</s> biclavata fa. intermedia</td><td>21</td></tr>
<tr><td colspan="2">Appendix to form 30 B
P. viridis fa. “Draytonia”
Slide 889
Length 100µ Breadth 15µ Stria 6-7 in 10µ
Longitudinal bands ¾ of stria.
The raphe system of this is nearly type as I understand the viridis raphe to be:


Distances A and B are generally equal and the curve as shewn.
30 B form raphe:

Many of the forms have the small central semi stauros.

Ditch – Fenny Drayton
Slide 889
Pinnularia viridis fa. “Draytonia”
Length 100µ Breadth 15µ Stria 6 in 10µ
Longitudinal bands ¾ of stria.</td></tr>
</table>

B
(continued)



Raphe sytem of the Type but shews quite a variation as depicted from the slow twisted top (A) to the quicker twist of (B). On this slide are a numbers of *Pinnularias* and quite puzzling.
Many of the forms have small gap at centre of stria.
I am later of the opinion that this is a form of *breviastrata* or nearer still *Pinnularia biclavata* fa. *intermedia* (A. Cleve-Eul. Fig. 1111b)

C	*Pinnularia viridis* "fa. *gentsiana*"	22

Appendix to form 30 C
"*viridis* fa. *gentsiana*".
See Slide L49
The dimensions of this form are as follows:
Length 65µ Breadth 17µ Stria 9 in 10µ
Note particularly the stria are quite parallel but at the ends near to the poles have a peculiar hooked bend.

The raphe sytem is rather obscure and as near as I can see is:

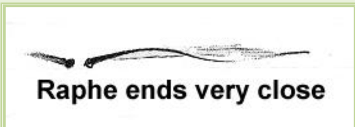


Plate 30 *Pinnularia* (Section *Complexae*) (continued)

Figure	Species/Text	Locations
D	*Pinnularia viridis* “var. *viridis*”	19, 22
	Appendix to form 30 D *Pinnularia viridis* var. *viridis* See slide L49 See Pat. and Rei. Pl.64 No.5 Longitudinal bands variable – generally about ½ The central stria are gently radiate at the centre but like form 30 C are parallel for the rest of the valve. The raphe system is more defined and nearer to the *viridis* type. Appendix to forms D and DD continued Slide L49 There are one or two suitably placed complete frustules on the slide and from examinations the axial area of this form shews variation on widths to top and bottom valves so that the narrow or wide area is not specific.	
G	*Pinnularia viridis* “fa. *truncata*”	1
	Appendix to form 30 G ? *viridis* fa. “*truncata*” Slide 745 Although I have included this under the Spp *viridis* this is only temporary – Length 80µ Breadth 15µ Stria 8 in 10µ. Longitudinal bands narrow. Ends truncate. Axial area ⅓ width of valve. Raphe not clear cut, but as below:  A point to notice. The change over in stria radiation is very close to the end for this group.	
K	*Pinnularia viridis* ~~“fa. *30K*”~~ var. *fallax* Cleve	7, 25, 26, 28
	Appendix to forms 30 K and 30 L Jee’s Tarmac Plant (Slide 356) and River Avon (Slide 1052) The raphes of both forms are similar type.  A main line with just a suggestion of hazy structure at a lower focus – further forms of var. *fallax*.	
L	*Pinnularia viridis* ~~“fa. *30L*”~~ var. *fallax* Cleve	7, 26, 52
M	*Pinnularia viridis* “fa. *30M*”	7, 19, 25
DD	*Pinnularia viridis* “fa. *30DD*”	22
	Appendix to form 30 DD Slide L49 There are many slight variants on this slide. This one has slight radiation stria at centre, one side only – not an inflated axial area. Note the very narrow langbands here compared to the previous ones. If it was not for the lack of length I would accept some of these forms as *P. gentilis*. Appendix to forms D and DD continued Slide L49 There are one or two suitably placed complete frustules on the slide and from examinations the axial area of this form shews variation on widths to top and bottom valves so that the narrow or wide area is not specific.	
N	*Pinnularia viridis* “fa. *30N*”	9
J	*Pinnularia viridis* “fa. *30J*”	18

Plate 30 *Pinnularia* (Section *Complexae*) (continued)

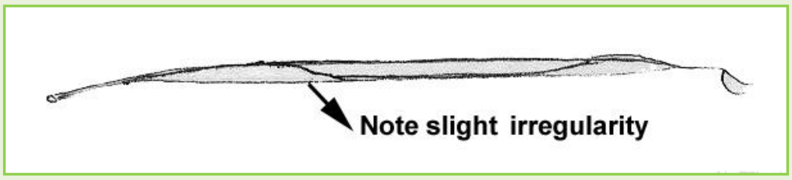
Figure	Species/Text	Locations
F	*Pinnularia gentilis* (Donkin) Cleve	2
	(Not depicted) Appendix to 30 F *Pinnularia ~~major~~ gentilis* fa. Slide 60 Corporation Quarry Length 180µ Breadth 28µ Stria 6.5 in 10µ Longitudinal band very wide ⅘ Raphe  There is a very slight timidity at the centre otherwise parallel – Ends semi-circular.	

Plate 30

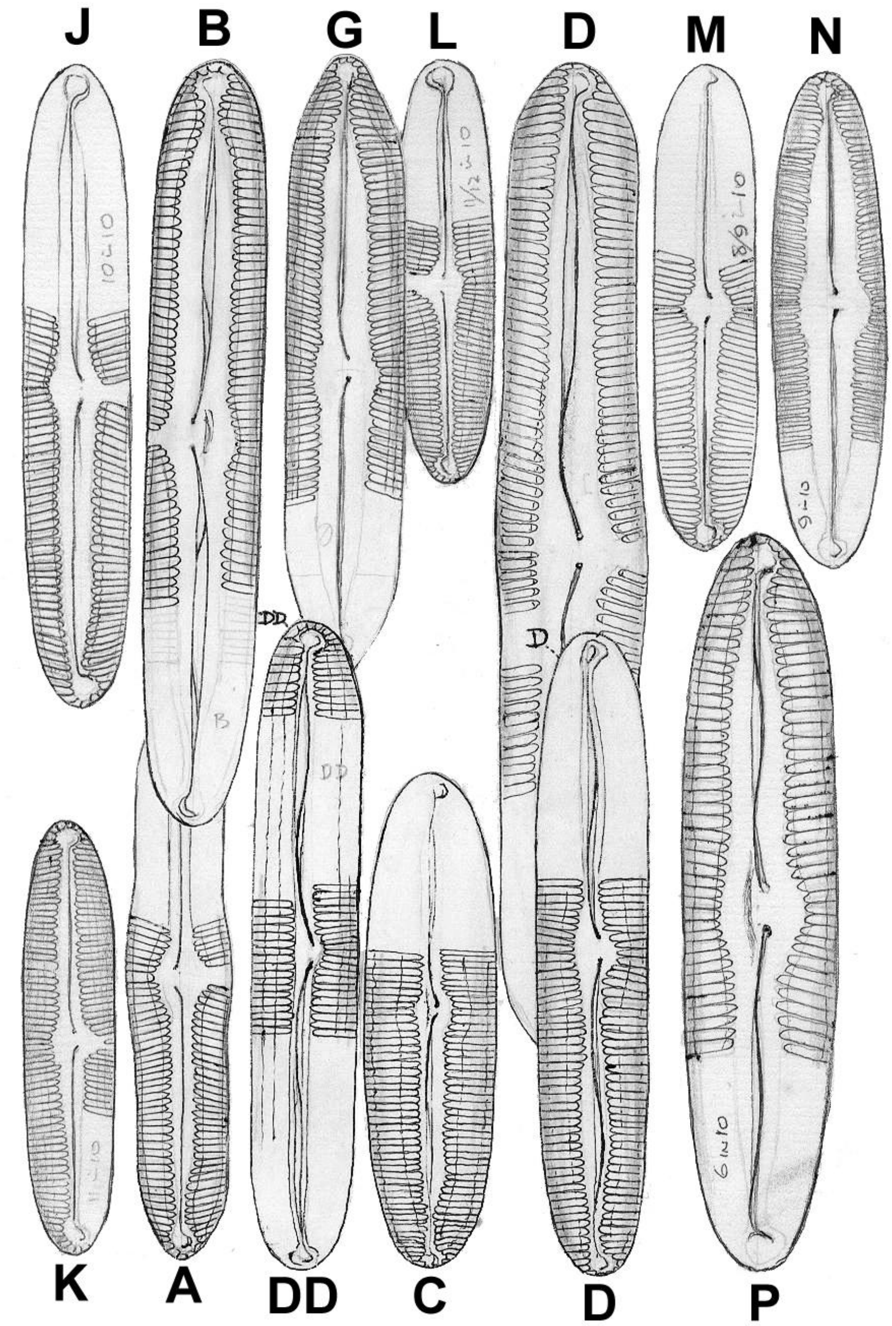


Plate 31 *Pinnularia*

Figure	Species/Text	Locations
A	*Pinnularia viridis* var. *sudetica* (Hilse) Hustedt	42

Plate 31

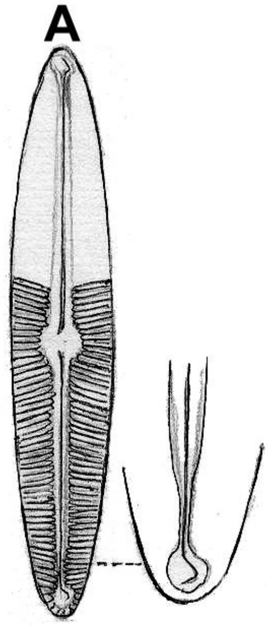
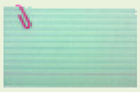
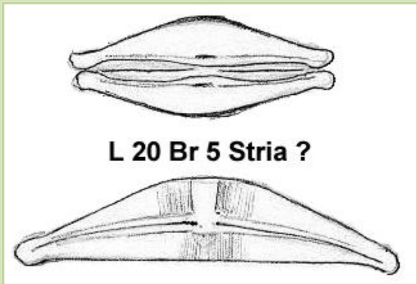


Plate 32 *Amphora* – Ehrenberg

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>A</td><td>Amphora ovalis Kützing</td><td>1, 2, 5, 7, 8, 9, 10, 11, 12, 16, 18, 19, 23, 24, 26, 27, 29, 31, 42, 44</td></tr>
<tr><td>B</td><td>Amphora ovalis var. pediculus Kützing</td><td>1, 3, 4, 8, 11, 12, 13, 19, 23, 29, 44</td></tr>
<tr><td>C</td><td>Amphora ovalis var. pediculus fa. ventricosa</td><td>23</td></tr>
<tr><td>D</td><td>Amphora veneta Kützing</td><td>8, 10, 11, 19, 26</td></tr>
<tr><td rowspan="2">E</td><td>Amphora “glacialis”</td><td>48</td></tr>
<tr><td colspan="2">
Slide 1157
A4131 Stream nr. Mancetter


Since depicting the first find (i.e. upper) I have now found another better placed form and can just about get down to the stria and main features. Stria at least 30 in 10µ, may be more.
The raphe is curved at end and the dorsal part of the valve has a hyaline stauros as expected. I cannot resolve ends of raphe to see what they are like.
Is the form A. delicatissima Krasske?
No! nearer laevis or sublaevis Hustedt but I do not think it is either.
Have found this:- Amphora Montana Kr. Which usually occurs as a soil diatom. Have not seen it before.</td></tr>
<tr><td>Not figured</td><td>Amphora Normanii Rabenhorst</td><td>16</td></tr>
</table>

Plate 32

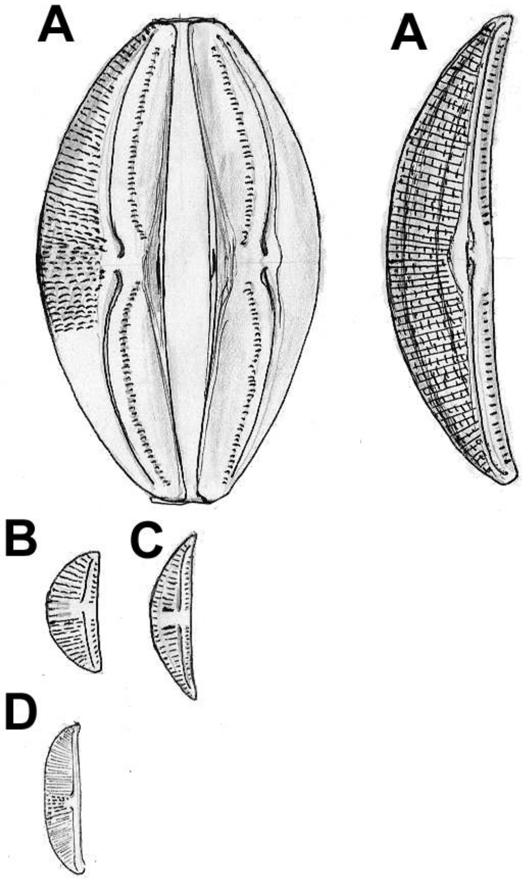
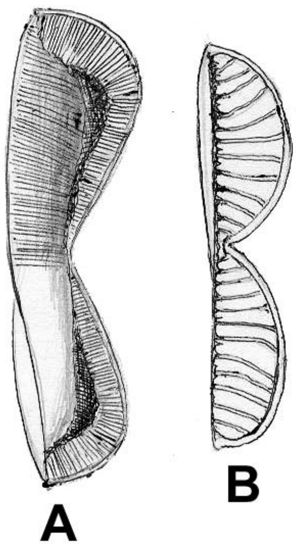


Plate 32[1] *Amphiprora*

(See slide 901 Chatsworth House and Croft Road Brick Pit also for this genus)

Figure	Species/Text	Locations
E	*Amphiprora ornata* Bailey (*rivularis* Brébisson)	6, 24
A	*Amphiprora ornata* Bailey	44[6], 45
B	*Amphiprora costata* Hustedt	44[6]

Plate 32[1]



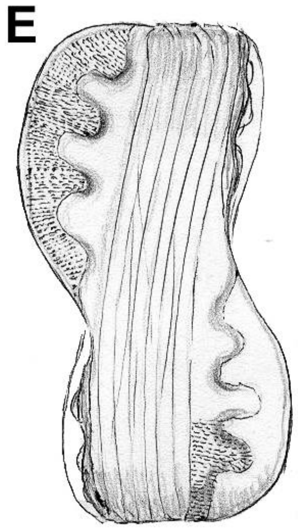
Sutton Park! Slide 949

Amphiprora ornata Bail. **(Rivularis** Breb.**)**

Length 65µ Breadth 35µ Stria 14 in 10µ

This was a surprising find so far from the coast & I am quite satidfied there is not the slightest chance of the form being one of contamination, for apart from normal procedures taken to prevent this happening it is at least 3 years since I handled any such material.

HGB



2 Found now
In correspondence with J. R. Carter he states it quite common in a Lancashire canal. Evidently an introduction which is able to survice inland in suitable waters.

Also later found
in Spalding District
1966 (quite common)

Plate 33 *Cymbella* – Agardh

Figure	Species/Text	Locations
A[1]	*Cymbella aspera* (Ehrenberg) Cleve	3, 9, 10, 18
A[2]	*Cymbella aspera* (Ehrenberg) Cleve	No location cited
A	*Cymbella lanceolata* (C.Agardh) Kirchner	1, 3, 12, 29
Not figured	*Cymbella helvetica* Kützing	1, 2, 11

Plate 33

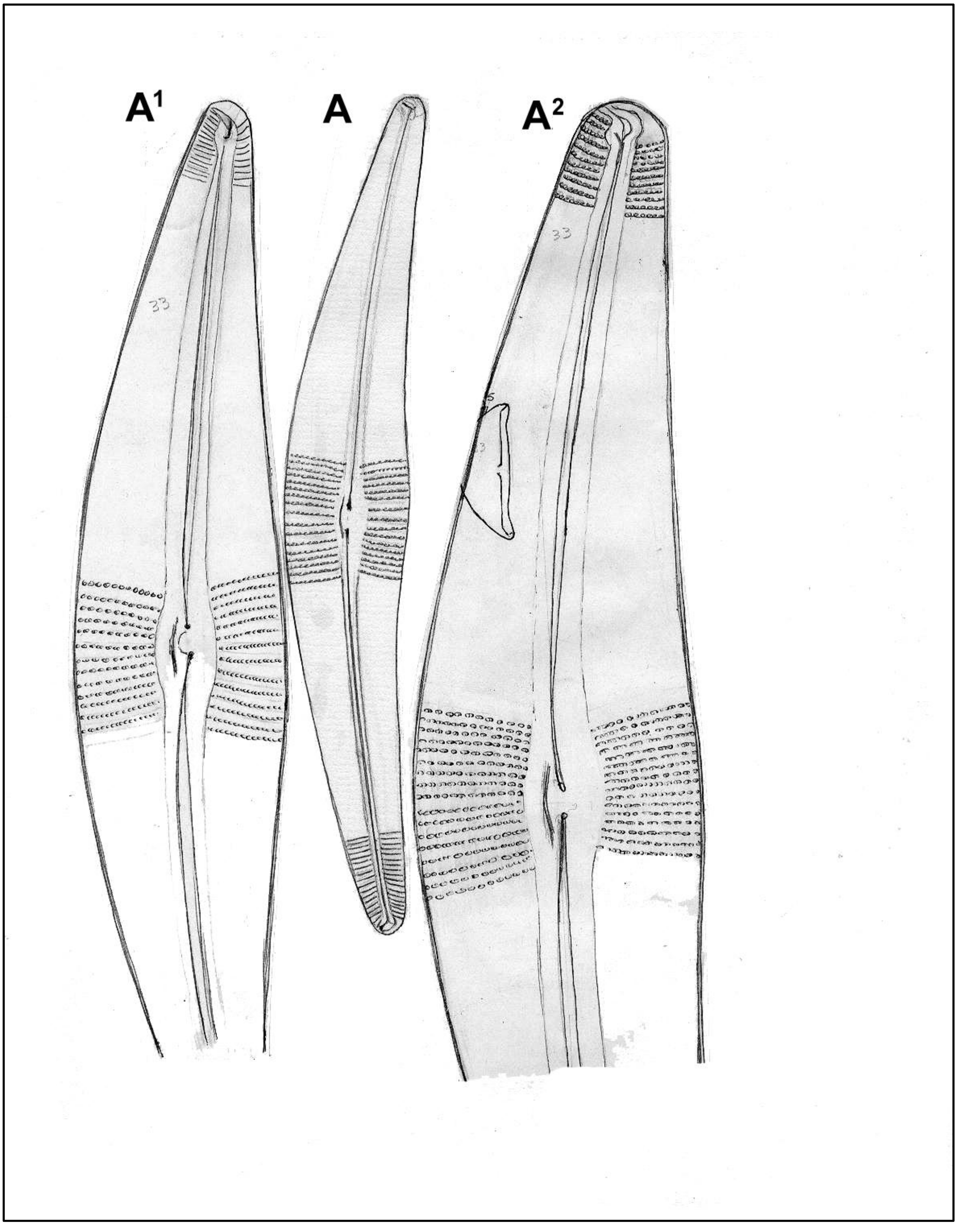


Plate 33^1 *Cymbella* – Agardh

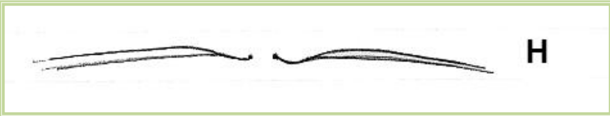
Figure	Species/Text	Locations
C^1	*Cymbella cistula* (Ehrenberg) O.Kirchner	1, 2, 3, 9, 10, 11, 12, 16, 19, 24, 26, 29, 44

Appendix to forms 33^1 C, 33^1 C^2, 33^1 C^3, 33^1 B^2

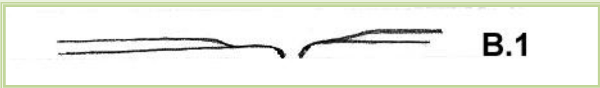
Cymbella cistula

I am of the opinion that there are some points of *cistula* which need looking at from a specific point of view. If particular attention is paid to the central parts of the raphes then it will be seen there are one or two type all under the heading of *cistula*.

Raphe as per Hustedt:



I do not find the raphe as so but:

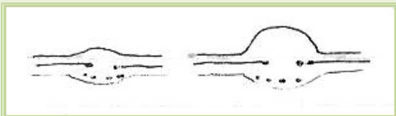


I also find a form within the orbit of *cistula* with a raphe as so:

This type of raphe is NEVER clean cut but what I refer to as "hazy".

So, on these grounds we are confronted with 3 types of distinct raphe central ends. H, B.1, B.2

Regarding the central area for B.2 these I am aware from previous researches can vary from the very slight to the large semicircular on the dorsal side.



Also I have seen forms where on one side of the valve there is the large semicircular area and the opposite valve the same area is very slight! So far as the isolated puncta are concerned these too can vary from 3 to 8 or even more!

Hustedt's dimensions of cistula are:

	H	B.2
Length	35-180µ	70µ
Breadth	15-36µ	20µ
Stria	6-9 in 10µ	8 in 10µ (average)
Dorsal	6-9 in 10µ	
Ventral	6-9 in 10µ	
Puncta	18-22 in 10µ	18 in 10µ
Isolated puncta	4	4 large top

Figure	Species/Text	Locations
C^2	*Cymbella cistula* (Ehrenberg) O.Kirchner	No location cited
C^3	*Cymbella cistula* (Ehrenberg) O.Kirchner	No location cited
B^2	*Cymbella cistula* (Ehrenberg) O.Kirchner	1

Clear Raphe and hazy raphe

Figure	Species/Text	Locations
C	*Cymbella parva* (W.Smith) Cleve	12

Appendix to 33^1 C

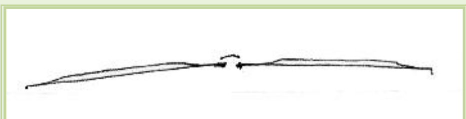
Cymbella parva

Seeswood Pool

Slide 894

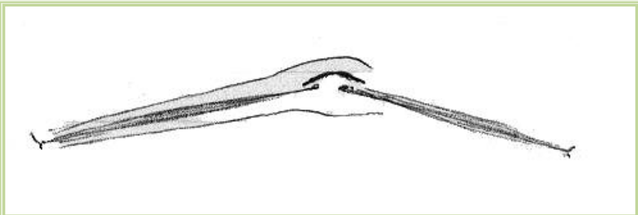
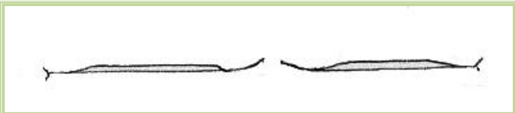
Dimensions are 52µ x 12µ. Dorsal stria 9-10 in 10µ Ventral 10-11 in 10µ and lineate.

The raphe of this form is:



And I am unable to see any loop or twist at centre.

Plate 33^1 Cymbella – Agardh (continued)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">F</td><td>Cymbella cistula var. maculata (Kützing) vanHeurck</td><td>1, 18, 29</td></tr>
<tr><td colspan="2">Appendix to form 33^1 F
Slide 1032
River Leam
The form is not common on the slide but I have noted particularly as I am of the opinion it one of the cistula/cymbiformis group which are very complicated.
Length 88µ Breadth 22µ Stria 9 in 10µ in centre, ends 15 in 10µ
Mainly punctate as are the rest of this group.
The nearest I can equate with is “cistula var. maculata”.
The raphe of this form is practically straight, not simple but very like the “cistula hazy raphe form”.

Axial area is fairly wide and somewhat lanceolate.
A further point to note is the ventral stria for ¾ of these range are closer spaced than the dorsal – the dorsal stria centre 6/7 in 10µ. At normal measuring point 6½ in 10µ, ends 10 in 10µ. Ventral – 9 in 10µ, ends 11 in 10µ.
The fig. 676B of Hustedt in Midd. Europe is not good as the puncta illustrations are misleading, should be heavier than depicted.
A further point 676B shews a:

Type raphe (my clear variety) quite different to the form under notice.

Appendix to form 33^1 F
Cymbella maculata
River Leam
Slide 1032
I have some doubt regarding this form being Cymbella cistula var. maculata.</td></tr>
<tr><td>To be sketched</td><td>Cymbella amphicephala var. hercynica (A.Schmidt) Cleve</td><td>1</td></tr>
</table>

Plate 33[1]

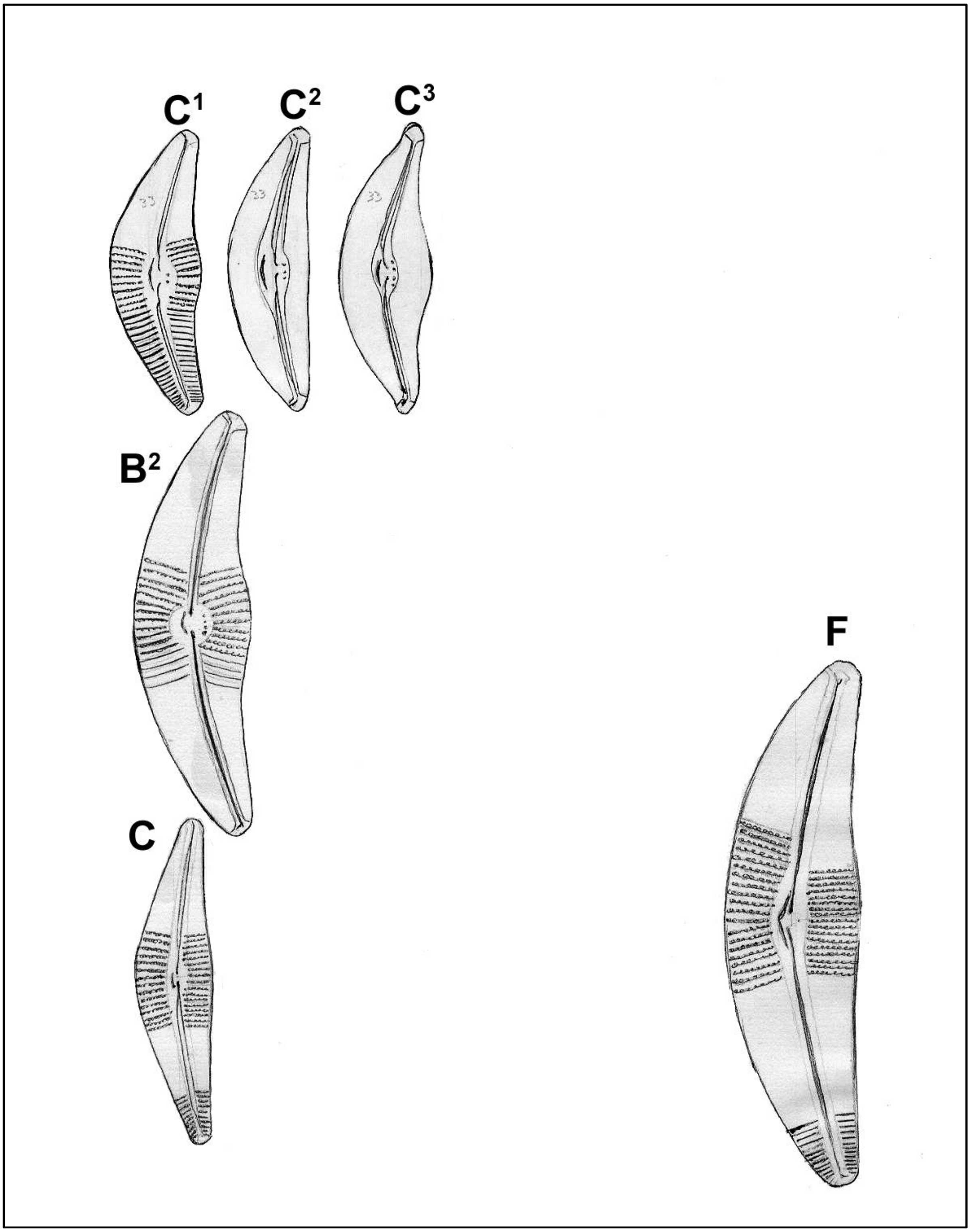


Plate 33^2 *Cymbella* – Agardh

Figure	Species/Text	Locations
D^1	*Cymbella ventricosa* C.Agardh	1, 3, 6, 8, 10, 11, 12, 13, 16, 18, 19, 31, 33, 42
D^2	*Cymbella ventricosa* C.Agardh	No location cited
D^3	*Cymbella ventricosa* C.Agardh	No location cited
D^4	*Cymbella ventricosa* C.Agardh	No location cited
D^5	*Cymbella ventricosa* C.Agardh	1, 19
G	*Cymbella Brehmii* Hustedt	1, 2, 3, 29
	Appendix to *Cymbella* 33^2 G River Leam Slide 1032 Length 35µ Breadth 12µ Stria 12 in 10µ Wider at centre and a little closer at ends Raphe slightly curved, axial area rather narrow and only a slight widening at centre. I do not think the form is *rupicola* or *Hustedtii* as the various dimensions do not fit! Appendix to form 33^2 G *Cymbella Brehmii* Slide 751 Camp Hill Pool, Mancetter Road The dimensions of the form are 15µ x 6µ and Stria 9-12 in 10µ ventral, 10 to 13 in 10µ dorsal. The ends are slightly rostrate. Raphe has very slight curve and central ends very close. Axial area narrow and parallel, no central area.	
H	*Cymbella Hustedtii* Krasske	24
B	*Cymbella sinuata* W.Gregory (not *minutissima* Hustedt)	24
	Appendix to form 33^2 B *Cymbella minutissima* ? *sinuata* Slide 851 Sutton Park The dimensions are as Length 25µ Breadth 5µ Stria 8-12 in 10µ See Pascher page 131 Fig. 289. The dimensions here are 16µ x 5µ and Stria 10 in 10µ. – Close enough. Although the form on slide 851 is not well situated I am fairly sure that this is a reasonable diagnosis. Perhaps when I have found others then further opinion will decide.	

Plate 33^2

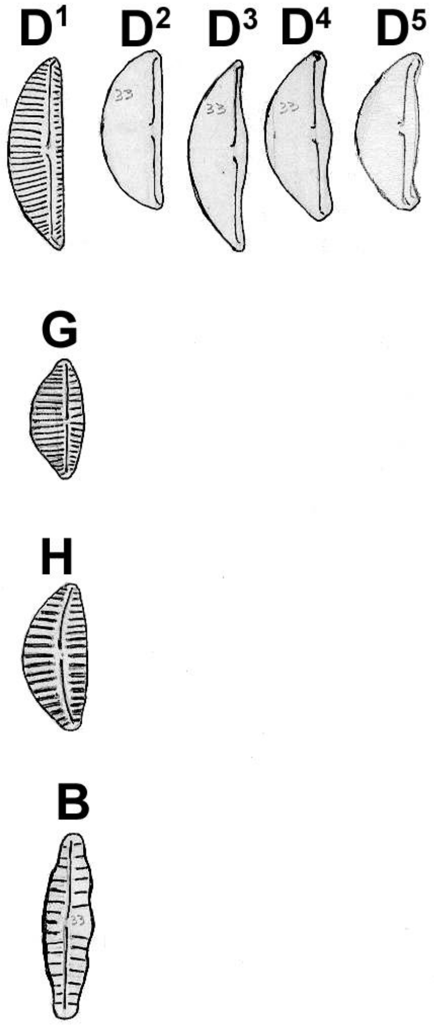


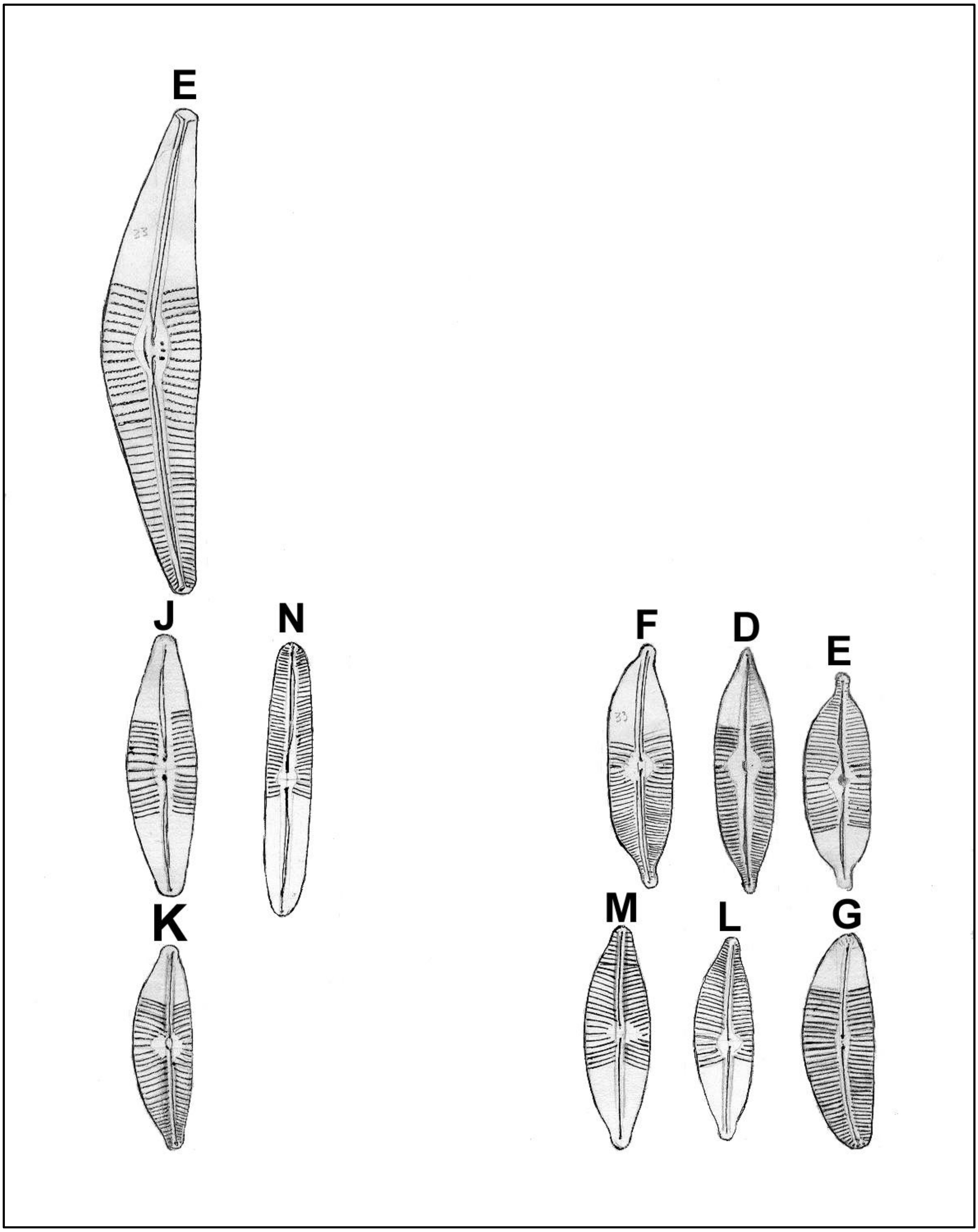
Plate 33^3 <u>*Cymbella* – Agardh</u>

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td rowspan="2">E?</td><td>Cymbella cymbiformis C.Agardh</td><td>1, 3, 10, 24, 26</td></tr>
<tr><td colspan="2">Appendix to form 33^3 E
Cymbella cymbiformis
Sutton Weir
Slide 846
I am inclined to think at times that Cymbella affinis and Cymbella cymbiformis “overlap”. At least they are difficult to define. This particular form is not frequent on the slide.

<table>
<tr><th></th><th colspan="2">The dimensions from Hustedt</th></tr>
<tr><th>The form under notice</th><th>Cymbella cymbiformis</th><th>Cymbella affinis</th></tr>
<tr><td>Length 80µ</td><td>30-100µ</td><td>20-70µ</td></tr>
<tr><td>Breadth 17µ</td><td>9-14µ</td><td>7-16µ</td></tr>
<tr><td>Stria Count Ventral 8</td><td>Ventral 8-14 in 10µ</td><td>Dorsal 9-11 in 10µ
Ventral 10-12 in 10µ</td></tr>
<tr><td>Puncta count 20 in 10µ</td><td>20 in 10µ</td><td>24-30 in 10µ</td></tr>
<tr><td>Isolated puncta 3</td><td>1</td><td>1</td></tr>
</table>

I do NOT attach much importance to the 1 puncta as this factor can vary.</td></tr>
<tr><td>To be sketched</td><td>Cymbella affinis Kützing</td><td>1, 5, 6, 9, 11, 12, 16, 19, 27</td></tr>
<tr><td>J</td><td>Cymbella laevis Nägeli</td><td>9, 13</td></tr>
<tr><td>E?</td><td>Cymbella naviculiformis (Auerswald) Cleve</td><td>16, 19, 24, 26</td></tr>
<tr><td>L</td><td>Cymbella obtusicula</td><td>9, 18, 42</td></tr>
<tr><td>D</td><td>Cymbella ?hybrida?</td><td>24, 26, 27, 28, 29</td></tr>
<tr><td>F</td><td>Cymbella hybrida Grunow ex Cleve</td><td>5, 9, 12, 26, 28, 42</td></tr>
<tr><td>K</td><td>Cymbella “pseudo-hybrida”</td><td>44^2</td></tr>
<tr><td rowspan="2">M</td><td>Cymbella ?hybrida</td><td>18</td></tr>
<tr><td colspan="2">Appendix to 33^{3}M
Cymbella hybrida?
Oldbury Res. Site 18.
Slide 1201.
The dimensions of this form are Length 37µ Breadth 12µ Stria 13 in 10µ
Cymbella hybrida according to Hustedt is:-
Length 38-51µ Breadth 9-10µ Stria 11-12 in 10µ. Outline linear, parallel sides, rostrate ends, raphe straight and practically central thread-like faintly punctuate and stria closer at ends.
I think this form does not adhere to a linear outline but is often lanceolate as 33^{3}M also because of this feature the stria in the central region are more radiate.
It is either this or a new sp.!</td></tr>
<tr><td>N</td><td>Cymbella obtusa (aequalis)</td><td>24</td></tr>
</table>

Plate 33[3]



***Cymbella affinis* Kützing**
***Cymbella cistula* (Hemprich) Grunow**

Description according to Hustedt	
affinis	***cistula***
Outline very unsymmetrical – half lanceolate to more than half elliptic. High convex dorsal to weaker convex to nearly straight Ventral side. Ends mostly short rostrate, stumpy rounded to clipped Length 20-70µ Breadth 7-16µ Stria 10-11 in 10µ Dorsal Stria 10-12 in 10µ Ventral at the end smaller Lines 24-30 in 10µ Raphe excentric. Especially near (by) the large forms. The central pores “wavy” Raphe polar hooks bent to dorsal side Radial area narrow widening at the central area Stria radial throughout Isolated puncta in front of middle stria.	Outline very unsymmetrical – half lanceolate to more than half elliptic “gradually formed” Convex dorsal and concave ventral In the middle more or less swollen ventrally Ends stumpy rounded to clipped Length 35-180µ Breadth 15-36µ Stria 6-9 in 10µ Lines 18-22 in 10µ Raphe excentric bent in direction of dorsal side. Very broad polar hooks bent toward dorsal side. Axial area small. Central area more or less widened. Stria radial throughout The middle stria of the ventral side one or more end with isolated puncta In outline very variable

Plate 34

No Plate

and no references

Plate 35

No Plate

and no references

Plate 36

No Plate

and no references

Plate 37 Cymbella – Agardh

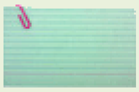
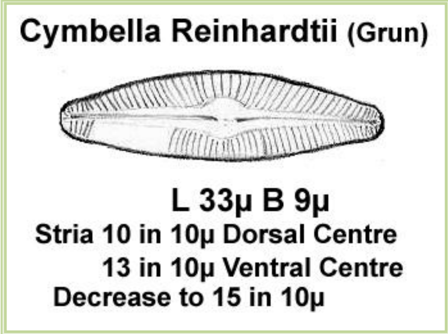
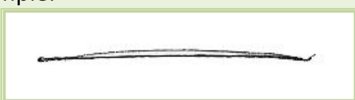
Figure	Species/Text	Locations
C	*Cymbella prostrata* (Berkeley) Grunow	1, 12, 29, 44
D	*Cymbella prostrata* (Berkeley) Grunow	2, 12
	(the small form?)	
Not figured	*Cymbella Rheinhardtii* Grunow	2, 3
	 Cleaning 702 Light. Mancetter Road Quarry  Think the first occasion I have found this form.	
Not figured	*Cymbella turgida* W.Gregory	6, 8
E	*Cymbella tumida* (Brébisson) van Heurck	11, 29
D	*Cymbella ventricosa* C.Agardh	1, 3, 6, 8, 10, 11, 12, 13, 18, 31
	(transferred to 33^{2} D^{1})	
A	*Cymbella Ehrenbergii* Kützing	23, 29
B	*Cymbella cuspidata* Kützing	24, 29
	Appendix to form 37 B *Cymbella cuspidata* Sutton Park Slide 949 Length 70µ Breadth 25µ Stria Dorsal Centre 7 in 10µ Dorsal ends 15 in 10µ Ventral centre 8 in 10µ Ventral ends 15 in 10µ Axial area lanceolate and wide. Opening out to roundish area. Raphe slightly curved and not simple.  Stria 	
Not figured	*Cymbella cesati* (Rabenhorst) Grunow	27
Not figured	*Cymbella microcephala* Grunow	27, 45
F	*Cymbella Ehrenbergii* Kützing	23
G	*Cymbella Ehrenbergii* Kützing	23

Plate 37

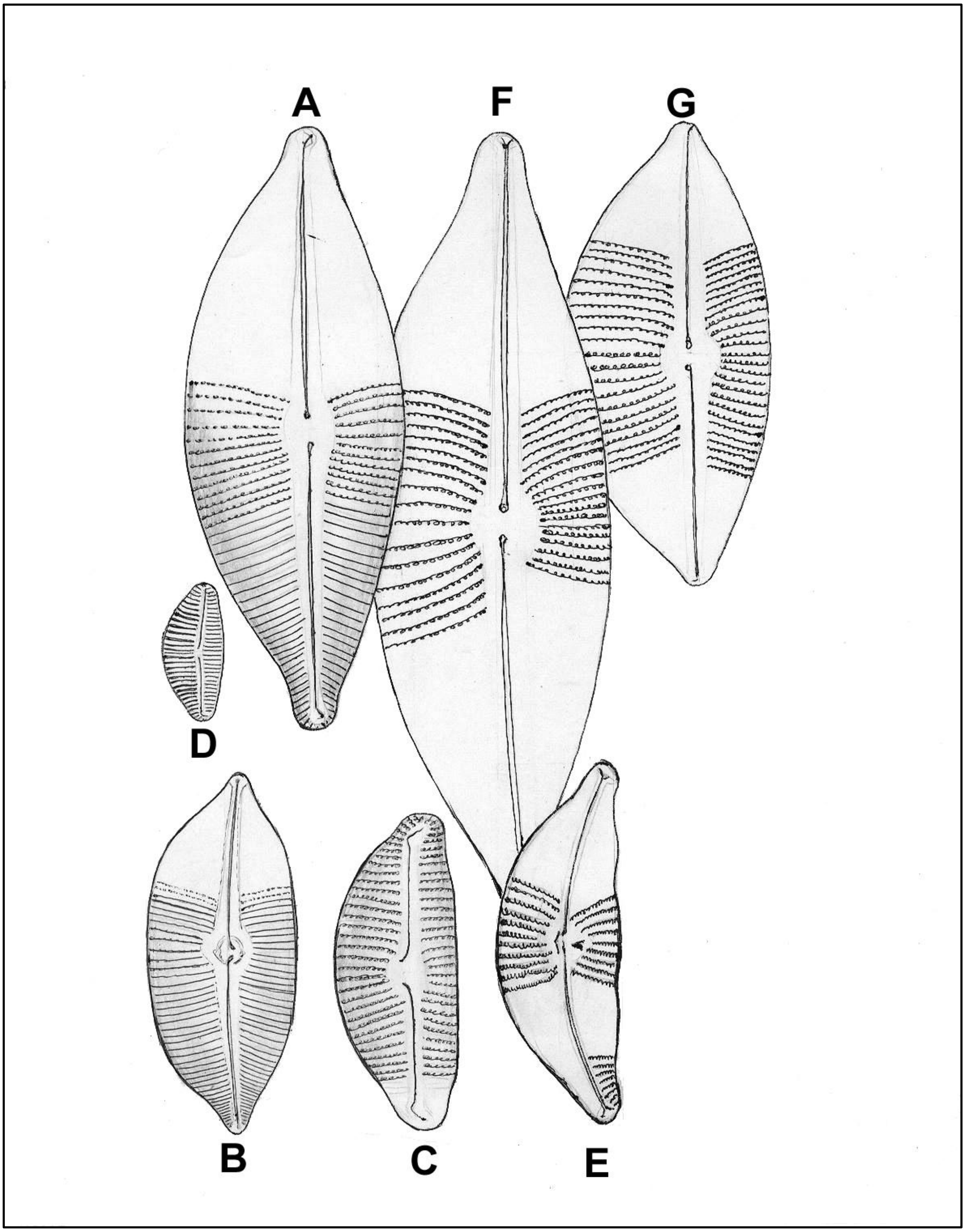


Plate 38 *Gomphonema* – Agardh

Figure	Species/Text	Locations
B	*Gomphonema accuminatum* Ehrenberg	1, 2, 5, 8, 9, 12, 16, 17, 18, 19, 26
To be sketched	*Gomphonema accuminatum* var. *coronata* (Ehrenberg) W.Smith	1, 2, 6, 12, 17, 18, 19, 31
F	*Gomphonema accuminatum* var. *Brebissonii*	9, 16, 26
H	Un-named	No location cited
J	*Gomphonema accuminatum* var. *trigonocephala*	9, 16, 26
To be sketched	*Gomphonema accuminatum* var. *turris*	No location cited
L	*Gomphonema accuminatum* var. *Gauterei*	No location cited
C	*Gomphonema augur* "fa. *quinquapuncta*"	10
	Appendix to form 38C *Gomphonema augur* fa. "*quinquapuncta*" Riverlsey Park Slide 855 This plant is generally endowed with an isolated puncta but the Riversley Park spps. carry 4 additional. The feature has been noted by Carter (The Microscope – Notes on the genus *Gomphonema*) *Gomphonema Olivacoides* Hustedt	
D	Un-named	10
	Appendix to form 38D Slide 855 Riversley Park This form I call "CBA" or in other words "could be anything" and unless there are many is not of consequence.	

Plate 38

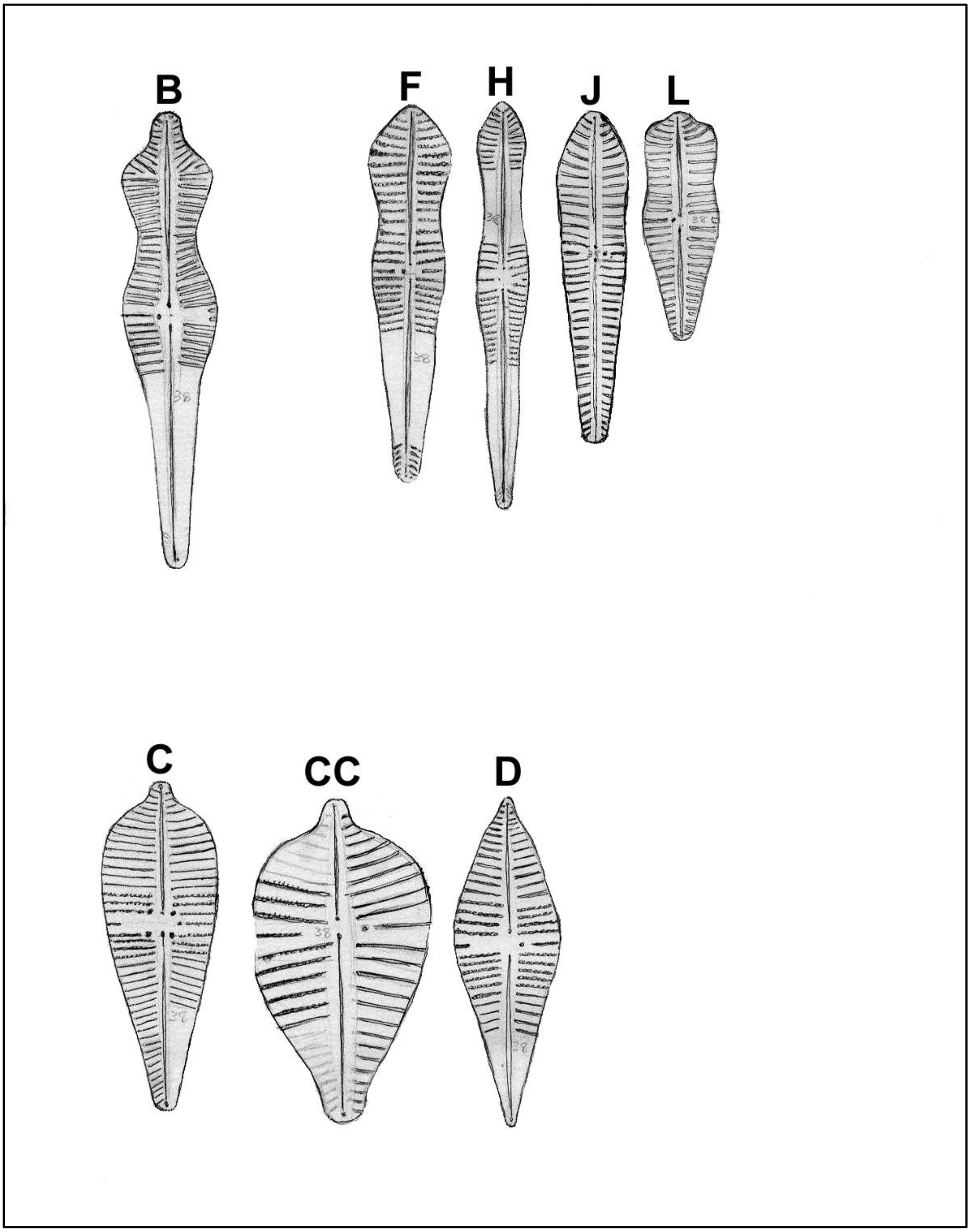


Plate 38[1] *Gomphonema* – Agardh

Figure	Species/Text	Locations
F	*Gomphonema angustatum* (Kützing) Rabenhorst	3, 5, 7, 9, 13, 16, 26, 42, 48
E	*Gomphonema angustatum* var. *sarcophagus* (Gregory) Grunow	5, 19, 20
Not figured	*Gomphonema angustatum* var. ?	No location cited
Not figured	*Gomphonema angustatum* var. *obtusa[tum]* (Kützing) Grunow	1, 7
Not figured	*Gomphonema angustatum* var. *undulata* Grunow	No location cited
EE	*Gomphonema angustatum* var. *producta* Grunow	10, 16, 20, 26, 28, 31, 50, 52
K	*Gomphonema angustatum* var. *producta* Grunow	28

Plate 38[1]

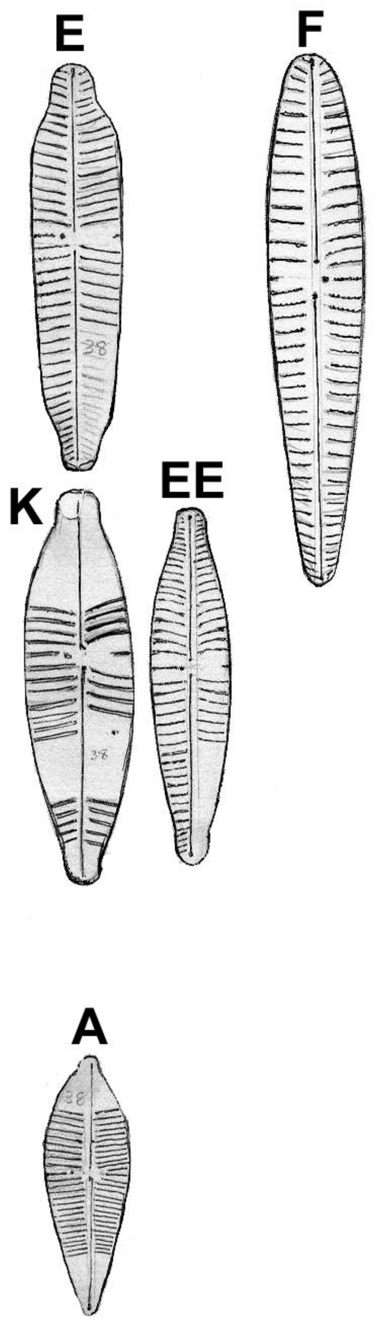


Plate 38^2 *Gomphonema* – Agardh

Figure	Species/Text	Locations
A	*Gomphonema olivaceum* (Hornemann) Brébisson	13, 6, 19, 26, 27, 29, 44
B	*Gomphonema olivaceum* (Hornemann) Brébisson	51
C	*Gomphonema olivaceum* var. *calcarea* Cleve	26, 42
D	*Gomphonema olivaceum* var. "38^2D"	No location cited
G	*Gomphonema olivaceum* var. "?"	No location cited

Plate 38[2]

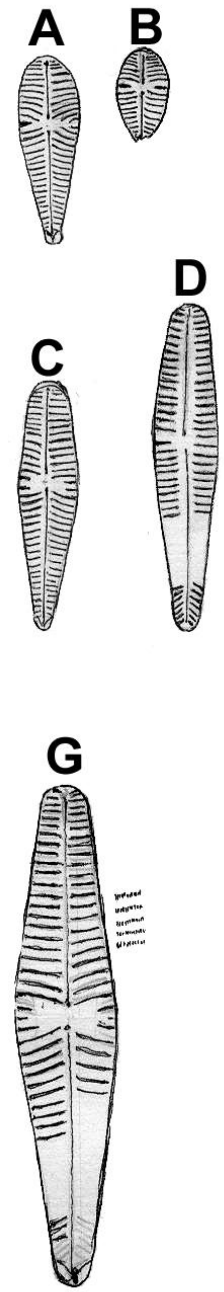


Plate 38[3] *Gomphonema – Agardh*

Figure	Species/Text	Locations
A	*Gomphonema constrictum* Ehrenberg	1, 2, 3, 5, 8, 9, 10, 12, 16, 17, 18, 26, 29
B	*Gomphonema constrictum* var. *capitat[a][um]* Ehrenberg	10, 12, 19, 26
Not figured	*Gomphonema longiceps* Ehrenberg	5, 12, 19
J	*Gomphonema longiceps* var. *subclavata* (Grunow) F.Hustedt.	5, 9, 12, 16, 18
F	*Gomphonema longiceps* var. *suecica* (Grunow) Hustedt.	9, 16
Not figured	*Gomphonema longiceps* fa. *gracilis* Hustedt	19
D	*Gomphonema longiceps* var. *Montana* (Schumann) Hustedt	16, 28
Not figured	*Gomphonema intricatum* Kützing	6, 12, 16, 19, 29
H	*Gomphonema intricatum* var. *vibrio* (Ehrenberg) Cleve	16, 19
C[2]	*Gomphonema parvulum* Kützing	19, 50
C[3]	*Gomphonema parvulum* Kützing	19
C[4]	*Gomphonema parvulum* Kützing	No location cited
C[5]	*Gomphonema parvulum* Kützing	45
C	*Gomphonema parvulum* Kützing	16, 29, 48
C[1]	*Gomphonema parvulum* Kützing	No location cited
Not figured	*Gomphonema parvulum* var. *micropus* (Kützing) Cleve	33

Plate 38^3

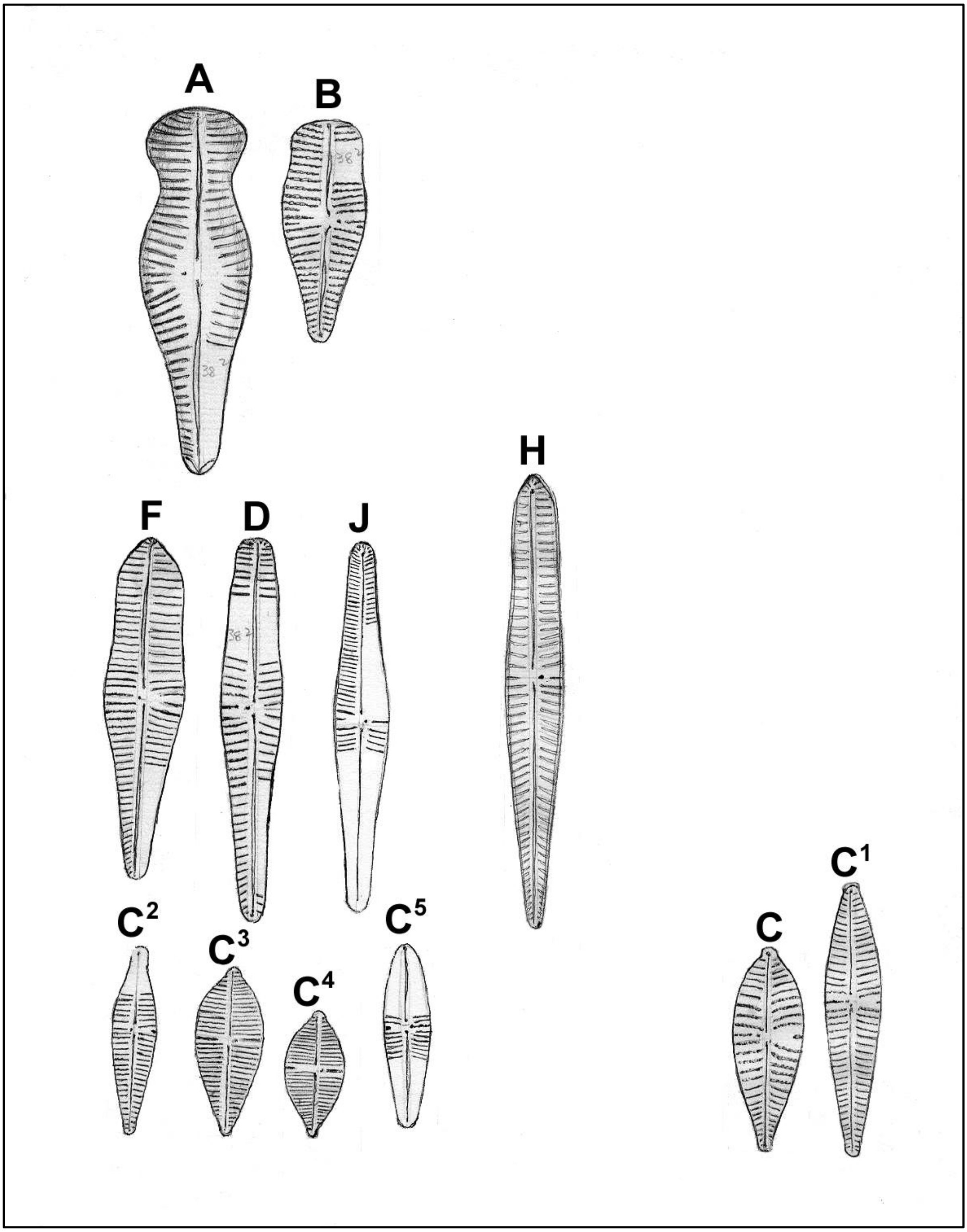


Plate 38^4 *Gomphonema* – Agardh

Figure	Species/Text	Locations
G	*Gomphonema* ?	No location cited
	Appendix to form 38^4 G *Gomphonema sueica* Length 60µ Breadth 9µ Stria 6-7 in 10µ – I think this is a form of *suecia* but it is noted that the stria are rather coarse for the dimensions.	
M	*Gomphonema gracile* Ehrenberg	16, 19
GG	*Gomphonema gracile* Ehrenberg	44^2
DD	*Gomphonema gracile* Ehrenberg	8, 9, 17, 18, 20, 26
Q	*Gomphonema* ?	24
FF	*Gomphonema gracile* Ehrenberg	11
	Appendix to form 38^4 FF Whitacre Res. Slide 838. Length 65µ Breadth 9µ Stria 9 in 10µ. This form is about the limit for *G. gracile* which I take it to be.	
F	*Gomphonema gracile* Ehrenberg	11, 26
E	*Gomphonema* ~~“pseudoabbreviata”~~ *?Brasiliensis*	26
	Appendix to form 38^4 E *Gomphonema ?Brasiliensis* Grunow River Avon, Stanford Reservoir Length 28µ Breadth 4µ Stria 9 in 10µ and increasing at the ends. I thought at first this was *Gomphonema abbreviatum* but as far as I can see the puncta are not the same. Valve quite lanceolate. Raphe extremely fine and difficult to see. Central poles very close. Puncta 1 and close to central poles. Axial and central area large and rhomboidal in shape. Stria short. NO stauros. Further to the above – It would appear the above form is exceptional and is really an aberration of 38^4 F.	

Plate 38[4]

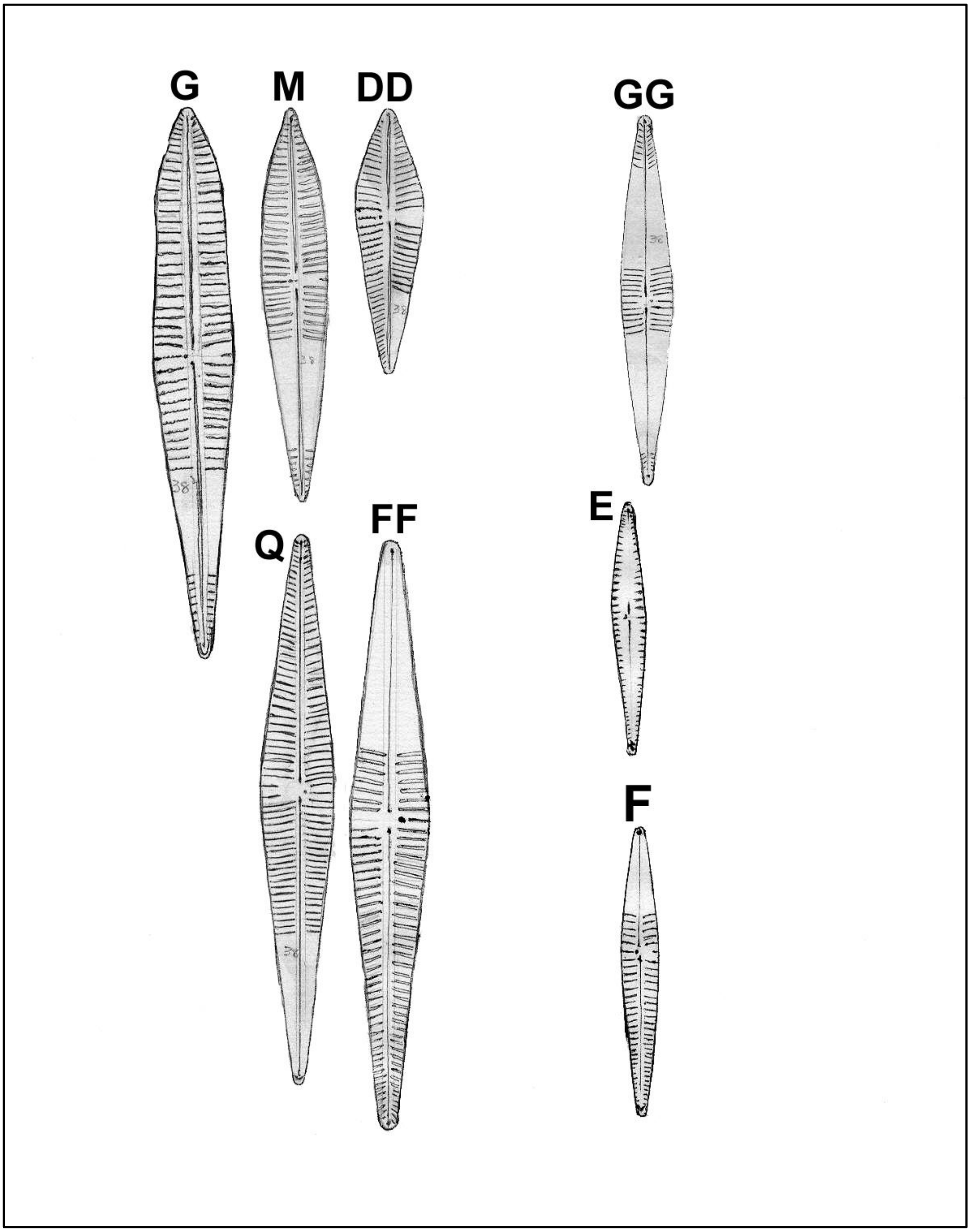


Plate 39

No Plate

and no references

Plate 40

No Plate

and no references

Plate 41 *Denticula* – Kützing

Figure	**Species/Text**	**Locations**
A	*Denticula tenuis* var. *crassula* (Nägeli) Hustedt	2, 12, 13, 26

Plate 41

Plate 42 *Epithemia* - Brebisson

Figure	Species/Text	Locations
D	*Epithemia intermedia* Fricke	6, 8, 9
E	*Epithemia intermedia* Fricke	45
C	*Epithemia turgida* (Ehrenberg) Kützing	1, 9, 19
B	*Epthemia turgida* var. *granulata* (Ehrenberg) Brun	1, 9
To be sketched	*Epithemia sorex* Kützing	8, 9, 29, 44
To be sketched	*Epithemia zebra* (Ehrenberg) Kützing	3
A	*Epithemia zebra* var. *porchellus* (Kützing) Grunow	1, 3
To be sketched	*Epithemia zebra* var. *saxonica* (Kützing) Grunow	8, 19

Plate 42

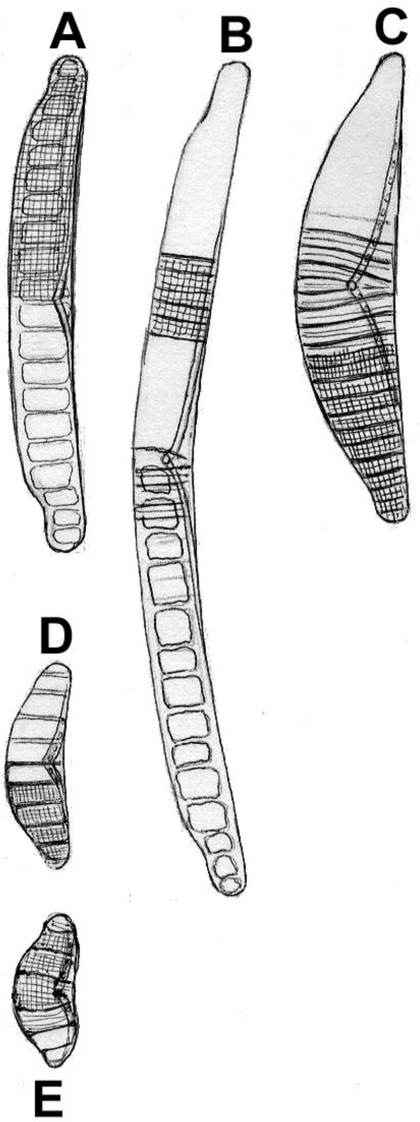


Plate 42[1] *Rhopalodia* – O. Müller

Figure	Species/Text	Locations
A	*Rhopalodia gibba* (Ehrenberg) Otto Müller	9, 24, 48
C	*Rhopalodia gibba* var. *ventricosa* (Kützing) Mayer	9, 24
To be sketched	*Rhopalodia menisculus*	No location cited
B	*Rhopalodia parallela* (Grunow) O.Müller	1
To be sketched	*Rhopalodia gibberula* (Ehrenberg) Otto Müller	29

Plate 42[1]

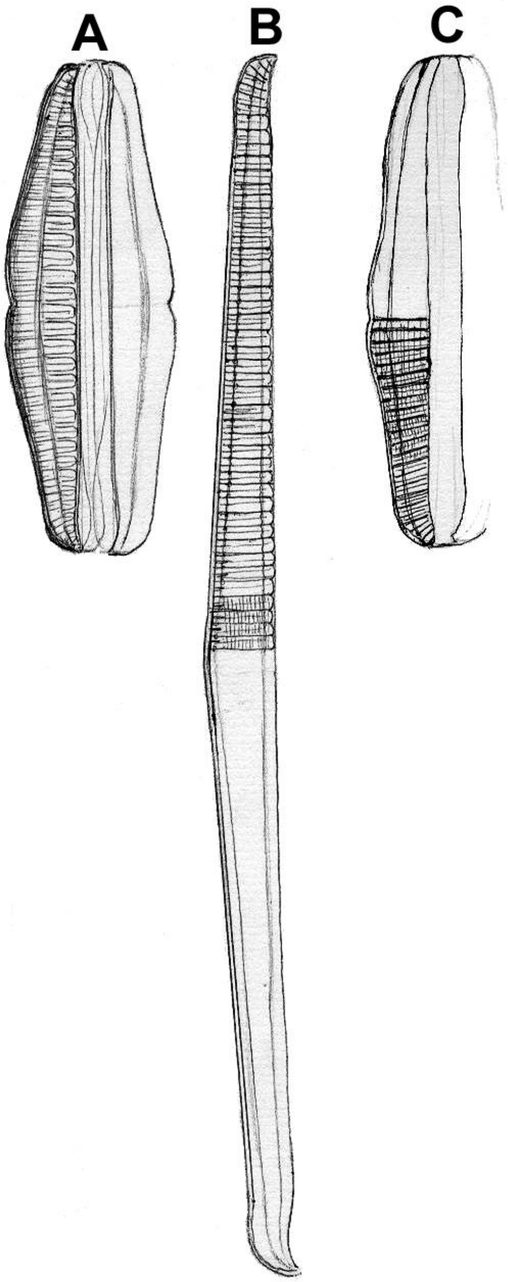


Plate 43 *Hantzschia – Grunow*

Figure	Species/Text	Locations
A	*Hantzschia amphioxys* (Ehrenberg) Grunow	1, 4, 5, 7, 9, 10, 16, 18, 19, 26, 50
	Note to 43A – See slide 753 Watertower Gate On this slide can be found practically the full range of stria. The range can be from 12 in 10µ to beyond count.	
Not figured	*Hantzscia amphioxys* var. *capitata* O.F.Müller	4, 5, 26
Not figured	*Hantzschia virgata* (Roper) Grunow	5
C	*Hantzschia "amphioxyoides"*	16
	Appendix to form 43C Note particularly the form is on the same lines as the normal *amphioxys* but the rows of puncta are below the normal count and very robust. Length 75µ Breadth 7µ Keel puncta *[Fibulae]* 6 in 10µ, puncta 16 in 10µ	
D	Un-named	No location cited
E	*Hantzschia amphioxys* var. *producta*	16
	Note to form E – There is a question as to whether this form is *amphioxys*. The stria are 25 in 10µ – Note the produced ends too.	
F	*Hantzschia (Nitzsch) "Avonana"* Mihi	26
	Appendix to 43 F *Nitzschia "Avonana"* Slide 1052 River Avon Length 65µ Breadth 9µ Keel puncta *[Fibulae]* 3-6 Stria 15 puncta 20 in 10µ	
G	*Hantzschia amphioxys* "var. *bullei*"	23

Plate 43

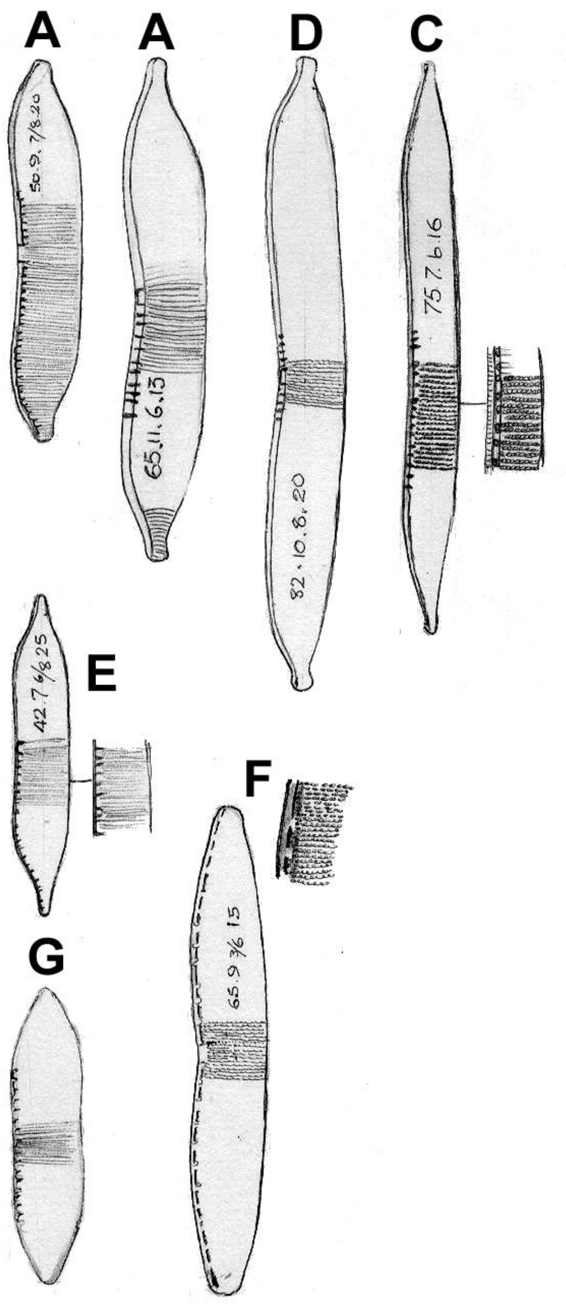


Plate 44 *Bacillaria* – Gmelin

Figure	**Species/Text**	**Locations**
A	*Bacillaria paradoxa* Gmelin	1, 19, 29

Plate 44

A

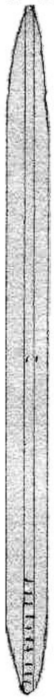


Plate 45 *Nitzschia* – Hassall (Section *Tryblionella*)

Figure	Species/Text	Locations
C	*Nitzschia tryblionella* Hantzsch	1, 4, 10, 16, 19, 29, 44
E	*Nitzschia tryblionella* var. *levidensis* (W.Smith) Grunow in Cleve & Grunow	16
Not figured	*Nitzschia tryblionella* var. *victoriae* Grunow in Cleve & Möller	1, 19, 29, 44
D	*Nitzschia tryblionella* var. *levidensis* fa. *apiculata*	1, 19
Not figured	*Nitzschia tryblionella* var. *debilis* (Arnott) Hustedt	12, 19, 29, 48
Not figured	*Nitzschia levidensis* (W.Smith) Grunow	10, 11
F	*Nitzschia Hungarica* Grunow	1, 5, 10, 11, 15, 16, 19, 29, 45, 47, 50
G	*Nitzschia Hungarica* Grunow	10, 21
Not figured	*Nitzschia angustata* (W.Smith) Grunow	1, 11, 19, 26, 29, 44, 47, 48
B	*Nitzschia angustata* var. *acuta* Grunow	1
Not figured	*Nitzschia apiculata* (W.Gregory) Grunow	1, 10, 12, 19, 29, 44
A	*Nitzschia punctata* (W.Smith) Grunow	1
H	*Nitzschia* (*angustata* or *Hungarica* var.)	19, 44
I	*Nitzschia Hungarica* Grunow	19, 29
J	*Nitzschia “Alvecotii”*	44[6]
K	*Nitzschia tryblionella* var. *debilis* fa. *“K”*	44
L	*Nitzschia apiculata* fa.	48

Plate 45

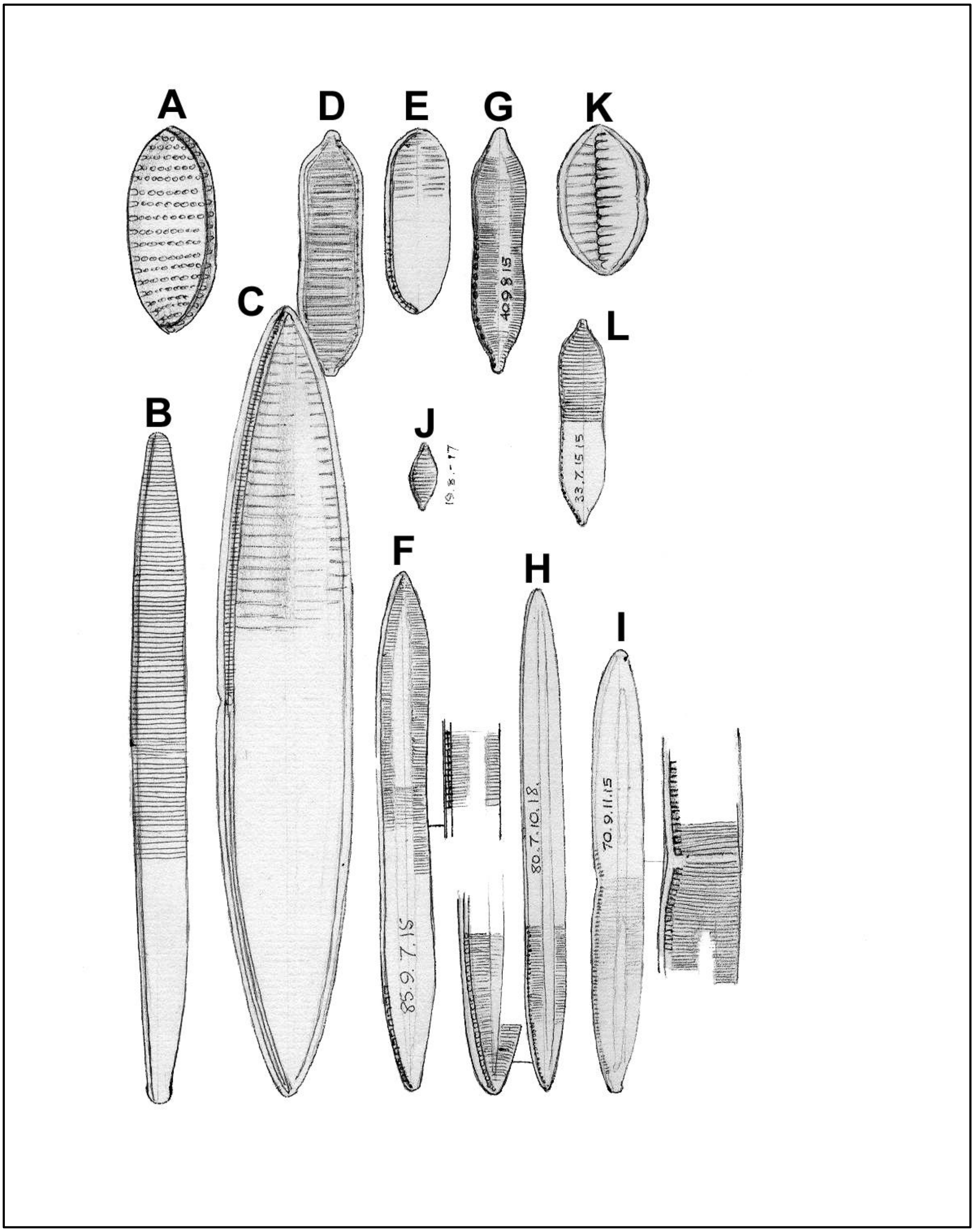

A
D
E
G
K
C
L
B
J
F
H
I
40.9.8.15
33.7.15.15
19.8.-17
85.9.7.15
80.7.10.18
70.9.11.15

Plate 46 *Nitzschia* (Section *Dubiae*)

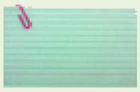
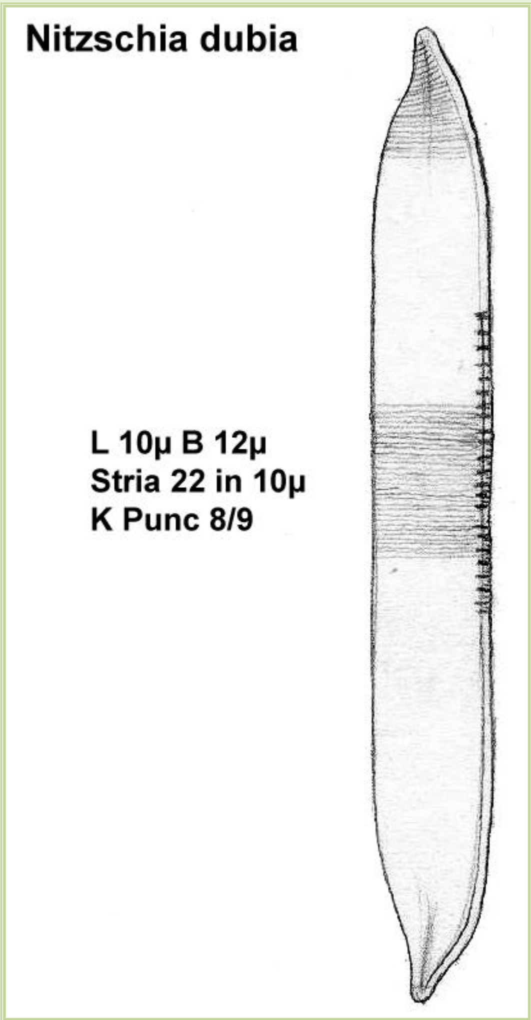
<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>To be sketched</td><td>Nitzschia thermalis (Ehrenberg) Auerswald</td><td>11, 16, 18</td></tr>
<tr><td>To be sketched</td><td>Nitzschia thermalis var. minor Hilse</td><td>4</td></tr>
<tr><td rowspan="2">A</td><td>Nitzschia dubia W.Smith</td><td>7, 17, 26, 31, 44, 45, 48</td></tr>
<tr><td colspan="2">
Savage’s Field, Mancetter Road.
Slide 734

The bicurvosa form is also present (as type)</td></tr>
<tr><td>B</td><td>Nitzschia pseudo dubia</td><td>24</td></tr>
<tr><td>To be sketched</td><td>Nitzschia ?stagnorum</td><td>7</td></tr>
<tr><td rowspan="2">C</td><td>Nitzschia ?</td><td>45</td></tr>
<tr><td colspan="2">Appendix to 46C
Croft Road Brick Pit
Slide 1145
This form is rather different from the general dubia.
Length 57µ Breadth 8µ Kp 12 Stria 27 in 10µ and ends very apiculate for this form – Note this habitat is unique as it has quite a number of forms requiring high alkaline content.
N.B. I don’t think the form is Nitzschia dubia – Nitzschia dubia is also present in gathering.</td></tr>
</table>

Plate 46 *Nitzschia* (Section *Dubiae*) (continued)

Figure	Species/Text	Locations
D	*Nitzschia ?hybrida*	45
	Appendix to 46D Croft Road Brick Pit. Slide 1145 Length 120µ Breadth 17½µ Kp 10-12 Stria 21 in 10µ The given dimensions for *Nitzschia hybrida* are: Length 45-90µ Breadth 8-9µ Kp 8-10 Stria 21-25 in 10µ The Keel puncta *[Fibulae]* and stria are very close to range. The question remains how large does *Nitzschia hybrida* grow to. Note also there is NO central gap.	

Plate 46

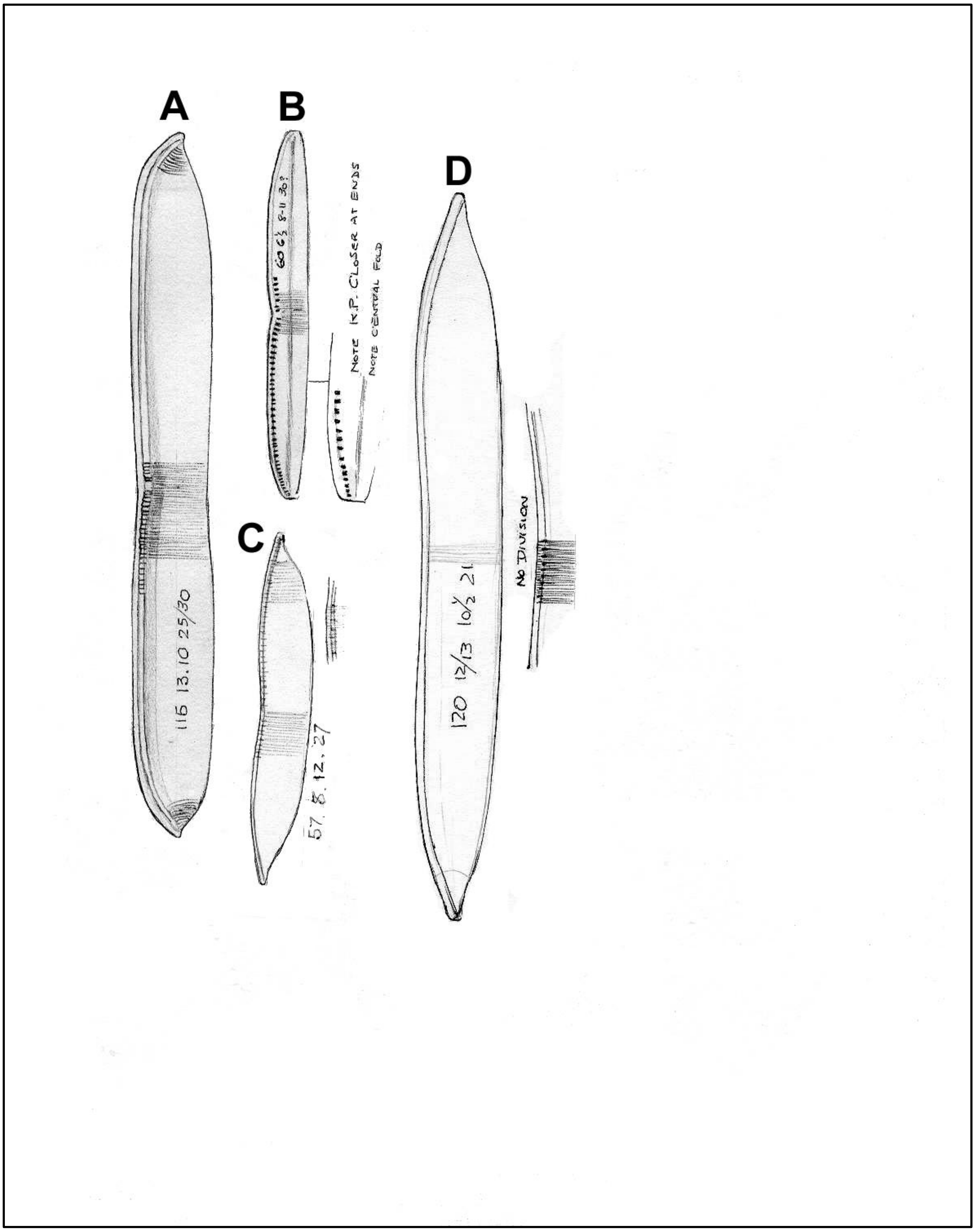

A
B
C
D
116 13.10 25/30
60 6½ 8-11 30?
NOTE K.P. CLOSER AT ENDS
NOTE CENTRAL FOLD
57. 8. 12. 27
120 12/13 10½ 21
No DIVISION

Plate 47

Nitzschia (Section *Grunowiae*)

Nitzschia (Section *Scalares*)

No Plate

and no references

Plate 48

Nitzschia (Section *Bilobatae*)

Nitzschia (Section Costatae)

Blank
Plate

Plate 49 *Nitzschia* (Section *Lineares*)

Figure	Species/Text	Locations
To be sketched	*Nitzschia recta* Hantzsch ex Rabenhorst	1, 3, 5, 12, 19, 44
Not figured	*Nitzschia garrensis* Hustedt	1, 3
	(?correct section)	
A	*Nitzschia linearis* (C.Agardh) W.Smith	3, 5, 7, 9, 11, 15, 15, 17, 19, 25, 26, 28, 29, 31, 33, 42, 44, 47, 48
C	*Nitzschia linearis* (C.Agardh) W.Smith	3, 5, 7, 9, 11, 15, 15, 17, 19, 25, 26, 28, 29, 31, 33, 42, 44, 47, 48
B	*Nitzschia linearis* ?var. *tenuis*	7
BB	*Nitzschia linearis* ?var. *tenuis*	7
To be sketched	*Nitzschia linearis* var. *sublinearis*	5, 19
E	*Nitzschia “Avonensis”* Mihi	26
F	*Nitzschia recta?*	29
G	*Nitzschia recta Alpha*	19, 44
D	Un-named	No location cited

Plate 49

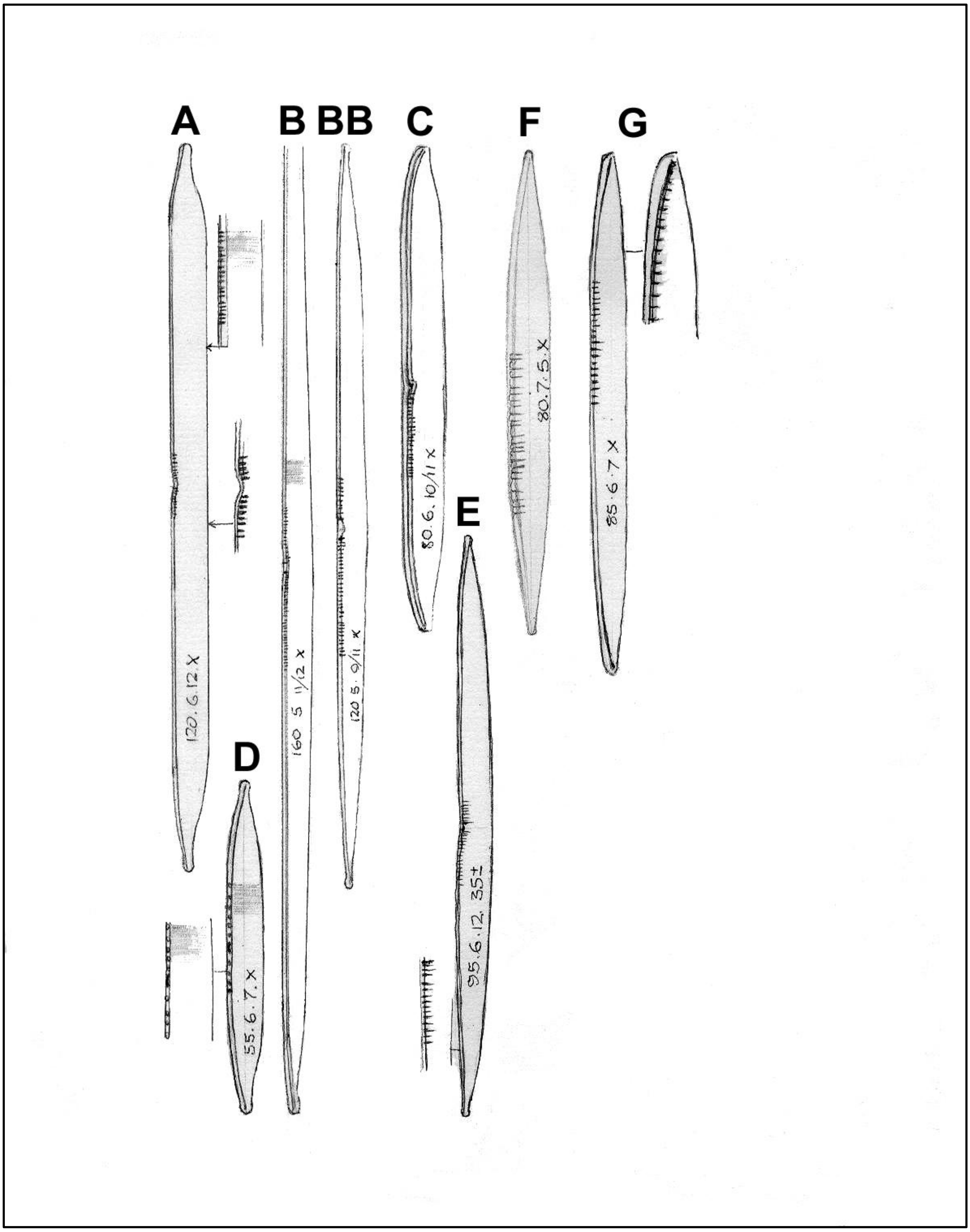

A
B
BB
C
F
G
E
D
120.6.12.X
160 5 11/2 x
120 5. 9/11 x
80.6.10/11 x
80.7.5.X
85.6.7.X
95.6.12.35±
55.6.7.X

Plate 50 *Nitzschia* (Section *Dissipatae*)

Figure	Species/Text	Locations
Not figured	*Nitzschia dissipata* (Kützing) Grunow	12, 13, 16, 19, 42, 44
NN	*Nitzschia dissipata* (Kützing) Grunow	19, 23
N	*Nitzschia acuta* Hantzsch.	1, 2, 3, 9, 11, 13, 17, 23, 26

Plate 50

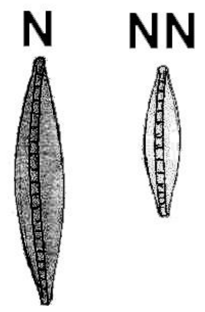
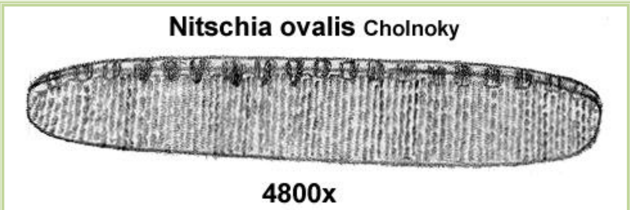
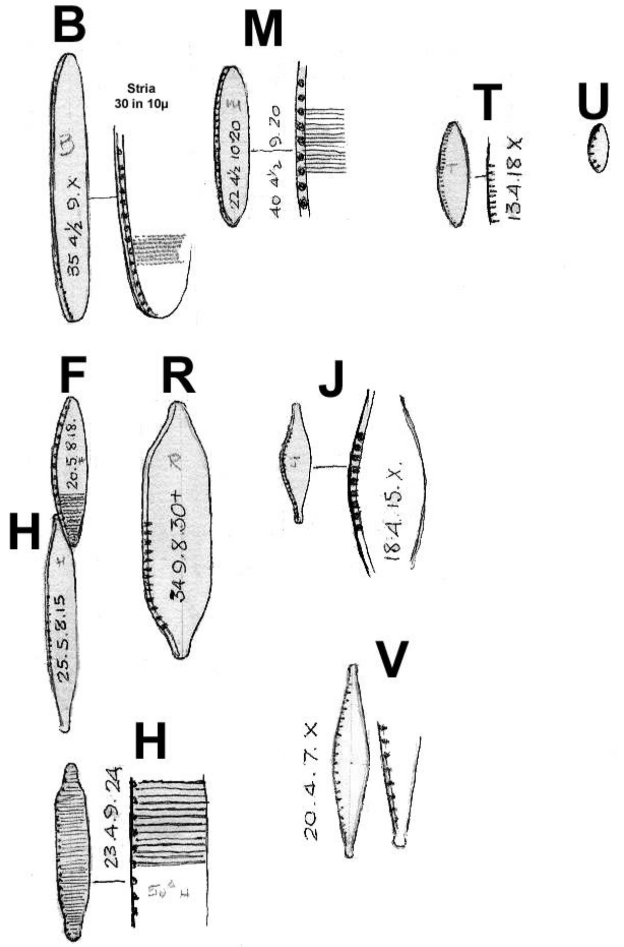


Plate 50^1 *Nitzschia* (Section *Lanceolatae*)

<table>
<tr><th>Figure</th><th>Species/Text</th><th>Locations</th></tr>
<tr><td>B</td><td>Nitzschia</td><td>52</td></tr>
<tr><td>M</td><td>Nitzschia</td><td>No location cited</td></tr>
<tr><td>T</td><td>Nitzschia</td><td>52</td></tr>
<tr><td>H</td><td>Nitzschia amphibia Grunow</td><td>5, 8, 9, 12, 16, 19, 28, 29, 33, 42, 45</td></tr>
<tr><td rowspan="2">R</td><td>Nitzschia</td><td>16</td></tr>
<tr><td colspan="2">(slide 933?)
Appendix to form 50^1 R
Spring Wood
Slide 733?
This form for its length is very broad and I am unable to diagnose sp.
Dimensions: 34µ x 9µ Keel puncta [Fibulae] 8 and Stria about 35 in 10µ.
Can just resolve central ones.</td></tr>
<tr><td>J</td><td>Nitzschia fonticola (Grunow) Grunow in vanHeurck</td><td>16</td></tr>
<tr><td rowspan="2">Q</td><td>Nitzschia ovalis H.J.Arnott</td><td>8, 25, 31, 33, 43, 44, 45, 48, 50</td></tr>
<tr><td colspan="2">Jee's Crusher – Hartshill


Free hand copy from photo by H. G. Dall of Luton 4.12.63 – Loaned by J. R. Carter, as near as I am able to see the structure and copy.
(see letter after Plate 50)</td></tr>
<tr><td>Not figured</td><td>Nitzschia frustulum (Kützing) Grunow in Cleve & Grunow</td><td>10, 16, 24</td></tr>
<tr><td>U</td><td>Nitzschia frustulum var. subsalsa</td><td>50</td></tr>
<tr><td>V</td><td>Nitzschia "Cosbyana" Mihi</td><td>43, 54</td></tr>
</table>

Plate 50[1]


B
Stria
30 in 10μ
35 4½ 9.X
M
22 4½ 10 20
40 4½ 9.20
T
13.4.18 X
U
F
20.5.8.18.
R
34 9.8.30+
J
18.4.15.X.
H
25.5.8.15
V
20.4.7.X
H
23.4.9.24

Denholm.Sunday. 15.12.63

Dear Horace,

Whats up?You gone dead or ~~xx~~ sumpn?Seems a long time since we exchanged a note .This is not said to be a letter but just a note on something I feel you must see.

Have a look at that slide of minute Nitzschia which came from Jees Crusher and then look st this photograph and I think you will see it is nearly unbeleivable. This is Dall's latest effort and I think it must be th ultimate.Tech. details;-

Slide made by coating 1 molocule thick with TiO_2 in a vacuum.Lighting is Zirconium arc witha narrow band filter at 4860 angs.Objective'home made' with Zircon instead of glass for the final three correctants and with an N.A. of 1.97.Details of the resolution -- in excess of 53 lines in 10m. and the vague dotting at God knows what.Mag about 4800X.

You know when you see diatoms resolved like this you do not recognise the most common small species.I am quite seriously thinking of throwing all my lighting and condenser system away and fitting up with narrow band lighting and Holos fully corrected condensers to work with oil immersion.I know that it will be much slower working in every way but I begin to feel that the results will be worth it especially with these damn Nitzschias.Do you know Horace I feel that tho' there are a lot of Navs. ther are quite possibly a bigger number of different Nitz.and we simply do not recognise them.When I look at my records of the amall ones it makes me sick to think how many there are which seem just without any adequate description.Do you find it the same?

Well thatsthat.Let me have the Phots back will you as they are the only ones I have and I feel that Cholnoky who made the var.of N.ovalis would like a look at them.

I am about 3metres down with the Linton Bog cores as soon as I have a decent series I'll let you have some of the material.

Have you a description of N.ventralis Krasske?If so,can I have a copy?I don't seem to be able to find one

All the best and all our regards toG.

Sincerely

John.

Grating 14950 lines per 1"
at the same setting as above.

Plate 50^2 *Nitzschia (Sec. Lanceolatae)* (continued)

Figure	Species/Text	Locations
F	Un-named	No location cited
S	*Nitzschia capitellata* Hustedt in Schmidt	10, 25
Not figured	*Nitzschia subcapitellata* Hustedt	44
A	*Nitzschia paleaeformis* Hustedt	7, 16, 26
D	*Nitzschia paleaeformis* Hustedt	16, 26
C	*Nitzschia gracilis* (?)	16, 31, 32
G	*Nitzschia Hantziana* Rabenhorst	11, 24
E	*Nitzschia Hantziana* Rabenhorst	5
U	*Nitzschia Hantziana* Rabenhorst	26, 28
Not figured	*Nitzschia subtilis* (Kützing) Grunow in Cleve & Grunow	7
Not figured	*Nitzschia Gandersheimensis*	1
V	*Nitzschia palea* (Kützing) W.Smith	1, 5, 16, 19, 27, 43, 45, 47, 48
Not figured	*Nitzschia holsatica* Hustedt	6, 8
W	*Nitzschia pseudopalea*	19, 44^2
EE	*Nitzschia pseudopalea*	18
X	*Nitzschia "Sheepyi"*	23
Y	*Nitzschia "Senciana"*	19, 23
Z	*Nitzschia "Volksii"*	19
AA	*Nitzschia "Twycross"*	51
BB	*Nitzschia "A444"*	51
CC	*Nitzschia "vario-carino"*	51
DD	*Nitzschia "vario-carino"*	51
FF	*Nitzschia "Barfordii"* Mihi	?
	Appendix 50^2 FF *Nitzschia "Barfordii"* Barford Brook (should this be Barpool Brook?) Slide 1280 Length 20µ Breadth 3½µ Keel puncta *[Fibulae]* 15 Stria 30 in 10µ The stria of this form are just about double Keel puncta *[Fibulae]*.	

Plate 50[2]

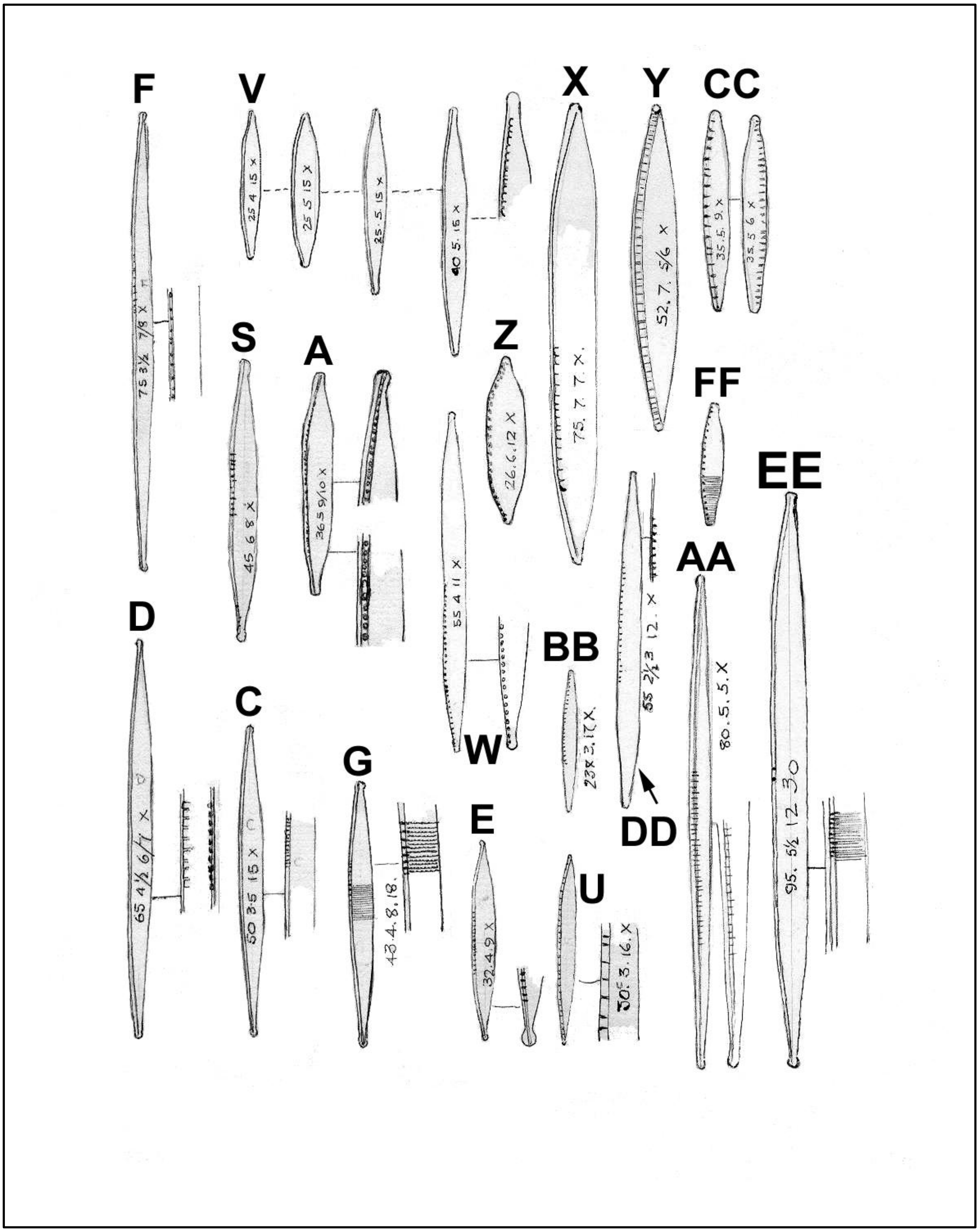


Plate 50^3 *Nitzschia (Section Lanceolatae)* (continued)

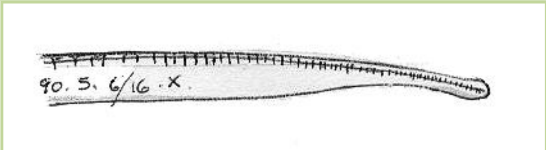
Figure	Species/Text	Locations
O	*Nitzschia*	19
P	*Nitzschia*	29
K	*Nitzschia*	16, 24
	Appendix to form 50^3 K *Nitzschia* Slide 848 1 reed At the time of sketching this form I have been unable to identify. The dimensions are as follows: Length 120µ Breadth 5µ Keel puncta *[Fibulae]* 5 in 10µ at centre, Keel puncta *[Fibulae]* 16 in 10µ at ends The outline of the form is lanceolate and I feel sure is in the correct section. The stria I am unable to resolve. The ends are capitate like many others of this section (or sub-capitate for Sutton Park). I do not think the form is "*acuta*" or Hustedt would have quoted the Keel puncta *[Fibulae]* decreasing at the ends, as this is most noticeable – a point I am sure he would have noted. The rest of the features do fall within the orbit of *Nitzschia acuta*!  End formation of "50 K" from Sutton Park	
L	*Nitzschia*	16
I	*Nitzschia recta*?	29
	Appendix to 50^3 I *Nitzschia ?recta* River Leam, Leamington Slide 1032 Length 120µ Breadth 6µ Keel puncta *[Fibulae]* 9 Stria 30+ in 10µ Although I can resolve the stria of this form quite nicely with care I have my doubts whether I can resolve 40 in 10µ for this is what Hustedt states the stria are.	
PP	*Nitzschia "P"* fa. *capitata*	23
Q	*Nitzschia "Sheepyi"* Mihi	23
R	*Nitzschia "Mancetterii"* Mihi	?

Plate 50³

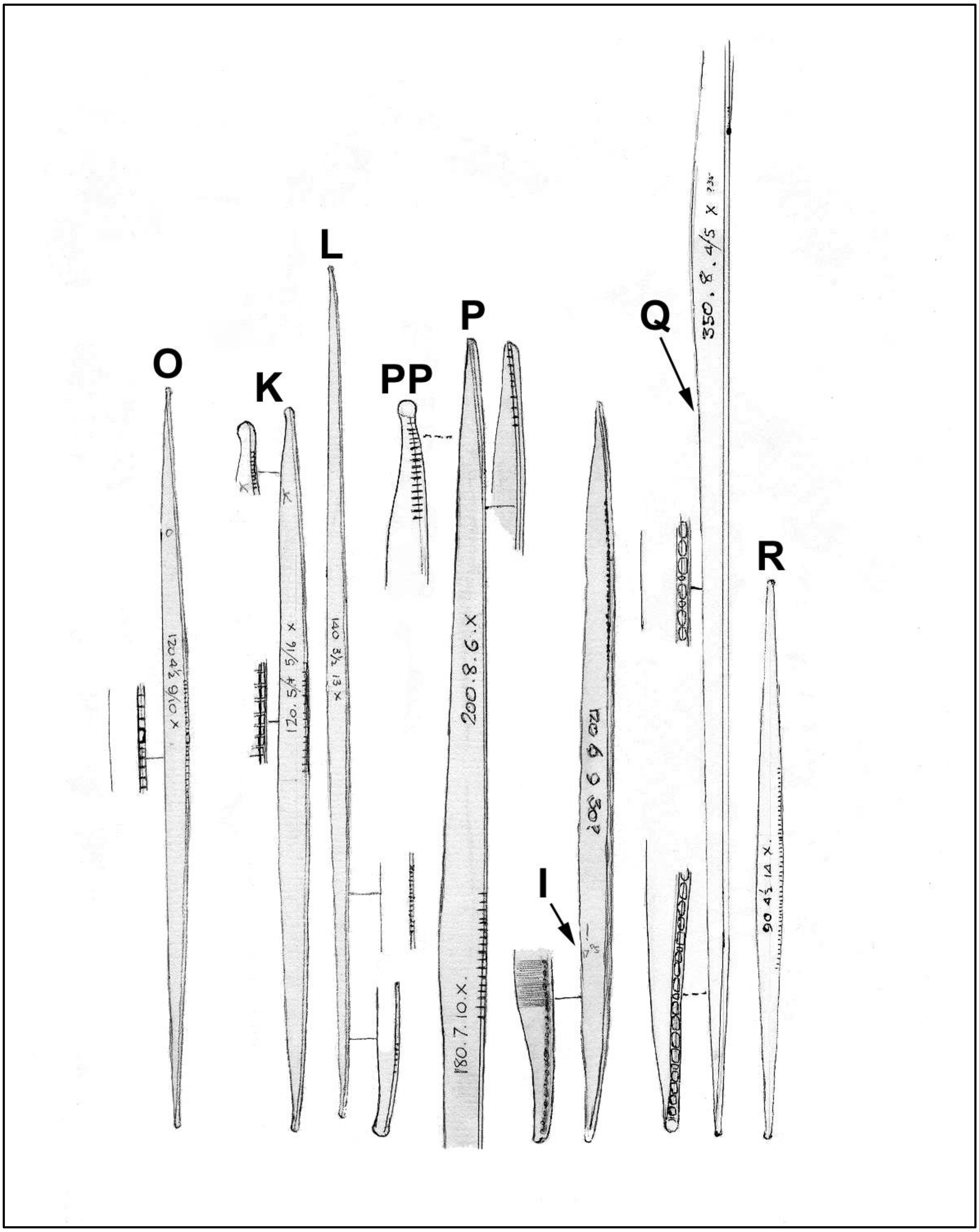


Plate 51

No Plate

and no references

Plate 52 *Nitzschia* (Section *Sigmoideae*)

Figure	Species/Text	Locations
B	*Nitzschia sigma* (Kützing) W.Smith	1, 44, 52
A	*Nitzschia sigmoidea* (Nitzsch) W.Smith	1, 3, 5, 9, 11, 12, 15, 16, 17, 18, 19, 20, 29, 42, 44
B	*Nitzschia sigmoidea* (Nitzsch) W.Smith	11, 16
C	*Nitzschia sigmoidea* (Nitzsch) W.Smith	16, 31
D	*Nitzschia sigmoidea* (Nitzsch) W.Smith	16, 23
E	*Nitzschia vermicularis* (Kützing) Ralfs	29
F	*Nitzschia ?sigma*	14, 19
G	*Nitzschia flexa* Schumann	1, 19
	Appendix to form 52 G *N. flexa* Camp Hill pool Slide 1078 The form is quite common on the slide and strangely enough I had not recorded it on previous occasions when taking gatherings.	
G[2]	*Nitzschia flexa* Schumann	1, 19
H	*Nitzschia "Sheepyi"* Mihi	23
	Appendix to form 52 H *Nitzschia "Sheepyi"* Slide 1111 Length 350µ Breadth 7µ Keel puncta *[Fibulae]* 6 in centre 6-7 in 10µ at ends Stria approximately 30+ in 10µ The nearest I can get to this form is *Nitzschia sigma* v. *rigida*? Note: Ventral side straight, Dorsal side straight but with slight inflation at centre.	
J	*Nitzschia filiformis* (W.Smith) Hustedt	44[2]
K	*Nitzschia "Caldecotii"* Mihi	?
	(See slide cleaned by JRC 2944 Clg.)	
Not figured	*Nitzschia ignorata* Krasske	18

Plate 52

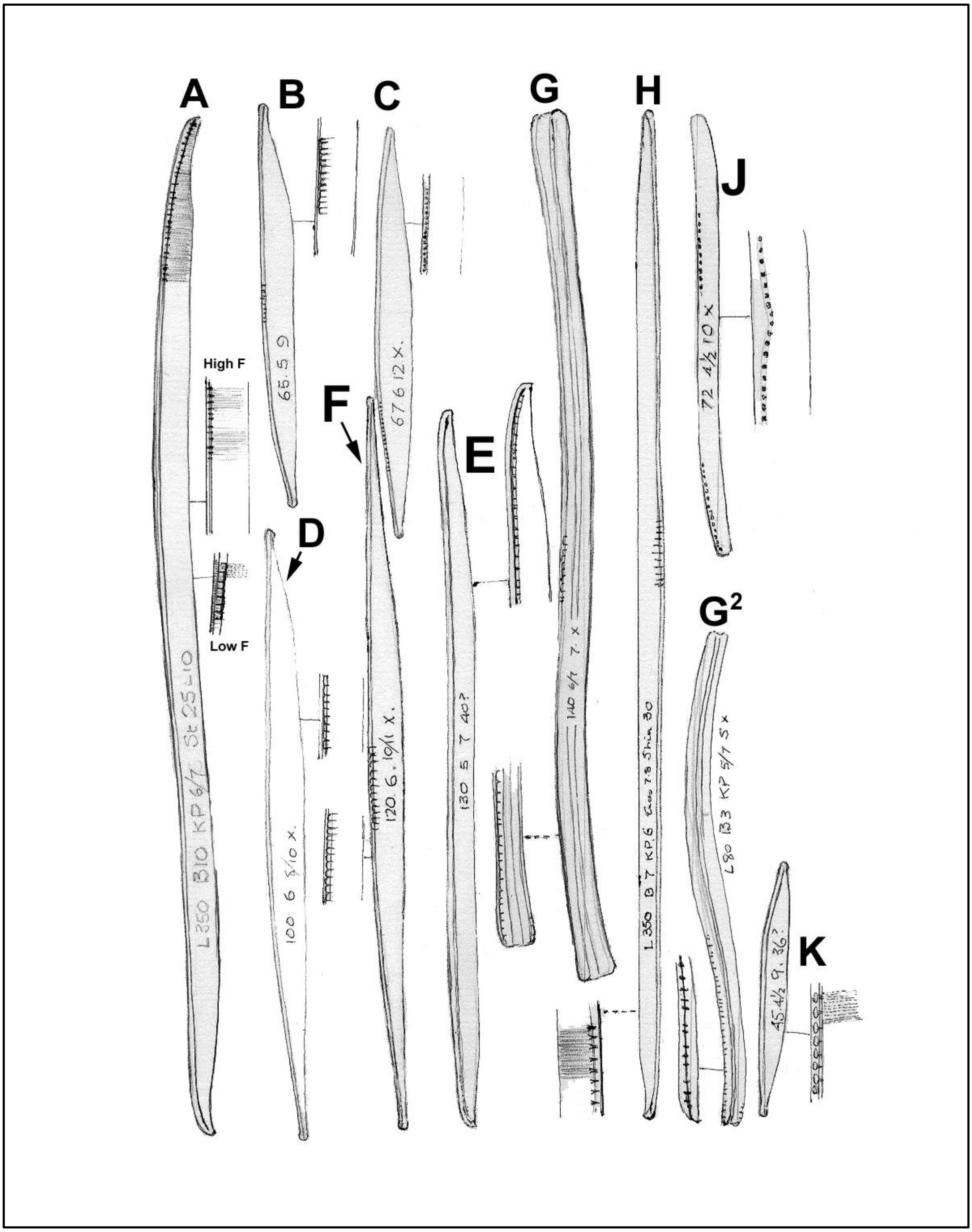


Plate 53

No Plate

and no references

Plate 54 *Nitzschia* (Section *Obtusae*)

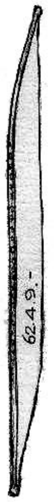
Figure	Species/Text	Locations
Not figured	*Nitzschia obtuse* W.Smith	No location cited
Not figured	*Nitzschia parvul[um][a]*	1
A	*Nitzschia parvul[um][a]*	16, 50

Plate 54 *Nitzschia* (Section *Nitzschiellae*)

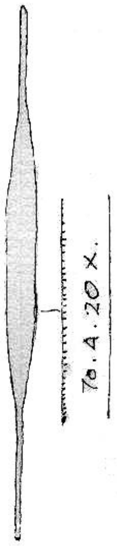
Figure	Species/Text	Locations
B	*Nitzschia acicularis* (Kützing) W.Smith	1, 4, 16, 19, 26, 31, 33, 42, 44, 47, 52
C	*Nitzschia ?*	29
Not figured	*Nitzschia subacicularis* Hustedt	44
	(JRC identification)	

Plate 54

A



B



C

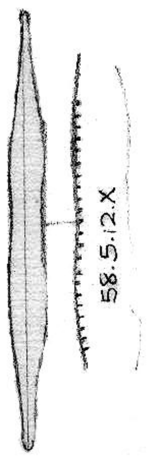


Plate 55 *Cymatoplaura* - W.Smith

Figure	Species/Text	Locations
Not figured	*Cymatopleura elliptica* var. *constricta* Grunow	1, 2, 3, 4, 7, 8, 9, 11, 12, 23, 26, 29, 48
A	*Cymatopleura solea* (Brébisson) W.Smith	16, 19, 24, 44
D	*Cymatopleura solea* var. *gracilis* Grunow	1, 2, 3, 5, 8, 9, 10, 11, 12, 15, 16, 18, 20, 29, 44
E	*Cymatopleura solea* var. *constricta* Grunow	19, 29
F	*Cymatopleura solea* var. *constricta* Grunow	19, 29
H	*Cymatopleura elliptica* var. *constricta* Grunow	9, 19, 29

Plate 55

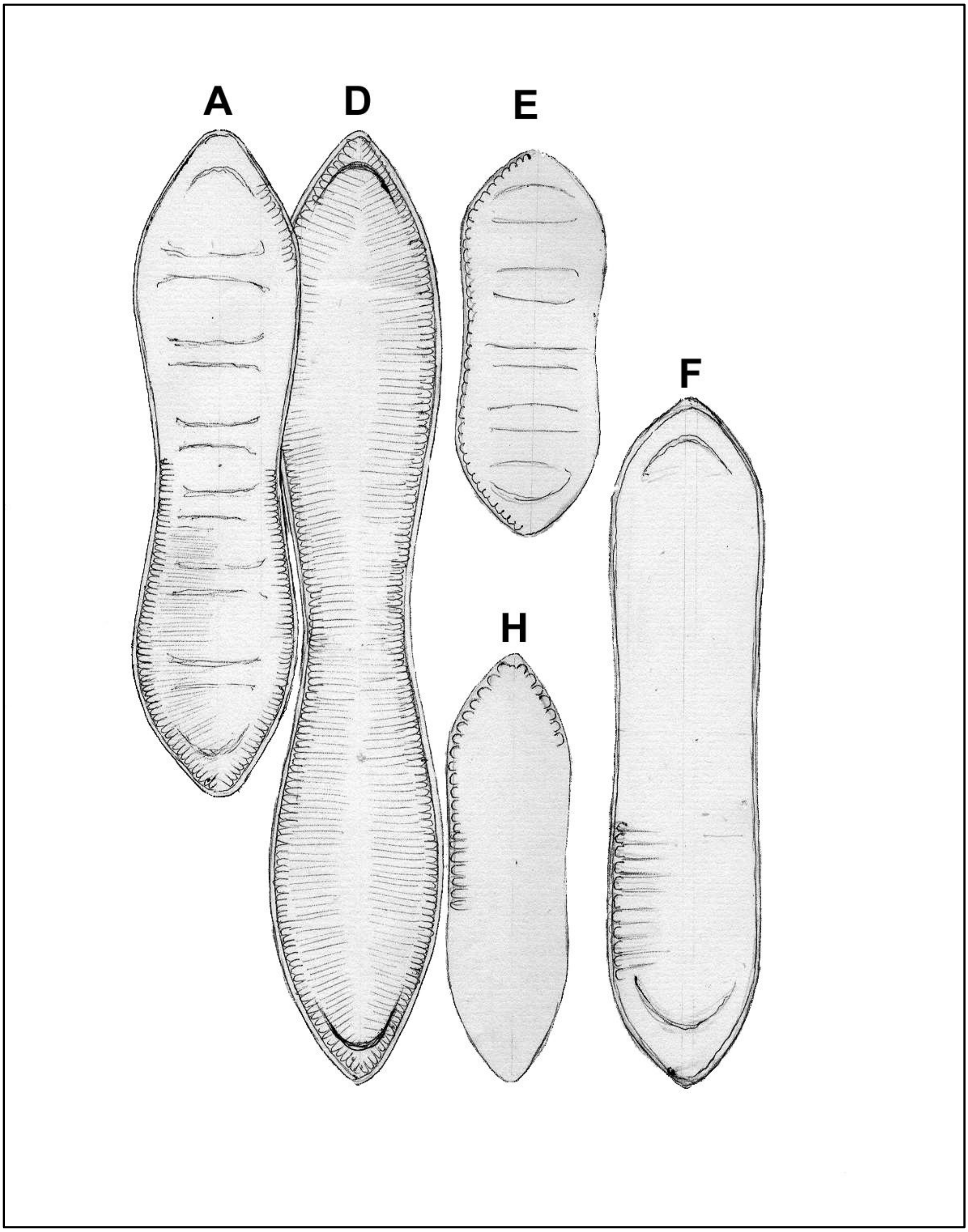


Plate 56 *Cymatoplaura* - W.Smith

Figure	Species/Text	Locations
C	*Cymatopleura elliptica* (Brébisson) W.Smith	1, 3, 11, 12, 16, 18, 19, 23, 24, 29, 44
B	*Cymatopleura elliptica* var. *hibernica* (W.Smith) Hustedt	1, 3, 18, 23, 24
G	*Cymatopleura angulata* Greville	29

Plate 56

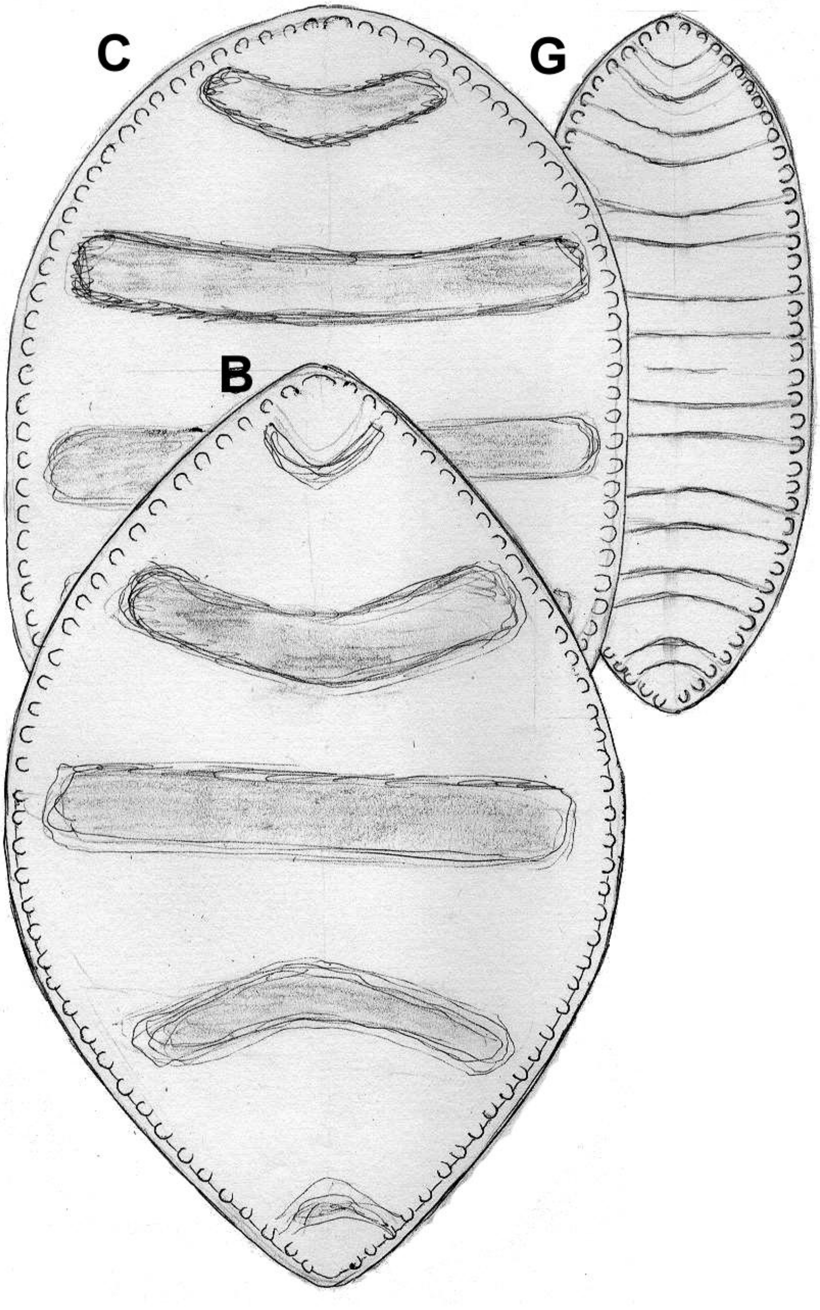


Plate 57 *Surirella* – Turpin

Figure	Species/Text	Locations
A	*Surirella biseriata* Brébisson	1, 2, 10, 17, 18, 19, 44
B	*Surirella biseriata* var. *bifrons* (Ehrenberg) Hustedt	1, 11, 29
Not figured	*Surirella biseriata* var. *bifrons* fa. *punctata* F.Meister	1
C	*Surirella caproni* Brébisson ex F.Kitton	1, 16, 18, 29
D	*Surirella biseriata* fa. *punctata* Kaiser	1, 18, 23, 29
E	*Surirella biseriata* var. *constricta* (Ehrenberg) Grunow ex Hustedt	1

Plate 57

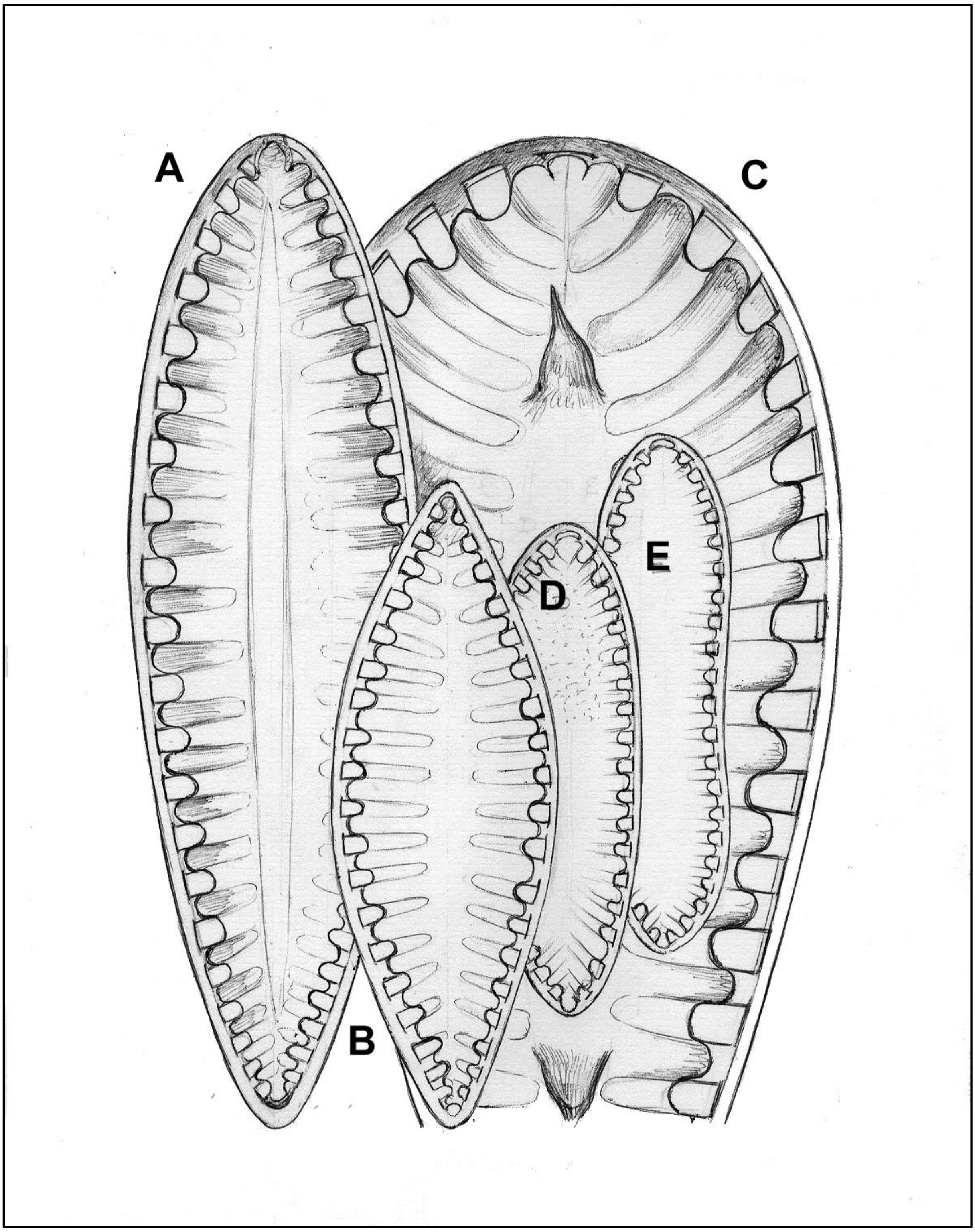


Plate 58 *Surirella* – Turpin

Figure	Species/Text	Locations
J	*Surirella biseriata* Brébisson	No location cited
K	*Surirella tibetica* Mereschkovsky	29
L	*Surirella tenera* var. *nervosa* A.Schmidt	24, 44
To be sketched	*Surirella tenuis* Mayer	1

Plate 58

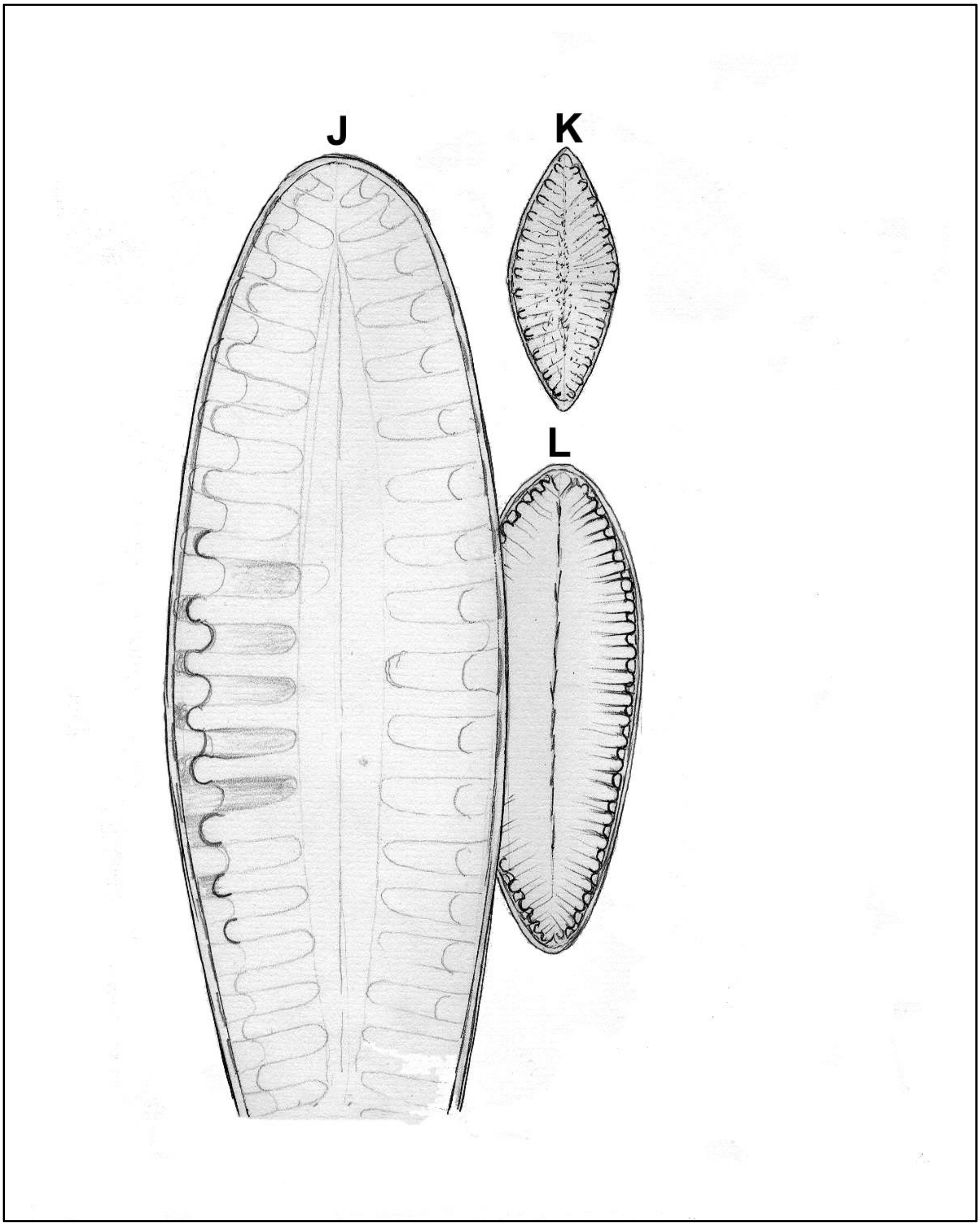


Plate 59 *Surirella* – Turpin

Figure	Species/Text	Locations
F	*Surirella gracilis* fa. *obtusa*	5, 17, 18
G	*Surirella elegans* Ehrenberg	1, 17
H	*Surirella elegans* Ehrenberg	19
Not figured	*Surirella tenera* var. *nervosa* A.Schmidt	44
M	*Surirella tenera* W.Gregory	1, 2
N	*Surirella tenera* W.Gregory	1, 2
O	*Surirella angustata* Kützing	1, 5, 9, 10, 15, 16, 18, 26, 28, 31, 32
P	*Surirella ovata* var.	1, 7, 11, 16, 25
R	*Surirella ovata* var.	1, 7, 11, 25
Q	*Surirella angustata* Kützing	42
S	*Surirella "Suttoniana"*	19, 24
	Appendix to forms T, SS, TT, S - all 59 Sutton Park slide These forms I am sure are *Surirella Molleriana*, the only difference in each is the valve outline. Form 59 T is near to the usual form – the others local variations – for good linear forms as depicted by Hustedt – Middle Europas 1930 page 436. See the North Wales slides No.620 Llyn Coronion where there are very fine spps.	
SS	*Surirella "Suttoniana"* Mihi	24
T	*Surirella Molleriana* Grunow	24
TT	*Surirella "Suttonia* fa. *apiculata*" Mihi	24
Z	*Surirella delicatissima* F.W.Lewis	7, 24
CC	*Surirella angustata* Kützing	24, 25
	?sporangial form	
PP	*Surirella angustata* Kützing	30, 43
BB	*Surirella Molleriana* fa. *ovata*	24
QQ	*Surirella ovata* fa.	33, 52, 60
RR	*Surirella ovata* var. *pinnata* "fa. *alpha*"	16, 19, 29, 47, 48

Plate 59

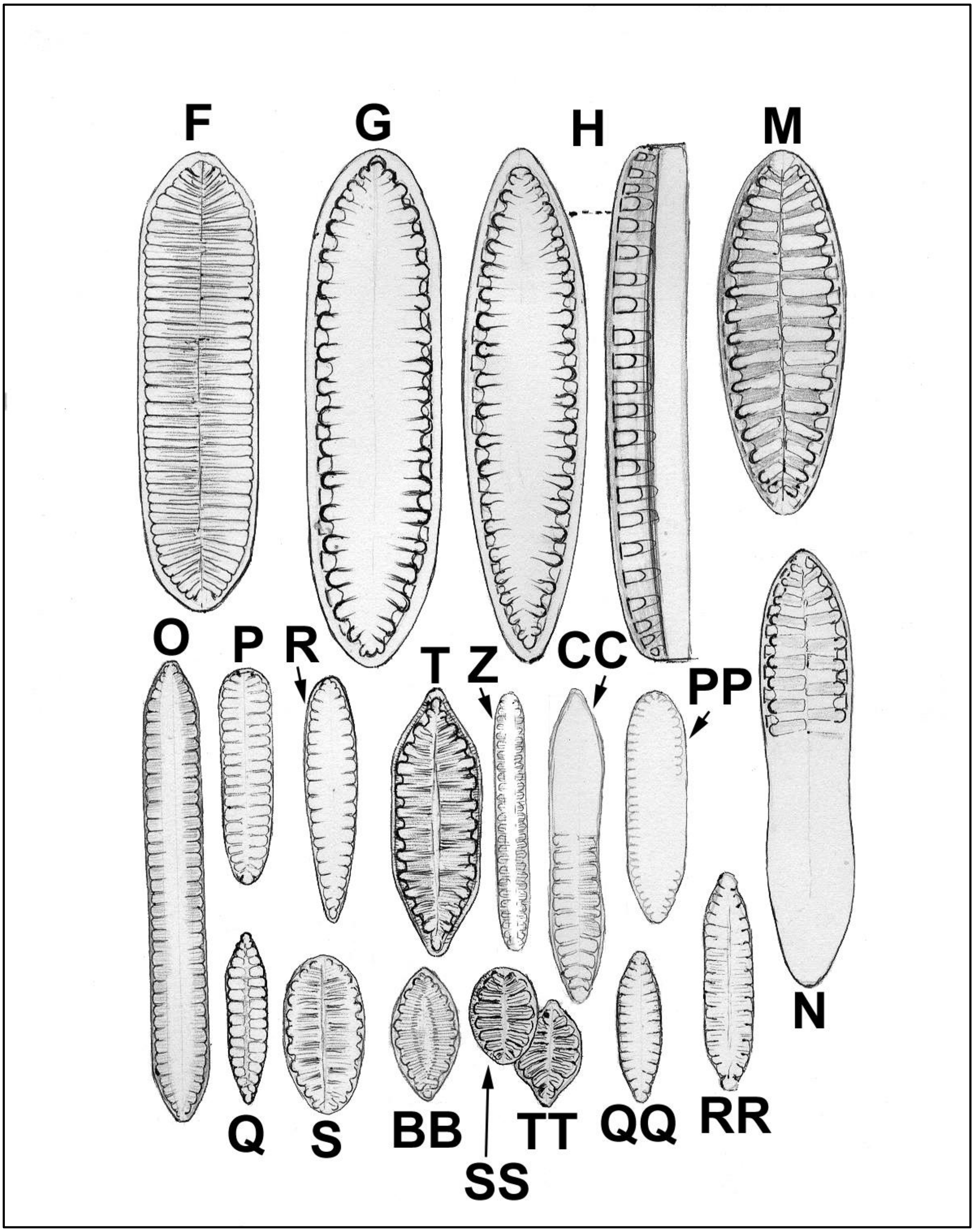


Plate 60 *Surirella* – Turpin

Figure	Species/Text	Locations
U^1	*Surirella ovata* Kützing	1, 4, 9, 10, 11, 16, 18, 19, 25, 26, 28, 29, 32, 33, 44, 45, 48, 50
U^2	*Surirella ovata* Kützing	19, 48, 52, 60
U^3	*Surirella ovata* Kützing	No location cited
V	*Surirella ovata* Kützing	16
UU	*Surirella ovata* Kützing	29, 44
YY	*Surirella ovata* "var. *minuta*"	19, 44, 48
ZZ	*Surirella ovata* "var. *alpha*"	23
W^1	*Surirella ovalis* Brébisson	7, 19, 48
W^2	*Surirella ovalis* Brébisson	No location cited
X	*Surirella ovata* var. *crumens*	19
XX	*Surirella ovata* var. *crumens* fa. *salina*	29
Y^1	*Surirella ovalis* Brébisson	1, 5, 7, 8, 12, 13, 15, 16, 26, 28, 29, 32, 45
Y^2	*Surirella ovalis* Brébisson	No location cited
Y^3	*Surirella ovalis* Brébisson	48
A	*Surirella ovata* Brébisson	19
Y^4	*Surirella ovalis* Brébisson	48

Plate 60

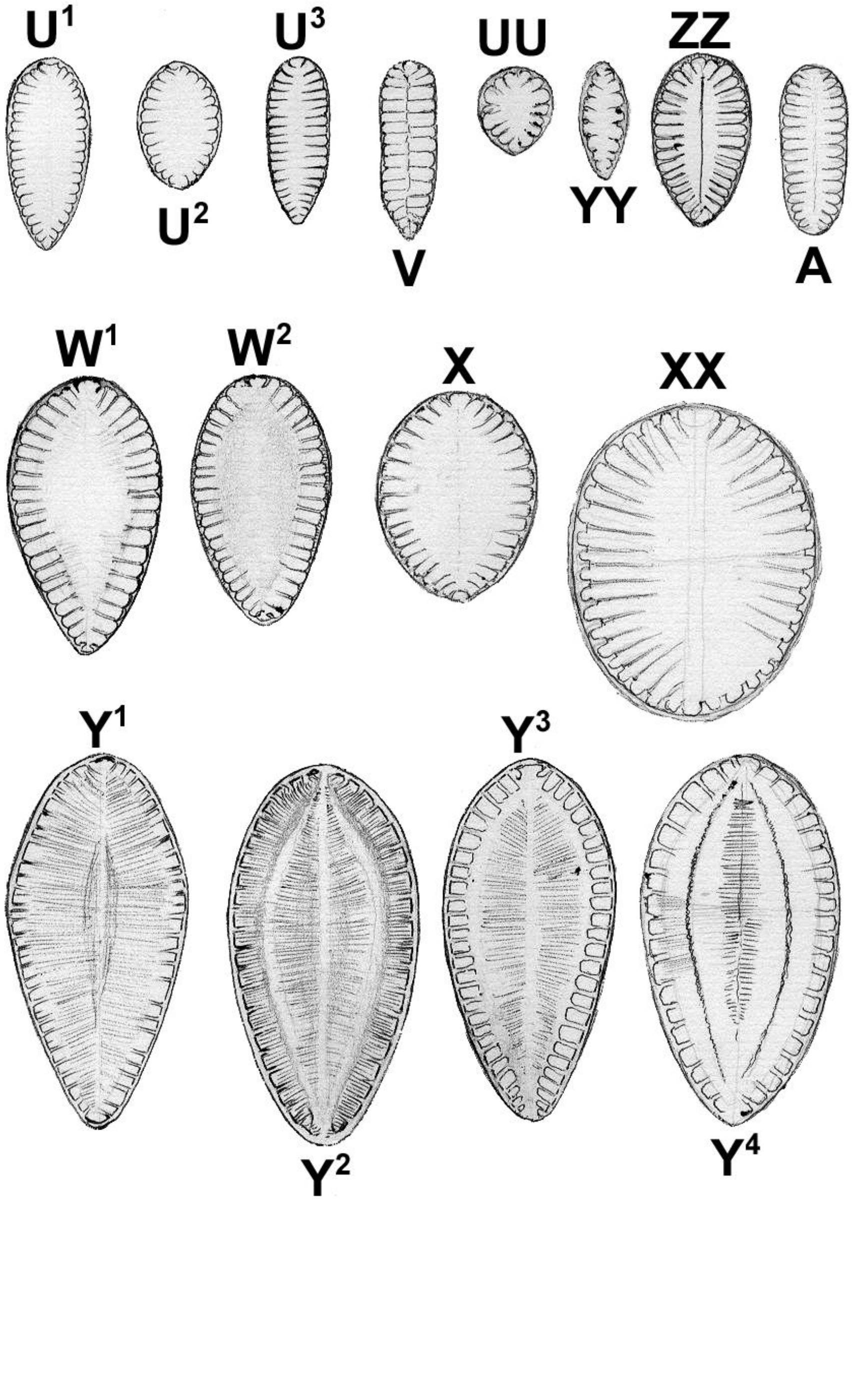


Plate 61 *Surirella* – Turpin

Figure	Species/Text	Locations
DD	*Surirella saxonica* Auerswald	29
	Appendix to form 61DD River Leam Slide 1032 *Surirella Saxonica* Auerswald. Length 220µ Breadth 50µ Kpunc 25 This is the first time I have recorded this form and without doubt is a very fine form. Most notable is the fine punctuate surface.	
A	*Surirella “Alvecoti”* Mihi	19
	Appendix to form 61 A *Surirella “Alvecoti”* Slide 880 Length 60µ Breadth 19µ Kp 16 in 10µ This form is rather different to *augusta* and I cannot equate with *tenera*. Under a 1/16 OI the surface is striated at about 30 in 10µ rather like *Surirella gemma*!	
B	*Surirella*	24
	Appendix to form 61 B *Surirella* Sutton Park Slide 948 Length 35µ Breadth 12µ Stria approximately 20 in 10µ Keel puncta *[Fibulae]* 30 in 10µ Rather an unusual form and I cannot think related to *ovata/ovalis* group unless a freak. I am at a loss to place. Only one seen.	

Plate 61

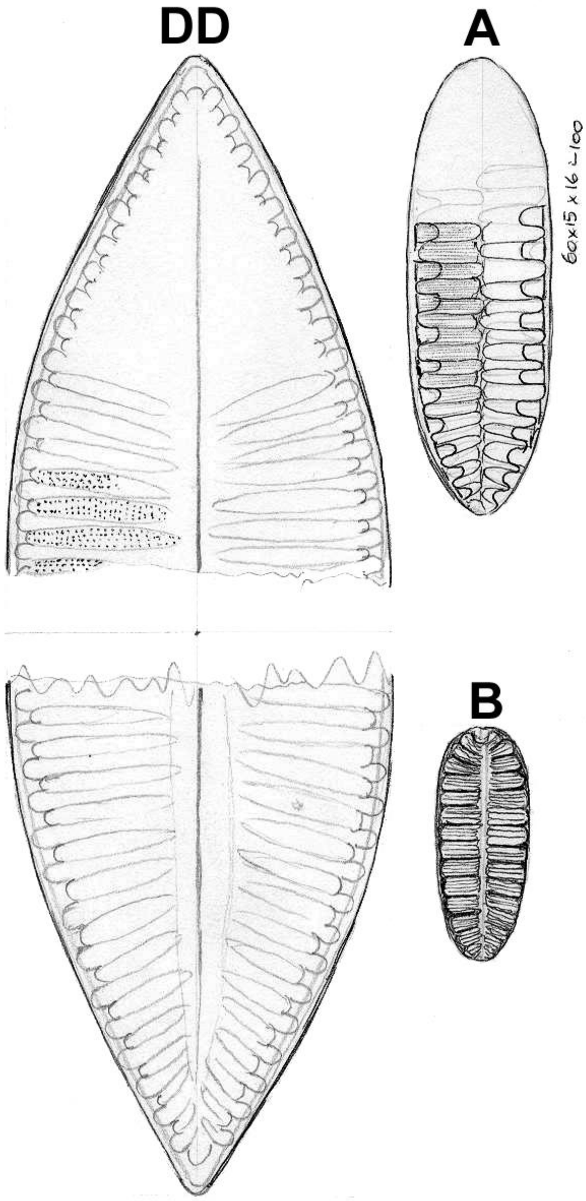


Plate 62 *Surirella* – Turpin

Figure	**Species/Text**	**Locations**
A	*Surirella spiralis* Kützing	24

Plate 62

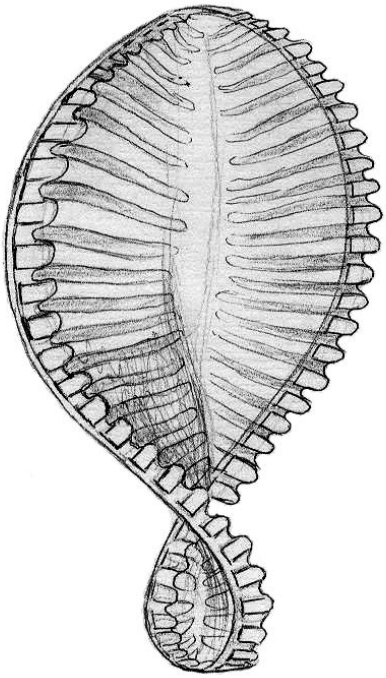


Plate 63 *Campylodicus* – Ehrenberg

Figure	Species/Text	Locations
Not figured	*Campylodiscus noricus* var. *hibernica* (Ehrenberg) Grunow	1, 3, 11, 12
	(not illustrated)	

Plate 63

Blank
Plate

End Notes:

The following notes appear on 3 pages at the end of the volume and are entries made on the inverted page.

Nitzschia placida nsp.?

Valve lanceolate with central margins slightly incurved and long produced ends which are semi-capitate. 50µ long, 4.5µ wide. Carina strongly excentric with small points about 15 in 10µ. Stria parallel very delicate indeed, about 44 in 10µ.

JRC says resembles in shape and size *N. frequens* Hustedt but is of much finer striation.

Cannot be equalled with *Nitzschia subcapitata* Hustedt because of the lack of space in the centre of the carinal points and also because Hustedt states the structure is not visible in *subcapitata*.

Pinnularia spp.

Valve linear with broad rounded ends 26-29µ and 6µ wide. Rhaphe perhaps slightly undulate but not complex, as far as can be seen. Terminal fissures semi-circular and central pores turned slightly to one side.

Longitudinal space lanceolate opening out to a circular area on both sides. Costae fairly strong nearly all at right angles 14 in 10µ. Longitudinal band not visible.

JRC says:-

> "Probably a very small form of *viridis*. But if so then it is only half the size of any such small forms recorded. There is no reason to think that if the form can go down to this size then the other characteristics of the valve will not be altered in some measure – It is of course possibly a new form."

Pinnularia

Valve linear with broad rounded ends 52µ long 10µ wide. Raphe straight with semi-circular terminal fissures. Approximate central pores turned in the same direction. Longitudinal and central space fused into one lanceolate/rhomboidal area – reaching the margin at the centre. Costae strong, radiate at centre and convergent at poles 12 in 10µ. Longitudinal bands not visible.

JRC says:-

I feel I have seen this somewhere – nearest to *Pinn. gibba* var. *sancta* Hustedt As outlined in his Diatoms of the Congo – I suppose no real reason why this form should not be here.

Appendix A
Species by Location Index

Note: Locations 39, 41, 49, 56, 57, 58 & 59 do not have any references within the plate listings.

Locality No. 1. Camp Hill Pool, Nuneaton.

Achnanthes exilis	(Plate 8, Fig. D)
Achnanthes Hungarica	(Plate 8, Fig. K)
Amphipleura pellucida	(Plate 10, Fig. A)
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Asterionella Formosa	(Plate 4, Fig. S?)
Asterionella gracillima	(Plate 4, Fig. X)
Bacillaria paradoxa	(Plate 44, Fig. A)
Caloneis Schumanniana (truchus) var. *linearis*	(Plate 11, Fig. J)
Caloneis Schumanniana var. *biconstricta*	(Plate 11, Fig. K)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *gibberula*	(Plate 11, Fig. G)
Caloneis ventricosa var. *peisonis*	(Plate 11, Fig. D)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Caloneis ventricosa var. *tumida*	(Plate 11, Fig. H)
Campylodiscus noricus var. *hibernica*	(Plate 63, Fig.)
Ceratoneis arcus	Not illustrated
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella Kützingiana	(Plate 2, Fig. C)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura elliptica var. *hibernica*	(Plate 56, Fig. B)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella amphicephala var. *hercynica*	Not illustrated
Cymbella Brehmii	(Plate 33^{2}, Fig. G)
Cymbella cistula	(Plate 33^{1}, Figs. B^{2} & C^{1})
Cymbella cistula var. *maculata*	(Plate 33^{1}, Fig. F)
Cymbella cymbiformis	(Plate 33^{3}, Fig. E?)
Cymbella helvetica	Not illustrated
Cymbella lanceolata	(Plate 33, Fig. A)
Cymbella prostrata	(Plate 37, Fig. C)
Cymbella ventricosa	(Plate 33^{2}, Figs. D^{1} & D^{5}), (Plate 37, Fig. D)
Diatoma anceps	(Plate 3, Figs. N, O & P)
Diatoma elongatum	(Plate 3, Fig. K)
Diatoma vulgare	(Plate 3, Figs. E & H)
Diatoma vulgare var. *producta*	(Plate 3, Fig. F)
Diploneis ovalis	(Plate 13, Fig. A)
Epithemia turgida	(Plate 42, Fig. C)
Epithemia zebra var. *porchellus*	(Plate 42, Fig. A)
Epthemia turgida var. *granulata*	(Plate 42, Fig. B)
Eunotia ~~alpina~~ Naegelii var. *Naegelii*	(Plate 6, Fig. A)
Eunotia formica	(Plate 6, Fig. J)
Eunotia formica var. *ventralis*	Not illustrated

Locality No. 1. Camp Hill Pool, Nuneaton. (continued)

Eunotia gracilis	(Plate 6^{1}, Fig. A)
Eunotia lunaris	(Plate 6, Fig. G)
Eunotia pectinalis var. *ventralis*	(Plate 6^{1}, Fig. B)
Eunotia valida	(Plate 6, Fig. L)
Fragilaria capucina var. *mesolepta*	(Plate 4, Fig. G)
Fragilaria construens	(Plate 4, Fig. H)
Fragilaria crotonensis	(Plate 4, Fig. L)
Fragilaria intermedia	(Plate 4, Fig. V)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema angustatum var. *obtusa*	Not illustrated
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gyrosigma accuminatum	(Plate 10, Fig. F)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Hantzschia amphioxys	(Plate 43, Fig. A)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula	(Plate 19^{1}, Fig. HH)
Navicula avenacea fa. "*producta*"	(Plate 19^{2}, Fig. J)
Navicula cryptocephala	(Plate 19^{5}, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula gastrum	(Plate 22, Fig. A)
Navicula gracilis	(Plate 20^{1}, Fig. H)
Navicula gregaria	(Plate 16, Fig. E)
Navicula lanceolata	(Plate 20^{1}, Fig. E)
Navicula menisculus	Not illustrated
Navicula pygmaea	(Plate 23, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^{2}, Fig. G)
Navicula rhyncocephala var. ~~"*pseudo*"~~	(Plate 19^{2}, Fig. J)
Navicula rhyncocephala var. ~~"*pseudo-rhyncocephala*"~~	(Plate 19^{2}, Fig. L)
Navicula seminulum var. *radiosa*?	(Plate 16^{3}, Fig. F)
Navicula var. *HH*	(Plate 19^{1}, Fig. P)
Navicula ~~*viridula*~~ *avenacea*	(Plate 19^{1}, Fig. B)
Navicula viridula Type	(Plate 19^{4}, Fig. A)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Fig. C)
Navicula? ~~*Cari*~~	(Plate 21, Fig. M)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium capitatum	(Plate 12, Fig. L)
Neidium dubium	(Plate 12^{2}, Fig. H)
Neidium iridis	(Plate 12^{1}, Fig. G)
Neidium iridis var. *amphigomphus*	(Plate 12^{1}, Fig. D)
Neidium producta	(Plate 12^{3}, Fig. C)
Neidium producta fa. "*longiceps*"	(Plate 12^{3}, Fig. B)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia angustata	Not illustrated
Nitzschia angustata var. *acuta*	(Plate 45, Fig. B)
Nitzschia apiculata	Not illustrated

Locality No. 1. Camp Hill Pool, Nuneaton. (continued)

Nitzschia flexa	(Plate 52, Figs. G & G[2])
Nitzschia Gandersheimensis	Not illustrated
Nitzschia garrensis	Not illustrated
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia palea	(Plate 50[2], Fig. V)
Nitzschia parvulum	Not illustrated
Nitzschia punctata	(Plate 45, Fig. A)
Nitzschia recta	Not illustrated
Nitzschia sigma	(Plate 52, Fig. B)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia tryblionella	(Plate 45, Fig. C)
Nitzschia tryblionella var. *levidensis* fa. *apiculata*	(Plate 45, Fig. D)
Nitzschia tryblionella var. *victoriae*	Not illustrated
Pinnularia appendiculata	(Plate 25, Fig. E)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia gentilis	(Plate 29[1], Fig. H)
Pinnularia gigas?	(Plate 27, Fig. C)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia mesolepta var. *angustata*	(Plate 24, Fig. B)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia nobilis	(Plate 29[1], Fig. E)
Pinnularia polyonca	(Plate 25, Fig. R)
Pinnularia sublinearis	(Plate 24, Fig. D)
Pinnularia viridis	Not illustrated
Pinnularia viridis "fa. *truncata*"	(Plate 30, Fig. G)
Rhoicosphenia curvata	(Plate 9, Fig. A)
Rhoicosphenia curvata	(Plate 9, Fig. B)
Rhopalodia parallela	(Plate 42[1], Fig. B)
Stauroneis acuta	(Plate 14, Fig. B)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis anceps fa. *gracilis*	(Plate 14, Fig. J)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Surirella caproni	(Plate 57, Fig. C)
Surirella angustata	(Plate 59, Fig. O)
Surirella biseriata	(Plate 57, Fig. A)
Surirella biseriata fa. *punctata*	(Plate 57, Fig. D)
Surirella biseriata var. *bifrons*	(Plate 57, Fig. B)
Surirella biseriata var. *bifrons* fa. *punctata*	Not illustrated
Surirella biseriata var. *constricta*	(Plate 57, Fig. E)
Surirella elegans	(Plate 59, Fig. G)
Surirella ovalis	(Plate 60, Fig. Y[1])
Surirella ovata	(Plate 60, Fig. U[1])
Surirella ovata var.	(Plate 59, Figs. P & R)
Surirella tenera	(Plate 59, Figs. M & N)
Surirella tenuis	Not illustrated
Synedra acus	(Plate 5, Fig. H)
Synedra affinis	(Plate 5, Fig. K)
Synedra parasitica	(Plate 5, Fig. S)
Synedra pulchella	(Plate 5, Fig. O)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 2. Corporation Quarry, Mancetter Road.

Un-named	(Plate 2^{B}, Fig. D)
Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes conspicua?	(Plate 8, Fig. T.)
Achnanthes conspicua var. *brevistrata*	(Plate 8, Fig. N)
Amphora ovalis	(Plate 32, Fig. A)
Anomonoeoneis exilis	(Plate 15, Fig. B)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis Schumanniana var. *biconstricta*	(Plate 11, Fig. K)
Cocconeis pediculus	(Plate 7, Fig. E)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella Kützingiana	(Plate 2, Fig. C)
Cyclotella Meneghiniana	(Plate 2, Fig. D)
Cyclotella stelligera	(Plate 2, Fig. E)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella Brehmii	(Plate 33^{2}, Fig. G)
*Cymbella cistu*la	(Plate 33^{1}, Fig. C^{1})
Cymbella helvetica	Not illustrated
Cymbella prostrata	(Plate 37, Fig. D)
Cymbella Rheinhardtii	(Plate 37 Not figured)
Denticula tenuis var. *crassula*	(Plate 41, Fig. A)
Diatoma elongatum	(Plate 3, Fig. K)
Diploneis ovalis	(Plate 13, Fig. A)
Eunotia arcus var. *fallax*	(Plate 6^{1}, Fig. D)
Fragilaria intermedia	(Plate 4, Fig. V)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gyrosigma accuminatum	(Plate 10, Fig. F)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Navicula "pseudocreuzbergensis"	(Plate 18, Fig. C)
Navicula cryptocephala	(Plate 19^{5}, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula gastrum	(Plate 22, Fig. A)
Navicula gracilis	(Plate 20^{1}, Fig. H)
Navicula Kraskei	(Plate 18, Fig. B)
Navicula radiosa	(Plate 20, Fig. A)
Navicula viridula	(Plate 19^{4}, Fig. A)
Nitzschia acuta	(Plate 50, Fig. N)
Pinnularia gentilis	(Plate 30, Fig. F)
Pinnularia major	(Plate 29, Fig. A)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis obtusa "fa. *rostrata*"	(Plate 14, Fig. M)
Surirella biseriata	(Plate 57, Fig. A)
Surirella tenera	(Plate 59, Figs. M & N)
Synedra acus	(Plate 5, Fig. H)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 3. Hartshill Hayes Quarry, Hartshill.

Achnanthes conspicua var. *brevistrata*	(Plate 8, Fig. N)
Achnanthes flexella	Not illustrated
Achnanthes Hungarica	(Plate 8, Fig. K)
Achnanthes japonica	(Plate 8, Fig. M)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphipleura pellucida	(Plate 10, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Asterionella formosa	(Plate 4, Fig. S?)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Campylodiscus noricus var. *hibernica*	(Plate 63, Fig.)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cocconeis thumensis	(Plate 7, Fig. F)
Cyclotella compta	(Plate 2, Figs. A & B)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura elliptica var. *hibernica*	(Plate 56, Fig. B)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella aspera	(Plate 33, Fig. A[1])
Cymbella Brehmii	(Plate 33[2], Fig. G)
Cymbella cistula	(Plate 33[1], Fig. C[1])
Cymbella cymbiformis	(Plate 33[3], Fig. E?)
Cymbella lanceolata	(Plate 33, Fig. A)
Cymbella Rheinhardtii	Not illustrated
Cymbella ventricosa	(Plate 33[2], Fig. D[1]), (Plate 37, Fig. D)
Diatoma elongatum	(Plate 3, Fig. K)
Diploneis ovalis	(Plate 13, Fig. A)
Epithemia zebra	Not illustrated
Epithemia zebra var. *porchellus*	(Plate 42, Fig. A)
Eunotia exigua	(Plate 6, Fig. F)
Eunotia lunaris	(Plate 6, Fig. G)
Eunotia tenella	(Plate 6, Fig. C)
Fragilaria brevistriata	(Plate 4, Fig. M)
Fragilaria construens	(Plate 4, Fig. H)
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Fragilaria crotonensis	(Plate 4, Fig. L)
Fragilaria intermedia	(Plate 4, Fig. V)
Fragilaria pinnata var. *lancettula*	(Plate 4, Fig. S)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema angustatum	(Plate 38[1], Fig. F)
Gomphonema constrictum	(Plate 38[3], Fig. A)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Navicula bacillum	(Plate 17, Fig. D)
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata	(Plate 16, Fig. A)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula Kraskei	(Plate 18, Fig. B)
Navicula lacustris	Not illustrated
Navicula lanceolata	(Plate 20[1], Fig. E)

Locality No. 3. Hartshill Hayes Quarry, Hartshill. (continued)

Navicula mutica	(Plate 16[2], Fig. J)
Navicula oblonga	(Plate 20[3], Fig. D)
Navicula pupula	(Plate 17, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula radiosa (NOT var. *acuta*)	(Plate 20, Fig. B)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia garrensis	Not illustrated
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia recta	Not illustrated
Nitzschia sigmoidea	(Plate 52, Fig. A)
Opephora Martyi	(Plate 4, Fig. E)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia nobilis	(Plate 29[1], Fig. E)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Synedra acus	(Plate 5, Fig. H)
Synedra acus var. *radians*	(Plate 5, Fig. J)
Synedra affinis	(Plate 5, Fig. K)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 4. Water Tower Gate, Mancetter Road.

Achnanthes brevipes var. *parvula*	Not illustrated
Achnanthes coarctata	(Plate 8, Fig. O)
Achnanthes exilis	(Plate 8, Fig. D)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cymatopleura elliptica var. *constricta*	Not illustrated
Eunotia tenella	(Plate 6, Fig. C)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Hantzschia amphioxys	(Plate 43, Fig. A)
Hantzscia amphioxys var. *capitata*	Not illustrated
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula mutica	(Plate 16[2], Fig. J)
Navicula mutica var. *capitata*	(Plate 16[2], Fig. H)
Navicula odiosa var. *odiosa*	(Plate 21, Not figured)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia thermalis var. *minor*	Not illustrated
Nitzschia tryblionella	(Plate 45, Fig. C)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia microstauron var. *Brebissoni* fa. *minutissima*	Not illustrated
Pinnularia viridis	Not illustrated
Surirella ovata	(Plate 60, Fig. U[1])

Locality No. 5. Ditch and Pond – Anker Inn Lane.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)

Locality No. 5. Ditch and Pond – Anker Inn Lane. **(continued)**

Achnanthes lanceolata var. *bimaculata*	(Plate 8, Fig. G)
Achnanthes lanceolata var. *rostrata*	Not illustrated
Amphora ovalis	(Plate 32, Fig. A)
Anomonoeoneis sphaerophora	(Plate 15, Fig. A)
Caloneis bacillum	(Plate 11, Figs. B, C, E & Q)
Caloneis silicula ventricosa	(Plate 11, Fig. F)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella hybrida	(Plate 33^{3}, Fig. F)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema angustatum	(Plate 38^{1}, Fig. F)
Gomphonema angustatum var. *sarcophagus*	(Plate 38^{1}, Fig. E)
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gomphonema longiceps	Not illustrated
Gomphonema longiceps var. *subclavata*	(Plate 38^{3}, Fig. J)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Hantzschia amphioxys	(Plate 43, Fig. A)
Hantzschia virgata	Not illustrated
Hantzscia amphioxys var. *capitata*	Not illustrated
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula	(Plate 19^{1}, Fig. F)
Navicula "petita"	Not illustrated
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala	(Plate 19^{5}, Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata	(Plate 16, Fig. A)
Navicula dicephala	(Plate 20^{2}, Fig. G^{1})
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula gibbula	(Plate 18, Fig. A)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula lanceolata	(Plate 20^{1}, Fig. E)
Navicula pygmaea	(Plate 23, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^{2}, Figs. G & N)
Navicula rhyncocephala var. ~~*"pseudo"*~~	(Plate 19^{2}, Fig. J)
Navicula salinarum	(Plate 19, Fig. A)
Navicula ~~viridula~~ avenacea	(Plate 19^{1}, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Fig. D)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium capitatum	(Plate 12, Fig. L)
Neidium producta	(Plate 12^{3}, Fig. C)
Neidium producta "fa. *capitata*"	(Plate 12^{3}, Fig. A)
Nitzschia amphibia	(Plate 50^{1}, Fig. H)
Nitzschia Hantziana	(Plate 50^{2}, Fig. E)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia linearis var. *sublinearis*	Not illustrated

Locality No. 5. Ditch and Pond – Anker Inn Lane. (continued)

Nitzschia palea	(Plate 50^2, Fig. V)
Nitzschia recta	Not illustrated
Nitzschia sigmoidea	(Plate 52, Fig. A)
Pinnularia ~~?molaris~~ microstauron var. *Brebissonii*	(Plate 24, Fig. C)
Pinnularia "Arburyi"	(Plate 25, Figs. A & J)
Pinnularia "Dunniana"	(Plate 25, Fig. B)
Pinnularia interrupta fa. *minutissima*	(Plate 25, Fig. K)
Pinnularia irrorata	(Plate 25, Figs. C & H)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Figs. C & F)
Pinnularia microstauron var. *Brebissoni* fa. *minutissima*	Not illustrated
Pinnularia viridis	Not illustrated
Pinnularia viridis ~~"fa. *Berringtonia*"~~ var. *fallax*	(Plate 30, Fig. A)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis anceps fa. *linearis*	(Plate 14, Fig. K)
Stauroneis Kreigeri fa. *undulata*	(Plate 14, Fig. P)
Stauroneis legumen	(Plate 14, Fig. D)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella angustata	(Plate 59, Fig. O)
Surirella gracilis fa. *obtusa*	(Plate 59, Fig. F)
Surirella ovalis	(Plate 60, Fig. Y^1)
Syndera ulna var. *oxyrhynchus*	(Plate 5, Fig. C)
Synedra affinis	(Plate 5, Fig. K)
Synedra minuscula	(Plate 5, Fig. D)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes exilis	(Plate 8, Fig. D)
Achnanthes Hungarica	(Plate 8, Fig. K)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphiprora ornata (*rivularis*)	(Plate 32^1, Fig. E)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cymbella affinis	Not illustrated
Cymbella turgida	Not illustrated
Cymbella ventricosa	(Plate 33^2, Fig. D^1), (Plate 37, Fig. D)
Diatoma anceps	(Plate 3, Figs. N, O & P)
Epithemia intermedia	(Plate 42, Fig. D)
Eunotia ~~alpina~~ Naegelii var. *Naegelii*	(Plate 6, Fig. A)
Eunotia Kocheliensis	(Plate 6, Fig. H)
Eunotia lunaris	(Plate 6, Fig. G)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Fragilaria capucina var. *mesolepta*	(Plate 4, Fig. G)
Fragilaria construens var. *binodis*	(Plate 4, Fig. J)
Fragilaria intermedia	(Plate 4, Fig. V)
Gomphonema accuminatum var. *coronata*	Not illustrated

Locality No. 6. Yardley Cottage Pond – J. Blakemoor's Farm. (continued)

Gomphonema intricatum	Not illustrated
Gomphonema olivaceum	(Plate 38[2], Fig. A)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula bacillum	(Plate 17, Fig. D)
Navicula bacillum fa. *elliptica*	(Plate 17, Fig. E)
Navicula cryptocephala var. *intermedia*	Not illustrated
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula pupula	(Plate 17, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. C)
Neidium producta	(Plate 12[3], Fig. C)
Nitzschia holsatica	Not illustrated
Pinnularia Braunii var. *amphicephala*	(Plate 25, Figs. F & G)
Pinnularia mesolepta	(Plate 24, Fig. A)
Staroneis gracillima	(Plate 14, Fig. F)
Stauroneis pygmeae	(Plate 14, Fig. E)
Synedra acus	(Plate 5, Fig. H)
Synedra ulna	(Plate 5, Fig. A)
Tabellaria fenestrata	(Plate 3, Figs. A, B & C)
Tabellaria flocculosa	(Plate 3, Fig. D)

Locality No. 7. Jee's Tarmac Plant, Hartshill.

Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis	(Plate 32, Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis bacillum	(Plate 11, Figs. B, C, E & Q)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cymatopleura elliptica var. *constricta*	Not illustrated
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema angustatum	(Plate 38[1], Fig. F)
Gomphonema angustatum var. *obtusa*	Not illustrated
Gyrosigma Kützingii	(Plate 10, Fig. E)
Hantzschia amphioxys	(Plate 43, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula "Hartshilliana"	Not illustrated
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula dicephala	(Plate 20[2], Fig. G[1])
Navicula mutica	(Plate 16[2], Fig. N)
Navicula pupula	(Plate 17, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula radiosa (NOT var. *acuta*)	(Plate 20, Fig. B)
Navicula rhyncocephala	(Plate 19[2], Fig. G)
Navicula rhyncocephala var. ~~*"pseudo"*~~	(Plate 19[2], Fig. J)
Navicula salinarum "var. *Hartshilliana*"	(Plate 19, Fig.)
Navicula ~~viridula~~ avenacea	(Plate 19[1], Fig. B)

Locality No. 7. Jee's Tarmac Plant, Hartshill. **(continued)**

Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium bisulcatum	(Plate 12[2], Fig. J)
Neidium capitatum	(Plate 12, Fig. L)
Nitzschia ?stagnorum	Not illustrated
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia linearis ?var. *tenuis*	(Plate 49, Figs. B & BB)
Nitzschia paleaeformis	(Plate 50[2], Fig. A)
Nitzschia subtilis	Not illustrated
Pinnularia major	(Plate 29, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Pinnularia subcapitata var. *divergens*	Not illustrated
Pinnularia viridis	Not illustrated
Pinnularia viridis ~~"fa. 30K"~~ var. *fallax*	(Plate 30, Figs. K & L)
Pinnularia viridis "fa. *30M*"	(Plate 30, Fig. M)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Surirella delicatissima	(Plate 59, Fig. Z)
Surirella ovalis	(Plate 60, Figs. W[1] & Y[1])
Surirella ovata var.	(Plate 59, Figs. P & R)
Synedra vaucheria	(Plate 5, Fig. E)

Locality No. 8. Astley Castle Pool.

Achnanthes andicola	(Plate 8, Fig. A)
Achnanthes exigua var. *heterovalva*	(Plate 8, Fig. E)
Achnanthes exilis	(Plate 8, Fig. D)
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Amphora veneta	(Plate 32, Fig. D)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella Kützingiana	(Plate 2, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella turgida	Not illustrated
Cymbella ventricosa	(Plate 33[2], Fig. D[1]), (Plate 37, Fig. D)
Diatoma elongatum	(Plate 3, Fig. K)
Epithemia intermedia	(Plate 42, Fig. D)
Epithemia sorex	Not illustrated
Epithemia zebra var. *saxonica*	Not illustrated
Euntotia lunaris var. *subarcuata*	(Plate 6, Fig. K)
Fragilaria capucina	(Plate 4, Fig. F)
Fragilaria capucina var. *mesolepta*	(Plate 4, Fig. G)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema constrictum	(Plate 38[3], Fig. A)
Gomphonema gracile	(Plate 38[4], Fig. DD)
Navicula ~~*cincta*~~ *digito-radiata* var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala	(Plate 19[5], Fig. A)

Locality No. 8. Astley Castle Pool. (continued)

Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula pupula	(Plate 17, Fig. A)
Navicula pupula var. *capitata*	(Plate 17, Fig. C)
Navicula rhyncocephala	(Plate 19², Fig. G)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Nitzschia amphibia	(Plate 50¹, Fig. H)
Nitzschia holsatica	Not illustrated
Nitzschia ovalis	(Plate 50¹, Fig. Q)
Pinnularia appendiculata	(Plate 25, Fig. E)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia viridis	Not illustrated
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Surirella ovalis	(Plate 60, Fig. Y¹)

Locality No. 9. Arbury Hall.

Achnanthes Hungarica	(Plate 8, Fig. K)
Amphora ovalis	(Plate 32, Fig. A)
Anomonoeoneis sphaerophora	(Plate 15, Fig. A)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cocconeis placentula var. *lineata*	(Plate 7, Fig. D)
Cocconeis placentula var. *Rouxii*	(Plate 7, Fig. G)
Cymatopleura elliptica var. *constricta*	(Plate 55, Fig. H)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella aspera	(Plate 33, Fig. A¹)
Cymbella cistula	(Plate 33¹, Fig. C¹)
Cymbella hybrida	(Plate 33³, Fig. F)
Cymbella laevis	(Plate 33³, Fig. J)
Cymbella obtusicula	(Plate 33³, Fig. L)
Epithemia intermedia	(Plate 42, Fig. D)
Epithemia sorex	Not illustrated
Epithemia turgida	(Plate 42, Fig. C)
Epthemia turgida var. *granulata*	(Plate 42, Fig. B)
Eunotia ~~alpina~~ Naegelii var. *Naegelii*	(Plate 6, Fig. A)
Eunotia gracilis	(Plate 6¹, Fig. A)
Eunotia lunaris	(Plate 6, Fig. G)
Euntotia lunaris var. *subarcuata*	(Plate 6, Fig. K)
Fragilaria capucina	(Plate 4, Fig. F)
Fragilaria construens	(Plate 4, Fig. H)
Fragilaria construens var. *binodis*	(Plate 4, Fig. J)
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *Brebissonii*	(Plate 38, Fig. F)

Locality No. 9. Arbury Hall. (continued)

Gomphonema accuminatum var. *trigonocephala*	(Plate 38, Fig. J)
Gomphonema angustatum	(Plate 38^1, Fig. F)
Gomphonema constrictum	(Plate 38^3, Fig. A)
Gomphonema gracile	(Plate 38^4, Fig. DD)
Gomphonema longiceps var. *subclavata*	(Plate 38^3, Fig. J)
Gomphonema longiceps var. *suecica*	(Plate 38^3, Fig. F)
Hantzschia amphioxys	(Plate 43, Fig. A)
Melosira varians	(Plate 1, Fig. A)
Navicula ~~*“pupuloides” or bacilliformis* var. *cruciata*~~ *Witrockii*	(Plate 17, Fig. K)
Navicula bacillum	(Plate 17, Fig. D)
Navicula bacillum fa. *elliptica*	(Plate 17, Fig. E)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula oblonga	(Plate 20^3, Fig. D)
Navicula pupula	(Plate 17, Fig. A)
*Navicula pupu*la var. *capitata*	(Plate 17, Figs. C & L)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^2, Fig. G)
Neidium dubium	(Plate 12^2, Fig. H)
Neidium iridis	(Plate 12^1, Fig. G)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia amphibia	(Plate 50^1, Fig. H)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Pinnularia “Arburyi”	(Plate 25, Fig. A)
Pinnularia “irroratoides” fa. *elliptica*	(Plate 25, Fig. P)
Pinnularia ~~*gibba*~~ *Isostauron*	(Plate 28, Fig. C)
Pinnularia hemiptera	(Plate 27, Figs. B & BB)
Pinnularia interrupta	(Plate 25, Figs. D & N)
Pinnularia irrorata	(Plate 25, Figs. C & H)
Pinnularia mesogongyla	Not illustrated
Pinnularia viridis	Not illustrated
Pinnularia viridis “fa. *30N*”	(Plate 30, Fig. N)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Rhopalodia gibba	(Plate 42^1, Fig. A)
Rhopalodia gibba var. *ventricosa*	(Plate 42^1, Fig. C)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis ~~*lapponica*~~ *palustris*	(Plate 14, Fig. R)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Stephanodiscus astraea	(Plate 2^A, Fig. A)
Surirella angustata	(Plate 59, Fig. O)
Surirella ovata	(Plate 60, Fig. U^1)
Syndera ulna var. *oxyrhynchus* fa. *contracta*	(Plate 5, Fig. F)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 10. Riversley Park Pool.

Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis	(Plate 32, Fig. A)
Amphora veneta	(Plate 32, Fig. D)
Caloneis amphisbaena	(Plate 11, Fig. A)
Cyclotella Meneghiniana	(Plate 2, Fig. D)
Cymatopleura solea var. gracilis	(Plate 55, Fig. D)
Cymbella aspera	(Plate 33, Fig. A[1])
Cymbella cistula	(Plate 33[1], Fig. C[1])
Cymbella cymbiformis	(Plate 33[3], Fig. E?)
Cymbella ventricosa	(Plate 33[2], Fig. D[1]), (Plate 37, Fig. D)
Diatoma vulgare var. *grandis*	(Plate 3, Fig. J)
Diatoma vulgare var. *producta*	(Plate 3, Fig. F)
Fragilaria capucina	(Plate 4, Fig. F)
Gomphonema angustatum var. *producta*	(Plate 38[1], Fig. EE)
Gomphonema augur "fa. *quinquapuncta*"	(Plate 38, Fig. C)
Gomphonema constrictum	(Plate 38[3], Fig. A)
Gomphonema constrictum var. *capitata*	(Plate 38[3], Fig. B)
Hantzschia amphioxys	(Plate 43, Fig. A)
Melosira varians	(Plate 1, Fig. A)
Navicula simplex	Not illustrated
Navicula ~~viridula~~ avenacea	(Plate 19[1], Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. C)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium iridis var. *amphigomphus*	(Plate 12[1], Fig. D)
Nitzschia apiculata	Not illustrated
Nitzschia capitellata	(Plate 50[2], Fig. S)
Nitzschia frustulum	Not illustrated
Nitzschia Hungarica	(Plate 45, Figs. F & G)
Nitzschia levidensis	Not illustrated
Nitzschia tryblionella	(Plate 45, Fig. C)
Pinnularia dactylus	(Plate 27, Fig. D)
Pinnularia ~~gibba~~ Isostauron	(Plate 28, Fig. C)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia transversa	(Plate 29, Fig. C)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Surirella angustata	(Plate 59, Fig. O)
Surirella biseriata	(Plate 57, Fig. A)
Surirella ovata	(Plate 60, Fig. U[1])
Synedra cyclopum	(Plate 5, Fig. L)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)
Un-named	(Plate 38, Fig. D)

Locality No. 11. Whitacre Reservoir – City of Birmingham Water Works.

Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Amphora veneta	(Plate 32, Fig. D)
Asterionella formosa	(Plate 4, Fig. S?)
Caloneis amphisbaena	(Plate 11, Fig. A)

Locality No. 11. Whitacre Reservoir – City of Birm. Water Works. (continued)

Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Campylodiscus noricus var. *hibernica*	(Plate 63, Fig.)
Cocconeis pediculus	(Plate 7, Fig. E)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella Meneghiniana	(Plate 2, Fig. D)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella cistula	(Plate 33^{1}, Fig. C^{1})
Cymbella helvetica	Not illustrated
Cymbella tumida	(Plate 37, Fig. E)
Cymbella ventricosa	(Plate 33^{2}, Fig. D^{1}), (Plate 37, Fig. D)
Diatoma elongatum	(Plate 3, Fig. K)
Gomphonema gracile	(Plate 38^{4}, Figs. F & FF)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Melosira varians	(Plate 1, Fig. A)
Navicula "poolei"	(Plate 19, Fig. DD)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula gracilis	(Plate 20^{1}, Fig. H)
Navicula radiosa	(Plate 20, Fig. A)
Navicula salinarum	(Plate 19, Fig. A)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia angustata	Not illustrated
Nitzschia Hantziana	(Plate 50^{2}, Fig. G)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia levidensis	Not illustrated
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia sigmoidea	(Plate 52, Figs. A & B)
Nitzschia thermalis	Not illustrated
Pinnularia ~~?molaris~~ microstauron var. *Brebissonii*	(Plate 24, Fig. C)
Pinnularia major	(Plate 29, Fig. A)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis acuta	(Plate 14, Fig. B)
Stephanodiscus astraea	(Plate 2^{A}, Fig. B)
Stephanodiscus Hantzschia	(Plate 2^{A}, Fig. BB)
Surirella biseriata var. *bifrons*	(Plate 57, Fig. B)
Surirella ovata	(Plate 60, Fig. U^{1}), (Plate 59, Figs. P & R)
Syndera ulna var. *oxyrhynchus*	(Plate 5, Fig. C)
Synedra affinis	(Plate 5, Fig. K)
Synedra ulna	(Plate 5, Fig. A)

Locality No. 12. Seeswood Pool.

?*Synedra vaucheria* var. *truncata*	(Plate 5, Fig. E)
Achnanthes "arburyi"	(Plate 8, Fig. C)
Achnanthes affinis	(Plate 8, Fig. B)

Locality No. 12. Seeswood Pool. **(continued)**

Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *rostrata*	Not illustrated
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis bacillum	(Plate 11, Figs. B, C, E & Q)
Caloneis bacillum var. *lancettula*	(Plate 11, Fig. N)
Caloneis ventricosa var. *gibberula*	(Plate 11, Fig. G)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Campylodiscus noricus var. *hibernica*	(Plate 63, Fig.)
Cocconeis pediculus	(Plate 7, Fig. E)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cyclotella astraea	(Plate 2, Fig. F)
Cyclotella Kützingiana	(Plate 2, Fig. C)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella cistula	(Plate 33^{1}, Fig. C^{1})
Cymbella hybrid	(Plate 33^{3}, Fig. F)
Cymbella lanceolata	(Plate 33, Fig. A)
Cymbella parva	(Plate 33^{1}, Fig. C)
Cymbella prostrata	(Plate 37, Figs. C & D)
Cymbella ventricosa	(Plate 33^{2}, Fig. D^{1}), (Plate 37, Fig. D)
Denticula tenuis var. *crassula*	(Plate 41, Fig. A)
Diatoma elongatum	(Plate 3, Fig. K)
Diatoma vulgare var. *producta*	(Plate 3, Fig. F)
Diploneis ovalis	(Plate 13, Fig. A)
Fragilaria capucina	(Plate 4, Fig. F)
Fragilaria capucina var. *mesolepta*	(Plate 4, Fig. G)
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Fragilaria Harrisonii var. *"Seeswoodii"*	(Plate 4, Fig. U)
Fragilaria harrisonii var. *dubia*	(Plate 4, Figs. P & R)
Fragilaria Harrisonii var. *rhomboides*	(Plate 4, Fig. O)
Fragilaria Harrisonii	(Plate 4, Fig. N)
Fragilaria intermedia	(Plate 4, Fig. V)
Fragilaria Leptostauron var. *dubia*	(Plate 4, Fig. T?)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gomphonema constrictum var. *capitata*	(Plate 38^{3}, Fig. B)
Gomphonema intricatum	Not illustrated
Gomphonema longiceps	Not illustrated
Gomphonema longiceps var. *subclavata*	(Plate 38^{3}, Fig. J)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula "pseudo-anglica"	Not illustrated
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)

Locality No. 12. Seeswood Pool. (continued)

Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata	(Plate 16, Fig. A)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula digito-radiata var. *elliptica*	(Plate 21, Fig. K)
Navicula gastrum	(Plate 22, Fig. A)
Navicula gracilis	(Plate 20[1], Fig. H)
Navicula Hungarica	(Plate 21, Fig. J)
Navicula lanceolata	(Plate 20[1], Fig. E)
Navicula longirostris	(Plate 18, Fig. F)
Navicula menisculus	Not illustrated
Navicula placentula fa. rostrata	(Plate 22, Fig. B)
Navicula pupula	(Plate 17, Fig. A)
Navicula rhyncocephala	(Plate 19[2], Fig. G)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. C)
Nitzschia amphibia	(Plate 50[1], Fig. H)
Nitzschia apiculata	Not illustrated
Nitzschia dissipata	Not illustrated
Nitzschia recta	Not illustrated
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia tryblionella var. *debilis*	Not illustrated
Pinnularia ~~?molaris~~ microstauron var. *Brebissonii*	(Plate 24, Fig. C)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia nobilis	(Plate 29[1], Fig. E)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella ovalis	(Plate 60, Fig. Y[1])
Synedra affinis	(Plate 5, Fig. K)
Synedra pulchella var. *minuta*	(Plate 5, Fig. M)
Synedra ulna	(Plate 5, Fig. A)

Locality No. 13. River Anker at Caldecote Bridge.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Cocconeis pediculus	(Plate 7, Figs. A, B & E)
Cymbella laevis	(Plate 33[3], Fig. J)
Cymbella ventricosa	(Plate 33[2], Fig. D[1]), (Plate 37, Fig. D)
Denticula tenuis var. *crassula*	(Plate 41, Fig. A)
Frustulia rhomboides	(Plate 10, Fig. D)
Frustulia rhomboides var. *saxonica*	Not illustrated
Gomphonema angustatum	(Plate 38[1], Fig. F)
Gomphonema olivaceum	(Plate 38[2], Fig. A)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Navicula avenacea fa. *inflata*	(Plate 19[1], Fig. M)
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula gracilis	(Plate 20[1], Fig. H)
Navicula gregaria	(Plate 16, Fig. E)
Navicula ~~viridula~~ avenacea	(Plate 19[1], Fig. B)

Locality No. 13. River Anker at Caldecote Bridge. (continued)

Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia dissipata	Not illustrated
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Surirella ovalis	(Plate 60, Fig. Y^1)
Synedra amphicephala	Not illustrated
Tabellaria flocculosa	(Plate 3, Fig. D)

Locality No. 14. River Anker at Leather Mill Lane.

Diatoma elongatum	(Plate 3, Fig. K)
Diatoma elongatum var. *minor*	(Plate 3, Fig. M)
Diatoma elongatum var. *tenuis*	(Plate 3, Fig. L)
Diatoma vulgare	(Plate 3, Figs. E & H)
Diatoma vulgare var. *ovalis*	(Plate 3, Fig. G)
Diatoma vulgare var. *producta*	(Plate 3, Fig. F)
Navicula ~~viridula~~ avenacea	(Plate 19^1, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. D)
Nitzschia ?sigma	(Plate 52, Fig. F)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Syndera ulna var. *oxyrhynchus*	(Plate 5, Fig. C)
Synedra pulchella fa. *constricta*	(Plate 5, Fig. N)
Synedra rumpens	(Plate 5, Fig. Q)
Synedra rumpens var. *fragilaroides*	(Plate 5, Fig. R)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *impressa*	Not illustrated

Locality No. 15. Leather Mill Lane.

Caloneis amphisbaena	(Plate 11, Fig. A)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Frustulia vulgaris var. *capitata*	Not illustrated
Gyrosigma Kützingii	(Plate 10, Fig. E)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula ~~viridula~~ avenacea	(Plate 19^1, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. C)
Neidium capitatum	(Plate 12, Fig. L)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. F)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Surirella angustata	(Plate 59, Fig. O)
Surirella ovalis	(Plate 60, Fig. Y^1)

Locality No. 16. Spring Wood, Caldecote.

Un-named	(Plate 2^B, Fig. F)
Achnanthes "hyalinus"	(Plate 8, Fig. S)
Achnanthes Hungarica	(Plate 8, Fig. K)

Locality No. 16. Spring Wood, Caldecote. (continued)

Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica* “fa. *H*”	Not illustrated
Achnanthes lanceolata var. *elliptica* “fa. *J*”	(Plate 8, Fig. J)
Achnanthes lanceolata var. *elliptica* “fa. *W*”	Not illustrated
Achnanthes lanceolata var. *elliptica* fa. *ventricosa*	Not illustrated
Achnanthes minutissima var. *cryptocephala*	Not illustrated
Amphora Normanii	Not illustrated
Amphora ovalis	(Plate 32, Fig. A)
Anomonoeoneis sphaerophora	(Plate 15, Fig. A)
Caloneis bacillum	(Plate 11, Figs. B, C, E & Q)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella striata var. *bipunctata*	(Plate 2, Fig. J)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura solea	(Plate 55, Fig. A)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella affinis	Not illustrated
Cymbella cistula	(Plate 33^{1}, Fig. C^{1})
Cymbella naviculiformis	(Plate 33^{3}, Fig. E?)
Cymbella ventricosa	(Plate 33^{2}, Fig. D^{1})
Diatoma elongatum	(Plate 3, Fig. K)
Eunotia lunaris	(Plate 6, Fig. G)
Eunotia pectinalis	(Plate 6, Fig. D)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Fragilaria intermedia	(Plate 4, Fig. V)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *Brebissonii*	(Plate 38, Fig. F)
Gomphonema accuminatum var. *trigonocephala*	(Plate 38, Fig. J)
Gomphonema angustatum	(Plate 38^{1}, Fig. F)
Gomphonema angustatum var. *producta*	(Plate 38^{1}, Fig. EE)
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gomphonema gracile	(Plate 38^{4}, Fig. M)
Gomphonema intricatum	Not illustrated
Gomphonema intricatum var. *vibrio*	(Plate 38^{3}, Fig. H)
Gomphonema longiceps var. *Montana*	(Plate 38^{3}, Fig. D)
Gomphonema longiceps var. *subclavata*	(Plate 38^{3}, Fig. J)
Gomphonema longiceps var. *suecica*	(Plate 38^{3}, Fig. F)
Gomphonema parvulum	(Plate 38^{3}, Fig. C)
Gyrosigma accuminatum	(Plate 10, Fig. F)
Hantzschia “amphioxyoides”	(Plate 43, Fig. C)
Hantzschia amphioxys	(Plate 43, Fig. A)
Hantzschia amphioxys var. *producta*	(Plate 43, Fig. E)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula “halophilloides”	(Plate 16, Fig. K)
Navicula “Hartshilliana”	Not illustrated
Navicula ”parasoides”	(Plate 16^{3}, Fig. G)
Navicula avenacea fa. *“obtusa”*	(Plate 19^{1}, Fig. H)

Locality No. 16. Spring Wood, Caldecote. (continued)

Navicula cincta	(Plate 20[1], Fig. F)
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula dicephala	(Plate 20[2], Fig. G[1])
Navicula digito-radiata var. *elliptica*	(Plate 21, Fig. K)
Navicula gracilis	(Plate 20[1], Fig. H)
Navicula gracilis fa. "*obtusa*"	(Plate 20[1], Fig. J)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula mutica	(Plate 16[2], Fig. J)
Navicula mutica fa. *Cohnii*	(Plate 16[2], Fig. B)
Navicula oblonga	(Plate 20[3], Fig. D)
Navicula pupula var. *capitata*	(Plate 17, Fig. C)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19[2], Fig. G)
Navicula rostrata	(Plate 21[1], Fig. A)
Navicula salinarum "var. *Hartshilliana*"	(Plate 19, Fig.)
Navicula seminulum var. *radiosa*?	(Plate 16[3], Fig. F)
Navicula ~~viridula~~ avenacea	(Plate 19[1], Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. C)
Navicula Witrockii	(Plate 17, Fig. T)
Navicula Witrockii fa. *frusticulus*	(Plate 17, Fig. V)
Navicula? ~~Cari~~	(Plate 21, Fig. M)
Neidium "sylvaticum"	(Plate 12[2], Fig. N)
Nitzschia	(Plate 50[1], Fig. R), (Plate 50[3], Figs. K & L)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia amphibia	(Plate 50[1], Fig. H)
Nitzschia dissipata	Not illustrated
Nitzschia fontecola	(Plate 50[1], Fig. J)
Nitzschia frustulum	Not illustrated
Nitzschia gracilis (?)	(Plate 50[2], Fig. C)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia palea	(Plate 50[2], Fig. V)
Nitzschia paleaeformis	(Plate 50[2], Figs. A & D)
Nitzschia parvulum	(Plate 54, Fig. A)
Nitzschia sigmoidea	(Plate 52, Figs. A, B, C & D)
Nitzschia thermalis	Not illustrated
Nitzschia tryblionella	(Plate 45, Fig. C)
Nitzschia tryblionella var. *levidensis*	(Plate 45, Fig. E)
Pinnularia "reedii"	(Plate 28, Fig. A)
Pinnularia fasciata	(Plate 24, Fig. F)
Pinnularia globiceps var. *Krookei*	(Plate 25, Fig. L)
Pinnularia intermedia	Not illustrated
Pinnularia interrupta	(Plate 25, Figs. D & N)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. F)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Pinnularia viridis	Not illustrated
Rhoicosphenia curvata	(Plate 9, Figs. A & B)

Locality No. 16. Spring Wood, Caldecote. (continued)

Stauroneis agrestis	(Plate 14, Fig. O)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis legumen	(Plate 14, Fig. D)
Stauroneis muralla (*Stauroneis ? thermicola*)	(Plate 14, Fig. L)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella caproni	(Plate 57, Fig. C)
Surirella angustata	(Plate 59, Fig. O)
Surirella ovalis	(Plate 60, Fig. Y[1])
Surirella ovata	(Plate 60, Figs. U[1] & V)
Surirella ovata var.	(Plate 59, Fig. P)
Surirella ovata var. *pinnata* “fa. *alpha*”	(Plate 59, Fig. RR)
Synedra acus	(Plate 5, Fig. H)
Synedra pulchella	(Plate 5, Fig. O)
Synedra rumpens	(Plate 5, Fig. Q)
Synedra ulna	(Plate 5, Fig. A)

Locality No. 17. “Savage’s Field” – Mancetter Road.

Achnanthes lanceolata	(Plate 8, Fig. F)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema constrictum	(Plate 38[3], Fig. A)
Gomphonema gracile	(Plate 38[4], Fig. DD)
Navicula gregaria	(Plate 16, Fig. E)
Navicula ~~viridula~~ avenacea	(Plate 19[1], Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. C)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium iridis fa. *maxima*	(Plate 12[1], Fig. F)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Pinnularia intermedia	(Plate 25, Not figured)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. F)
Pinnularia viridis	Not illustrated
Pinnularia viridis ~~“fa. *Berringtonia*”~~ var. *fallax*	(Plate 30, Fig. A)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis anceps fa. *linearis*	(Plate 14, Fig. K)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Surirella biseriata	(Plate 57, Fig. A)
Surirella elegans	(Plate 59, Fig. G)
Surirella gracilis fa. *obtusa*	(Plate 59, Fig. F)

Locality No. 18. Oldbury Reservoir.

Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis	(Plate 32, Fig. A)

Locality No. 18. Oldbury Reservoir. (continued)

Anomonoeoneis exilis	(Plate 15, Fig. B)
Anomonoeoneis sphaerophora	(Plate 15, Fig. A)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Cocconeis pediculus	(Plate 7, Fig. E)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella catanata	(Plate 2, Fig. G)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella Kützingiana var. *planetophora*	(Plate 2, Fig. EE)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *hibernica*	(Plate 56, Fig. B)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella ?hybrida	(Plate 33^{3}, Fig. M)
Cymbella aspera	(Plate 33, Fig. A^{1})
Cymbella cistula var. *maculata*	(Plate 33^{1}, Fig. F)
Cymbella obtusicula	(Plate 33^{3}, Fig. L)
Cymbella ventricosa	(Plate 33^{2}, Fig. D^{1}), (Plate 37, Fig. D)
Diploneis vacillans	(Plate 13, Fig. AA)
Eunotia arcus	(Plate 6, Fig. B)
Eunotia arcus var. *fallax*	(Plate 6^{1}, Fig. D)
Eunotia exigua	(Plate 6, Fig. F)
Eunotia lunaris	(Plate 6, Fig. G)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Fragilaria construens var. *binodis*	(Plate 4, Fig. J)
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Fragilaria virescens var. *elliptica*	(Plate 4, Fig. Y)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gomphonema gracile	(Plate 38^{4}, Fig. DD)
Gomphonema longiceps var. *subclavata*	(Plate 38^{3}, Fig. J)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Hantzschia amphioxys	(Plate 43, Fig. A)
Navicula halophila fa. *subcapitata*	(Plate 16, Fig. DD)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^{2}, Fig. G)
Navicula rhyncocephala var. ~~*“pseudo-rhyncocephala”*~~	(Plate 19^{2}, Fig. L)
Neidium affine var. *amphirhynchus*	(Plate 12, Figs. E & T)
Neidium iridis	(Plate 12^{1}, Fig. G)
Neidium iridis “fa. *obliqua*”	(Plate 12^{2}, Fig. O)
Neidium iridis var. *amphigomphus*	(Plate 12^{1}, Fig. Q)
Nitzschia ignorata	Not illustrated
Nitzschia pseudopalea	(Plate 50^{2}, Fig. EE)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia thermalis	Not illustrated
Pinnularia ~~gibba~~ Isostauron	(Plate 28, Fig. C)
Pinnularia “irroratoides” fa. *elliptica*	(Plate 25, Fig. P)
Pinnularia appendiculata	(Plate 25, Fig. E)
Pinnularia interrupta fa. *minutissima*	(Plate 25, Fig. K)
Pinnularia lata	(Plate 27, Fig. F)
Pinnularia legumen	Not illustrated

Locality No. 18. Oldbury Reservoir. **(continued)**

Pinnularia major	(Plate 29, Figs. A & D)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia nobilis	(Plate 29[1], Fig. E)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Pinnularia viridis	Not illustrated
Pinnularia viridis "fa. *30J*"	(Plate 30, Fig. J)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Staroneis gracillima	(Plate 14, Fig. F)
Stauroneis acuta	(Plate 14, Fig. B)
Stauroneis anceps	(Plate 14, Figs. H & HH)
Surirella caproni	(Plate 57, Fig. C)
Surirella angustata	(Plate 59, Fig. O)
Surirella biseriata	(Plate 57, Fig. A)
Surirella biseriata fa. *punctata*	(Plate 57, Fig. D)
Surirella gracilis fa. *obtusa*	(Plate 59, Fig. F)
Surirella ovata	(Plate 60, Fig. U[1])
Synedra ulna	(Plate 5, Fig. A)
Synedra vaucheria	(Plate 5, Fig. E)
Tabellaria fenestrata	(Plate 3, Figs. A, B & C)
Tabellaria flocculosa	(Plate 3, Fig. D)

Locality No. 19. River Anker at Polesworth and subsidence area east of Railway line.

Un-named	(Plate 2[B], Fig. C)
Un-named	(Plate 2[B], Fig. F)
Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica*	Not illustrated
Achnanthes lanceolata var. *rostrata*	Not illustrated
Amphipleura rutilans	(Plate 10, Fig. J)
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Amphora veneta	(Plate 32, Fig. D)
Asterionella formosa	(Plate 4, Fig. S?)
Bacillaria paradoxa	(Plate 44, Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis bacillum	(Plate 11, Fig. B)
Caloneis bacillum	(Plate 11, Figs. C, E & Q)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella Meneghiniana	(Plate 2, Fig. D)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	(Plate 55, Fig. H)
Cymatopleura solea	(Plate 55, Fig. A)
Cymatopleura solea var. *constricta*	(Plate 55, Figs. E & F)
Cymbella affinis	Not illustrated

Locality No. 19. River Anker at Polesworth/ subsidence area E. of Railway. (continued)

Cymbella cistula	(Plate 33[1], Fig. C[1])
Cymbella naviculiformis	(Plate 33[3], Fig. E?)
Cymbella ventricosa	(Plate 33[2], Figs. D[1] & D[5])
Diatoma elongatum	(Plate 3, Fig. K)
Diatoma elongatum var. *minor*	(Plate 3, Fig. M)
Diatoma vulgare	(Plate 3, Figs. E & H)
Diploneis bioculata	(Plate 13, Fig. G)
Epithemia turgida	(Plate 42, Fig. C)
Epithemia zebra var. *saxonica*	Not illustrated
Eunotia exigua	(Plate 6, Fig. F)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Eunotia pectinalis var. *ventralis*	(Plate 6[1], Fig. B)
Eunotia lunaris	(Plate 6, Fig. G)
Euntotia lunaris var. *subarcuata*	(Plate 6, Fig. K)
Fragilaria capucina	(Plate 4, Fig. F)
Fragilaria crotonensis	(Plate 4, Fig. L)
Fragilaria intermedia	(Plate 4, Fig. V)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema angustatum var. *sarcophagus*	(Plate 38[1], Fig. E)
Gomphonema constrictum var. *capitata*	(Plate 38[3], Fig. B)
Gomphonema gracile	(Plate 38[4], Fig. M)
Gomphonema intricatum	Not illustrated
Gomphonema intricatum var. *vibrio*	(Plate 38[3], Fig. H)
Gomphonema longiceps	Not illustrated
Gomphonema longiceps fa. *gracilis*	Not illustrated
Gomphonema olivaceum	(Plate 38[2], Fig. A)
Gomphonema parvulum	(Plate 38[3], Figs. C[2] & C[3])
Gyrosigma accuminatum	(Plate 10, Figs. F & G)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Gyrosigma Spenceri var. *nodulifera*	Not illustrated
Hantzschia amphioxys	(Plate 43, Fig. A)
Melosira varians	(Plate 1, Fig. A)
Navicula "Shuttingtonia"	(Plate 20[1], Fig. L)
Navicula accomodata	(Plate 18, Fig. G)
Navicula anglica	(Plate 19, Fig. E)
Navicula atomus	Not illustrated
Navicula avenacea fa. "*obtusa*"	(Plate 19[1], Fig. H)
Navicula bacillum	(Plate 17, Fig. D)
Navicula binodis	(Plate 17, Fig. N)
Navicula Buderi	(Plate 17, Fig. O)
Navicula craticula	Not illustrated
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula dicephala	(Plate 20[2], Fig. G[1])
Navicula digito-radiata var. *elliptica*	(Plate 21, Fig. K)
Navicula gastrum	(Plate 22, Fig. A)
Navicula gracilis	(Plate 20[1], Fig. H)

Locality No. 19. River Anker at Polesworth/ subsidence area E. of Railway. (continued)

Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula lanceolata	(Plate 20^{1}, Fig. E)
Navicula peregrina	Not illustrated
Navicula pupula	(Plate 17, Fig. A)
Navicula pupula var. *pseudopupula*	(Plate 17, Fig. Q)
Navicula pupula var. *pseudopupula* "fa. *elliptica*"	(Plate 17, Fig. F)
Navicula pygmaea	(Plate 23, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula radiosa (NOT var. *acuta*)	(Plate 20, Fig. B)
Navicula rhyncocephala	(Plate 19^{2}, Figs. G & N)
Navicula rhyncocephala var. ~~"*capitata*"~~	(Plate 19^{2}, Fig. K)
Navicula salinarum	(Plate 19, Fig. A)
Navicula ~~*viridula*~~ *avenacea*	(Plate 19^{1}, Fig. B)
Navicula viridula	(Plate 19^{4}, Fig. A)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Figs. C & E)
Navicula? ~~Cari~~	(Plate 21, Fig. M)
Neidium iridis var. *amphigomphus*	(Plate 12^{1}, Fig. D)
Neidium Koslowi var. *parva*	(Plate 12^{2}, Fig. R)
Neidium producta	(Plate 12^{3}, Fig. C)
Neidium producta fa. "*longiceps*"	(Plate 12^{3}, Fig. B)
Nitzschia	(Plate 50^{3}, Fig. O)
Nitzschia (*Angustata* or *Hungarica* var.)	(Plate 45, Fig. H)
Nitzschia ?sigma	(Plate 52, Fig. F)
Nitzschia "Senciana"	(Plate 50^{2}, Fig. Y)
Nitzschia "Volksii"	(Plate 50^{2}, Fig. Z)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia amphibia	(Plate 50^{1}, Fig. H)
Nitzschia angustata	Not illustrated
Nitzschia apiculata	Not illustrated
Nitzschia dissipata	(Plate 50, Fig. NN)
Nitzschia flexa	(Plate 52, Figs. G & G^{2})
Nitzschia Hungarica	(Plate 45, Figs. F & I)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia linearis var. *sublinearis*	Not illustrated
Nitzschia palea	(Plate 50^{2}, Fig. V)
Nitzschia pseudopalea	(Plate 50^{2}, Fig. W)
Nitzschia recta	Not illustrated
Nitzschia recta Alpha	(Plate 49, Fig. G)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia tryblionella	(Plate 45, Fig. C)
Nitzschia tryblionella var. *debilis*	Not illustrated
Nitzschia tryblionella var. *levidensis* fa. *apiculata*	(Plate 45, Fig. D)
Nitzschia tryblionella var. *victoriae*	Not illustrated
Pinnularia ~~*?molaris*~~ *microstauron* var. *Brebissonii*	(Plate 24, Fig. C)
Pinnularia "reedii"	(Plate 28, Fig. A)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia borealis var. *brevicostata*	Not illustrated
Pinnularia "Caldecottei"	(Plate 28, Not figured)
Pinnularia intermedia	Not illustrated
Pinnularia interrupta	(Plate 25, Figs. D & N)

Locality No. 19. River Anker at Polesworth/ subsidence area E. of Railway. (continued)

Pinnularia irrorata	(Plate 25, Figs. C & H)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. F)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Pinnularia transversa	(Plate 29, Fig. C)
Pinnularia viridis "fa. *30M*"	(Plate 30, Fig. M)
Pinnularia viridis "var. *viridis*"	(Plate 30, Fig. D)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis Kreigeri fa. *undulata*	(Plate 14, Fig. P)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Staurtoneis anceps fa. *gracilis*	(Plate 14, Fig. J)
Surirella "Alvecoti"	(Plate 61, Fig. A)
Surirella "Suttoniana"	(Plate 59, Fig. S)
Surirella biseriata	(Plate 57, Fig. A)
Surirella elegans	(Plate 59, Fig. H)
Surirella ovalis	(Plate 60, Fig. W^1)
Surirella ovata	(Plate 60, Fig. A, U^1 & U^2)
Surirella ovata "var. *minuta*"	(Plate 60, Fig. YY)
Surirella ovata var. *crumens*	(Plate 60, Fig. X)
Surirella ovata var. *pinnata* "fa. *alpha*"	(Plate 59, Fig. RR)
Synedra minuscula	(Plate 5, Fig. D)
Synedra parasitica	(Plate 5, Fig. S)
Synedra parasitica var. *subconstricta*	(Plate 5, Fig. P)
Synedra ulna	(Plate 5, Figs. A & T)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)
Synedra vaucheria	(Plate 5, Fig. E)

Locality No. 20. Marsh – J. Blakemore's field – Banks of River Anker, Hartshill.

Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Eunotia praerupta var. *inflata*	(Plate 6, Fig. M)
Gomphonema angustatum var. *producta*	(Plate 38^1, Fig. EE)
Gomphonema angustatum var. *sarcophagus*	(Plate 38^1, Fig. E)
Gomphonema gracile	(Plate 38^4, Fig. DD)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula cuspidata var. *ambigua* fa. *craticula*	Not illustrated
Navicula Galikii (*amphibola*)	(Plate 23, Fig. B)
Navicula oblonga	(Plate 20^3, Fig. D)
Navicula pupula var. *capitata*	(Plate 17, Fig. C)
Navicula radiosa	(Plate 20, Fig. A)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Stauroneis anceps	(Plate 14, Fig. H)

Locality No. 21. Ditch at roadside- Fenny Drayton.

Nitzschia Hungarica	(Plate 45, Fig. G)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia ~~*viridis* "fa. *Draytonia*"~~ *biclavata* fa. *intermedia*	(Plate 30, Fig. B)

Locality No. 22. Jee's Quarry, Hartshill.

Pinnularia viridis "fa. *30DD*"	(Plate 30, Fig. DD)
Pinnularia viridis "fa. *gentsiana*"	(Plate 30, Fig. C)
Pinnularia viridis "var. *viridis*"	(Plate 30, Fig. D)

Locality No. 23. Sheepy Mill Pool, nr. Atherstone.

Achnanthes ~~*"tiddlei"*~~ *N. dismissa*	(Plate 8^1, Fig. C)
Achnanthes plonensis	(Plate 8^1, Fig. B)
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Amphora ovalis var. *pediculus* fa. *ventricosa*	(Plate 32, Fig. C)
Caloneis Schummaniana var. "*major*"	(Plate 11, Fig. O)
Cyclotella astraea	(Plate 2, Fig. F)
Cyclotella Meneghiniana	(Plate 2, Fig. D)
Cyclotella Meneghiniana (deformed?)	(Plate 2, Fig. DD)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymatopleura elliptica var. *hibernica*	(Plate 56, Fig. B)
Cymbella Ehrenbergii	(Plate 37, Figs. A, F & G)
Hantzschia amphioxys "var. *bullei*"	(Plate 43, Fig. G)
Navicula	(Plate 19^1, Fig. HH)
Navicula anglica "fa. *minuta*"	(Plate 19, Fig. F)
Navicula avenacea fa. "*obtusa*"	(Plate 19^1, Fig. H)
Navicula Buderi	(Plate 17, Fig. O)
Navicula crucicula ? var. *obtusata*	(Plate 18, Fig. D)
Navicula demissa	(Plate 17, Fig. P)
Navicula placentula fa. *rostrata*	(Plate 22, Fig. B)
Navicula pseudo-inclinata	(Plate 17, Fig. W)
Navicula salinarum	(Plate 19, Figs. A & C)
Nitzschia "P" fa. *capitata*	(Plate 50^3, Fig. PP)
Nitzschia "Senciana"	(Plate 50^2, Fig. Y)
Nitzschia "Sheepyi"	(Plate 50^2, Fig. X), (Plate 50^3, Fig. Q), (Plate 52, Fig. H)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia dissipata	(Plate 50, Fig. NN)
Nitzschia sigmoidea	(Plate 52, Fig. D)
Pinnularia intermedia fa.	(Plate 25, Fig. S)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia major "fa. *Sheepyi*"	(Plate 29^2, Fig. E)
Pinnularia microstauron fa. *"Sheepyi"*	(Plate 26, Fig. B)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Figs. C & D)
Surirella biseriata fa. *punctata*	(Plate 57, Fig. D)
Surirella ovata "var. *alpha*"	(Plate 60, Fig. ZZ)
Synedra parasitica var. *subconstricta*	(Plate 5, Fig. P)

Locality No. 24. Sutton Park.

Un-named	(Plate 2^{A}, Fig. D)
Achnanthes exigua var. *heterovalva*	(Plate 8, Fig. E)
Achnanthes japonica	(Plate 8, Figs. M & V)
Achnanthes kryophila	(Plate 8^{1}, Fig. D)
Achnanthes Peragalli	(Plate 8, Fig. U)
Achnanthes "Suttonia"	(Plate 8^{1}, Fig. A)
Amphipleura pellucida fa. *"obtusa"*	(Plate 10, Fig. H)
Amphiprora ornata (rivularis)	(Plate 32^{1}, Fig. E)
Amphora ovalis	(Plate 32, Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis "hyalina"	(Plate 11, Fig. P)
Cyclotella ?socialis	(Plate 2, Fig. H)
Cyclotella "dubitabilis"	(Plate 2^{D}, Fig. F)
Cyclotella catanata	(Plate 2, Fig. G)
*Cyclotella comp*ta	(Plate 2, Figs. A & B)
Cyclotella stelligera	(Plate 2, Fig. E)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *hibernica*	(Plate 56, Fig. B)
Cymatopleura solea	(Plate 55, Fig. A)
Cymbella ?hybrida?	(Plate 33^{3}, Fig. D)
Cymbella cistula	(Plate 33^{1}, Fig. C^{1})
Cymbella cuspidata	(Plate 37, Fig. B)
Cymbella cymbiformis	(Plate 33^{3}, Fig. E?)
Cymbella Hustedtii	(Plate 33^{2}, Fig. H)
Cymbella naviculiformis	(Plate 33^{3}, Fig. E?)
Cymbella obtusa (aequalis)	(Plate 33^{3}, Fig. N)
Cymbella sinuata (not *minutissima*)	(Plate 33^{2}, Fig. B)
Diatoma vulgare	(Plate 3, Figs. E & H)
Diploneis oculata	(Plate 13, Fig. F)
Diploneis Petersenii	(Plate 13, Fig. C)
Eunotia pectinalis var. *undulata*	(Plate 6^{1}, Fig. E)
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Fragilaria crotonensis	(Plate 4, Fig. L)
Fragilaria Harrisonii	(Plate 4, Fig. N)
Fragilaria pinnata	(Plate 4, Fig. W)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema ?	(Plate 38^{4}, Fig. Q)
Navicula	(Plate 19^{1}, Fig. HH)
Navicula "dicephaloides"	(Plate 20^{2}, Fig. J)
Navicula "doubfulia"	(Plate 17, Fig. J)
Navicula "paramenisculus"	(Plate 19^{1}, Fig. N)
Navicula "Suttonia"	(Plate 17, Fig. G)
Navicula cincta	(Plate 20^{1}, Fig. F)
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cocconeiformis	(Plate 18^{1}, Fig. A)
Navicula dicephala	(Plate 20^{2}, Fig. G^{1})
Navicula digito-radiata var. *elliptica*	(Plate 21, Fig. K)
Navicula exigua	(Plate 22, Fig. C)
Navicula gracilis	(Plate 20^{1}, Fig. H)
Navicula grimmei	(Plate 16^{3}, Fig. R)
Navicula lanceolata	(Plate 20^{1}, Fig. E)

Locality No. 24. Sutton Park. (continued)

Navicula lapidosa	(Plate 16^3, Fig. O)
Navicula pupula var. *elliptica*	(Plate 17, Fig. H)
Navicula radiosa	Not illustrated
Navicula Rheinhardtii	(Plate 20^3, Figs. A & B)
Navicula rhyncocephala var. ~~*“pseudo-rhyncocephala”*~~	(Plate 19^2, Fig. L)
Navicula rotaena	(Plate 16^3, Fig. L)
Neidium affine	(Plate 12, Fig. M)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. E)
Neidium bisulcatum	(Plate 12^2, Fig. J)
Neidium dubium	(Plate 12^2, Fig. H)
Neidium dubium “fa. “*apiculatum*”	(Plate 12^2, Fig. K)
Neidium dubium fa. *constricta*	(Plate 12^2, Fig. P)
Neidium iridis “fa. *Suttonia*”	(Plate 12^1, Figs. O & P)
Nitzschia	(Plate 50^3, Fig. K)
Nitzschia frustulum	Not illustrated
Nitzschia Hantziana	(Plate 50^2, Fig. G)
Nitzschia pseudo dubia	(Plate 46, Fig. B)
Opephora Martyi	(Plate 4, Fig. E)
Pinnularia ~~*?molaris*~~ *microstauron* var. *Brebissonii*	(Plate 24, Fig. C)
Pinnularia “Suttonensis”	(Plate 24, Fig. E)
Pinnularia Braunii var. *amphicephala*	(Plate 25, Figs. F & G)
Pinnularia hemiptera	(Plate 27, Figs. B & BB)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron	(Plate 24, Fig. G)
Pinnularia transversa	(Plate 29, Fig. C)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Rhopalodia gibba	(Plate 42^1, Fig. A)
Rhopalodia gibba var. *ventricosa*	(Plate 42^1, Fig. C)
Stauroneis Kreigeri fa. *undulata*	(Plate 14, Fig. P)
Stauroneis ~~*lapponica*~~ *palustris*	(Plate 14, Fig. R)
Stauroneis producta	(Plate 14, Fig. N)
Stauroneis Smithii	(Plate 14, Figa. C & CC)
Surirella	(Plate 61, Fig. B)
Surirella “Suttonia fa. *apiculata*”	(Plate 59, Fig. TT)
Surirella “Suttoniana”	(Plate 59, Figs. S & SS)
Surirella angustata	(Plate 59, Fig. CC)
Surirella delicatissima	(Plate 59, Fig. Z)
Surirella Molleriana	(Plate 59, Fig. T)
Surirella Molleriana fa. *ovata*	(Plate 59, Fig. BB)
Surirella spiralis	(Plate 62, Fig. A)
Surirella tenera var. *nervosa*	(Plate 58, Fig. L)
Synedra pulchella	(Plate 5, Fig. O)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)
Tabellaria fenestrata	(Plate 3, Figs. A, B & C)
Un-named	(Plate 19^1, Fig. E)

Locality No. 25. Caldecote Lane (leading off A4131).

Achnanthes coarctata	(Plate 8, Fig. O)
Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica*	Not illustrated

Locality No. 25. Caldecote Lane (leading off A4131). **(continued)**

Achnanthes lanceolata var. *rostrata*	Not illustrated
Frustulia vulgaris	(Plate 10, Figs. B & C)
Meridion circulare	(Plate 4, Figs. A, B & C)
Meridion circulare var. *constricta*	(Plate 4, Figs. D & D[1])
Navicula crucicula var. or *Navicula protracta*	(Plate 18, Fig. E)
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula gibbula	(Plate 18, Fig. A)
Navicula mutica	(Plate 16[2], Fig. J)
Navicula rhyncocephala	(Plate 19[2], Fig. N)
Nitzschia capitellata	(Plate 50[2], Fig. S)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia ovalis	(Plate 50[1], Fig. Q)
Pinnularia interrupta fa. *minutissima*	(Plate 25, Fig. K)
Pinnularia viridis ~~“fa. *30K*”~~ var. *fallax*	(Plate 30, Fig. K)
Pinnularia viridis “fa. *30M*”	(Plate 30, Fig. M)
Stauroneis Montana?	(Plate 14, Fig. Q)
Surirella angustata	(Plate 59, Fig. CC)
Surirella ovata	(Plate 60, Fig. U[1])
Surirella ovata var.	(Plate 59, Figs. P & R)
Synedra rumpens	(Plate 5, Fig. Q)

Locality No. 26. River Avon at Stanford Reservoir, Northants.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes Hungarica	(Plate 8, Fig. K)
Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica*	Not illustrated
Amphora ovalis	(Plate 32, Fig. A)
Amphora veneta	(Plate 32, Fig. D)
Anomonoeoneis exilis	(Plate 15, Fig. B)
Anomonoeoneis sphaerophora	(Plate 15, Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cocconeis placentula var. *Rouxii*	(Plate 7, Fig. G)
Cymatopleura elliptica var. *constricta*	Not illustrated
Cymbella ?hybrida?	(Plate 33[3], Fig. D)
Cymbella cistula	(Plate 33[1], Fig. C[1])
Cymbella cymbiformis	(Plate 33[3], Fig. E?)
Cymbella hybrid	(Plate 33[3], Fig. F)
Cymbella naviculiformis	(Plate 33[3], Fig. E?)
Denticula tenuis var. *crassula*	(Plate 41, Fig. A)
Diatoma elongatum	(Plate 3, Fig. K)
Diploneis didyma	(Plate 13, Fig. E)
Diploneis ovalis	(Plate 13, Fig. A)
Diploneis ovalis var. *oblongella*	(Plate 13, Fig. D)
Eunotia lunaris	(Plate 6, Fig. G)
Euntotia lunaris var. *subarcuata*	(Plate 6, Fig. K)
Frustulia vulgaris	(Plate 10, Figs. B & C)

Locality No. 26. River Avon at Stanford Reservoir, Northants. (continued)

Gomphonema ~~*"pseudoabbreviata"*~~ *?Brasiliensis*	(Plate 38^4, Fig. E)
Gomphonema accuminatum	(Plate 38, Fig. B)
Gomphonema accuminatum var. *Brebissonii*	(Plate 38, Fig. F)
Gomphonema accuminatum var. *trigonocephala*	(Plate 38, Fig. J)
Gomphonema angustatum	(Plate 38^1, Fig. F)
Gomphonema angustatum var. *producta*	(Plate 38^1, Fig. EE)
Gomphonema constrictum	(Plate 38^3, Fig. A)
Gomphonema constrictum var. *capitata*	(Plate 38^3, Fig. B)
Gomphonema gracile	(Plate 38^4, Figs. DD & F)
Gomphonema olivaceum	(Plate 38^2, Fig. A)
Gomphonema olivaceum var. *calcarea*	(Plate 38^2, Fig. C)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Hantzschia amphioxys	(Plate 43, Fig. A)
*Hantzscia amph*ioxys var. *capitata*	Not illustrated
Hantzschia (Nitzschia) "Avonana"	(Plate 43, Fig. F.)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula "Avoniana"	(Plate 16^3, Fig. P)
Navicula rhyncocephala var. "*capitata*"	(Plate 19^2, Fig. K)
Navicula ~~*cincta*~~ *digito-radiata* var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula cuspidata var. *ambigua*	(Plate 16, Fig. B)
Navicula dicephala	(Plate 20^2, Fig. G^1)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula gastrum	(Plate 22, Fig. A)
Navicula gracilis	(Plate 20^1, Fig. H)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula lapidosa	(Plate 16^3, Fig. O)
Navicula pupula	(Plate 17, Fig. A)
Navicula radiosa	(Plate 20, Fig. A)
Navicula Rheinhardtii	(Plate 20^3, Figs. A & B)
Navicula rhyncocephala	(Plate 19^2, Fig. N)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. C)
Neidium iridis var. *amphigomphus*	(Plate 12^1, Fig. Q)
Neidium producta fa. "*longiceps*"	(Plate 12^3, Fig. B)
Nitzschia "Avonensis"	(Plate 49, Fig. E)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia acuta	(Plate 50, Fig. N)
Nitzschia angustata	Not illustrated
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia Hantziana	(Plate 50^2, Fig. U)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia paleaeformis	(Plate 50^2, Figs. A & D)
Pinnularia "Arburyi"	(Plate 25, Fig. M)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia ~~*Karelica*~~	(Plate 26, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia stomatophora	(Plate 28, Fig. B)
Pinnularia viridis ~~"fa. *30K*"~~ var. *fallax*	(Plate 30, Fig. K)
Pinnularia viridis ~~"fa. *30L*"~~ var. *fallax*	(Plate 30, Fig. L)

Locality No. 26. River Avon at Stanford Reservoir, Northants. (continued)

Pinnularia viridis ~~"fa. *Avoniana*"~~ var. *fallax*	(Plate 30, Fig. P)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Stephanodiscus astraea	(Plate 2^A, Fig. A)
Surirella angustata	(Plate 59, Fig. O)
Surirella ovalis	(Plate 60, Figs. U^1 & Y^1)
Synedra affinis	(Plate 5, Fig. K)
Synedra rumpens	(Plate 5, Fig. Q)
Synedra ulna	(Plate 5, Fig. A)
Synedra ulna var. *Danica*	(Plate 5, Fig. G)

Locality No. 27. Jee's Tarmac Plant, Anker Inn Lane, Hartshill.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis	(Plate 32, Fig. A)
Anomonoeoneis exilis	(Plate 15, Fig. B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cymbella ?hybrida?	(Plate 33^3, Fig. D)
Cymbella affinis	Not illustrated
Cymbella cesati	Not illustrated
Cymbella microcephala	Not illustrated
Eunotia ~~*alpina*~~ *Naegelii* var. *Naegelii*	(Plate 6, Fig. A)
Gomphonema olivaceum	(Plate 38^2, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula radiosa	(Plate 20, Fig. A)
Nitzschia palea	(Plate 50^2, Fig. V)
Stauroneis anceps	(Plate 14, Fig. H)
Synedra affinis	(Plate 5, Fig. K)
Synedra amphicephala	Not illustrated
Synedra ulna	(Plate 5, Fig. A)

Locality No. 28. Drain from Jee's Tip near Berrington Road (rear).

Achnanthes lanceolata	(Plate 8, Fig. F)
Asterionella formosa	(Plate 4, Fig. S?)
Caloneis bacillum	(Plate 11, Figs. B. C, E & Q)
Cymbella ?hybrida?	(Plate 33^3, Fig. D)
Cymbella hybrida	(Plate 33^3, Fig. F)
Eunotia pectinalis var. *minor*	(Plate 6, Fig. E)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema angustatum var. *producta*	(Plate 38^1, Figs. EE & K)
Gomphonema longiceps var. *Montana*	(Plate 38^3, Fig. D)
Gyrosigma accuminatum	(Plate 10, Fig. F)
Meridion circulare	(Plate 4, Figs. A, B & C)
Meridion circulare var. *constricta*	(Plate 4, Figs. D & D^1)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)

Locality No. 28. Drain from Jee’s Tip near Berrington Road (rear). (continued)

Navicula gregaria	(Plate 16, Fig. E)
Navicula pupula	(Plate 17, Fig. A)
Navicula pupula fa. *rostrata*	(Plate 17, Fig. M)
Navicula rhyncocephala	(Plate 19^{2}, Fig. G)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Fig. C)
Nitzschia amphibia	(Plate 50^{1}, Fig. H)
Nitzschia Hantziana	(Plate 50^{2}, Fig. U)
Nitzschia linearis	(Plate 49, Figs. A & C)
Pinnularia “irroratoides”	(Plate 25, Fig. O)
Pinnularia “irroratoides” fa. *elliptica*	(Plate 25, Fig. P)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia intermedia	Not illustrated
Pinnularia interrupta	Not illustrated
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. F)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Pinnularia viridis	Not illustrated
Pinnularia viridis ~~“fa. *30K*”~~ var. *fallax*	(Plate 30, Fig. K)
Pinnularia viridis ~~“fa. *Avoniana*”~~ var. *fallax*	(Plate 30, Fig. P)
Stauroneis agrestis	(Plate 14, Fig. O)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis Montana?	(Plate 14, Fig. Q)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella angustata	(Plate 59, Fig. O)
Surirella ovalis	(Plate 60, Fig. Y^{1})
Surirella ovata	(Plate 60, Fig. U^{1})

Locality No. 29. River Leam, Leamington.

Achnanthes lanceolata var. *rostrata*	Not illustrated
Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Bacillaria paradoxa	(Plate 44, Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Caloneis ventricosa var. *truncatula*	(Plate 11, Figs. L & M)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella astraea	(Plate 2, Fig. F)
Cyclotella striata var. *bipunctata*	(Plate 2, Fig. J)
Cymatopleura angulata	(Plate 56, Fig. G)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura elliptica var. *constricta*	(Plate 55, Fig. H)
Cymatopleura solea var. *constricta*	(Plate 55, Figs. E & F)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella ?hybrida?	(Plate 33^{3}, Fig. D)
Cymbella Brehmii	(Plate 33^{2}, Fig. G)
Cymbella cistula	(Plate 33^{1}, Fig. C^{1})
Cymbella cistula var. *maculata*	(Plate 33^{1}, Fig. F)
Cymbella cuspidata	(Plate 37, Fig. B)
Cymbella Ehrenbergii	(Plate 37, Fig. A)
Cymbella lanceolata	(Plate 33, Fig. A)

Locality No. 29. River Leam, Leamington. **(continued)**

Cymbella prostrata	(Plate 37, Fig. C)
Cymbella tumida	(Plate 37, Fig. E)
Diatoma elongatum	(Plate 3, Fig. K)
Diatoma vulgare	(Plate 3, Figs. E & H)
Diatoma vulgare var. *producta*	(Plate 3, Fig. F)
Epithemia sorex	Not illustrated
Fragilaria construens var. *center*	(Plate 4, Fig. K)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema constrictum	(Plate 38^{3}, Fig. A)
Gomphonema intricatum	Not illustrated
Gomphonema olivaceum	(Plate 38^{2}, Fig. A)
Gomphonema parvulum	(Plate 38^{3}, Fig. C)
Gyrosigma strigia	Not illustrated
Melosira granulata var. *muzzanensis*	(Plate 1, Fig. C)
Melosira varians	(Plate 1, Fig. A)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula ?	(Plate 19^{1}, Fig. O)
Navicula "pseudo-menisculus"	(Plate 19^{1}, Fig. L)
Navicula cryptocephala	(Plate 19^{5}, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula gracilis	(Plate 20^{1}, Fig. H)
Navicula gracilis fa. "*alpha*"	(Plate 20^{1}, Fig. K)
Navicula gracilis fa. "*obtusa*"	(Plate 20^{1}, Fig. J)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula menisculus	Not illustrated
Navicula mutica var. *lanceolata*	(Plate 16^{2}, Fig. S)
Navicula placentula fa. *rostrata*	(Plate 22, Fig. B)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^{2}, Fig. G)
Navicula rostrata	(Plate 21^{1}, Fig. A)
Navicula salinarum	(Plate 19, Fig. A)
Navicula ~~viridula~~ avenacea	(Plate 19^{1}, Fig. B)
Navicula viridula Type	(Plate 19^{4}, Fig. A)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Fig. C)
Neidium dubium "fa. "*apiculatum*"	(Plate 12^{2}, Fig. K)
Neidium producta	(Plate 12^{3}, Fig. C)
Neidium producta "fa. *capitata*"	(Plate 12^{3}, Fig. A)
Neidium producta fa. "*longiceps*"	(Plate 12^{3}, Fig. B)
Nitzschia	(Plate 50^{3}, Fig. P)
Nitzschia ?	(Plate 54, Fig. C)
Nitzschia amphibia	(Plate 50^{1}, Fig. H)
Nitzschia angustata	Not illustrated
Nitzschia apiculata	Not illustrated
Nitzschia Hungarica	(Plate 45, Figs. F & I)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia recta?	(Plate 49, Fig. F), (Plate 50^{3}, Fig. I)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia tryblionella	(Plate 45, Fig. C)
Nitzschia tryblionella var. *debilis*	Not illustrated

Locality No. 29. River Leam, Leamington. (continued)

Nitzschia tryblionella var. *victoriae*	Not illustrated
Nitzschia vermicularis	(Plate 52, Fig. E)
Pinnularia borealis	(Plate 27, Fig. A)
Pinnularia major	(Plate 29, Figs. A & D)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia viridis	Not illustrated
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Rhopalodia gibberula	Not illustrated
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella caproni	(Plate 57, Fig. C)
Surirella biseriata fa. *punctata*	(Plate 57, Fig. D)
Surirella biseriata var. *bifrons*	(Plate 57, Fig. B)
Surirella ovalis	(Plate 60, Fig. Y[1])
Surirella ovata	(Plate 60, Fig. U[1] & UU)
Surirella ovata var. *crumens* fa. *salina*	(Plate 60, Fig. XX)
Surirella ovata var. *pinnata* "fa. *alpha*"	(Plate 59, Fig. RR)
Surirella saxonica	(Plate 61, Fig. DD)
Surirella tibetica	(Plate 58, Fig. K)
Synedra affinis	(Plate 5, Fig. K)
Synedra parasitica	(Plate 5, Fig. S)
Synedra parasitica var. *subconstricta*	(Plate 5, Fig. P)
Synedra rumpens var. *fragilaroides*	(Plate 5, Fig. R)
Synedra ulna	(Plate 5, Fig. A)
Synedra vaucheria	(Plate 5, Fig. E)

Locality No. 30. Coventry Canal – Boon's Wharf and Caldecote.

Achnanthes lanceolata	(Plate 8, Fig. F)
Meridion circulare	(Plate 4, Figs. A, B & C)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Surirella angustata	(Plate 59, Fig. PP)

Locality No. 31. Arbury Hall – Drain from Northwood.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphora ovalis	(Plate 32, Fig. A)
Cyclotella compta	(Plate 2, Figs. A & B)
Cymbella ventricosa	(Plate 33[2], Fig. D[1]), (Plate 37, Fig. D)
Diatoma elongatum	(Plate 3, Fig. K)
Eunotia lunaris	(Plate 6, Fig. G)
Euntotia lunaris var. *subarcuata*	(Plate 6, Fig. K)
Gomphonema accuminatum var. *coronata*	Not illustrated
Gomphonema angustatum var. *producta*	(Plate 38[1], Fig. EE)
Navicula "Arburyi"	(Plate 16[3], Fig. T)
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula gregaria	(Plate 16, Fig. E)
Navicula Hungarica var. *capitata*	(Plate 21, Fig. B)
Navicula Hustedtii	(Plate 16, Fig.)

Locality No. 31. Arbury Hall – Drain from Northwood. (continued)

Navicula ~~viridula~~ avenacea	(Plate 19^{1}, Fig. B)
Navicula viridula var. *slesvicensi*	(Plate 19^{3}, Fig. C)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia gracilis (?)	(Plate 50^{2}, Fig. C)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia ovalis	(Plate 50^{1}, Fig. Q)
Nitzschia sigmoidea	(Plate 52, Fig. C)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Stauroneis anceps	(Plate 14, Fig. H)
Stephanodiscus astraea	(Plate 2^{A}, Fig. A)
Surirella angustata	(Plate 59, Fig. O)

Locality No. 32. Chinese Pagoda, Ansley.

Navicula cryptocephala	(Plate 19^{5}, Fig. A)
Nitzschia gracilis (?)	(Plate 50^{2}, Fig. C)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Pinnularia viridis	Not illustrated
Surirella angustata	(Plate 59, Fig. O)
Surirella ovalis	(Plate 60, Fig. Y^{1})
Surirella ovata	(Plate 60, Fig. U^{1})

Locality No. 33. Opposite Jee's Crushing Plant

Cymbella ventricosa	(Plate 33^{2}, Fig. D^{1})
Diatoma elongatum	(Plate 3, Fig. K)
Eunotia lunaris	(Plate 6, Fig. G)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema parvulum var. *micropus*	Not illustrated
Meridion circulare var. *constricta*	(Plate 4, Figs. D & D^{1})
Navicula gregaria	(Plate 16, Fig. E)
Navicula ~~viridula~~ avenacea	(Plate 19^{1}, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^{3}, Fig. C)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia amphibia	(Plate 50^{1}, Fig. H)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia ovalis	(Plate 50^{1}, Fig. Q)
Pinnularia appendiculata	(Plate 25, Fig. E)
Pinnularia intermedia	Not illustrated
Pinnularia interrupta	(Plate 25, Figs. D & N)
Pinnularia mesolepta	(Plate 24, Fig. A)
Pinnularia mesolepta var. *angustata*	(Plate 24, Fig. B)
Pinnularia viridis	Not illustrated
Stauroneis anceps	(Plate 14, Fig. H)
Surirella ovata	(Plate 60, Fig. U^{1})
Surirella ovata fa.	(Plate 59, Fig. QQ)
Synedra vaucheria	(Plate 5, Fig. E)

Locality No. 40. Mancetter Mill Pool

Synedra ulna	(Plate5, Fig. U)

Locality No. 42. Old Quarry, Mancetter.

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica* "fa. J"	(Plate 8, Fig. J)
Achnanthes minutissima var. *cryptocephala*	Not illustrated
Amphipleura pellucida	(Plate 10, Fig. A)
Amphora ovalis	(Plate 32, Fig. A)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Cymbella hybrida	(Plate 33^3, Fig. F)
Cymbella obtusicula	(Plate 33^3, Fig. L)
Cymbella ventricosa	(Plate 33^2, Fig. D^1)
Diatoma elongatum	(Plate 3, Fig. K)
Diploneis ovalis	(Plate 13, Fig. A)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema angustatum	(Plate 38^1, Fig. F)
Gomphonema olivaceum var. *calcarea*	(Plate 38^2, Fig. C)
Navicula radiosa	(Plate 20, Fig. A)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia amphibia	(Plate 50^1, Fig. H)
Nitzschia dissipata	Not illustrated
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia sigmoidea	(Plate 52, Fig. A)
*Pinnularia boreal*is var. *brevicostata*	Not illustrated
Pinnularia hemiptera	(Plate 27, Fig. E)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia mesolepta var. *angustata*	(Plate 24, Fig. B)
Pinnularia viridis	Not illustrated
Pinnularia viridis var. *sudetica*	(Plate 31, Fig. A)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis producta	(Plate 14, Fig. N)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella angustata	(Plate 59, Fig. Q)
Synedra acus var. *delicatissima*	Not illustrated
Synedra vaucheria	(Plate 5, Fig. E)

Locality No. 43. Cosby, Leicestershire.

Navicula accomodata	(Plate 18, Fig. G)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Nitzschia "Cosbyana"	(Plate 50^1, Fig. V)
Nitzschia ovalis	(Plate 50^1, Fig. Q)
Nitzschia palea	(Plate 50^2, Fig. V)
Pinnularia "Cosbyi"	(Plate 25, Fig. U)
Surirella angustata	(Plate 59, Fig. PP)

Locality No. 44. Alvecote Nature Reserve. (Generic sample points)

?*Synedra vaucheria* var. *truncata*	(Plate 5, Fig. E)
Amphipleura pellucida	(Plate 10, Fig. A)

Locality No. 44. Alvecote Nature Reserve. (Generic sample points) (continued)

Amphora ovalis	(Plate 32, Fig. A)
Amphora ovalis var. *pediculus*	(Plate 32, Fig. B)
Caloneis amphisbaena	(Plate 11, Fig. A)
Caloneis ~~silicula~~ ventricosa	(Plate 11, Fig. F)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cyclotella "dubitabilis"	(Plate 2^D, Fig. E)
Cyclotella compta	(Plate 2, Figs. A & B)
Cyclotella Kützingiana "tripuncta"	(Plate 2^D, Fig. A)
Cyclotella Kützingiana	(Plate 2, Fig. C)
Cyclotella operculata?	(Plate 2, Fig. K)
Cymatopleura elliptica	(Plate 56, Fig. C)
Cymatopleura solea	(Plate 55, Fig. A)
Cymatopleura solea var. *gracilis*	(Plate 55, Fig. D)
Cymbella cistula	(Plate 33^1, Fig. C^1)
Cymbella prostrata	(Plate 37, Fig. C)
Diatoma elongatum var. *capitata*	Not illustrated
Diatoma vulgare	(Plate 3, Figs. E & H)
Diploneis didyma	(Plate 13, Fig. E)
Diploneis oculata	(Plate 13, Fig. F)
Epithemia sorex	Not illustrated
Eunotia exigua	(Plate 6, Fig. F)
Eunotia exigua	(Plate 6^2, Fig. A)
Fragilaria leptostauron	(Plate 4, Fig. T?)
Gomphonema olivaceum	(Plate 38^2, Fig. A)
Melosira varians	(Plate 1, Fig. A)
Navicula "poolei"	(Plate 19, Fig. DD)
Navicula "pseudo-cincta"	Not illustrated
Navicula "Shuttingtonia"	(Plate 20^1, Fig. L)
Navicula anglica	(Plate 19, Fig. E)
Navicula avenacea fa. *"obtusa"*	(Plate 19^1, Fig. H)
Navicula bacillum	(Plate 17, Fig. D)
Navicula binodis	(Plate 17, Fig. N)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cuspidata	(Plate 16, Fig. A), (Plate 20^2, Fig. G^1)
Navicula gracilis	(Plate 20^1, Fig. H)
Navicula gregaria	(Plate 16, Fig. E)
Navicula mutica	(Plate 16^2, Fig. J)
Navicula radiosa	(Plate 20, Fig. A)
Navicula rhyncocephala	(Plate 19^2, Fig. G)
Navicula rhyncocephala var. ~~*"Donkinia"*~~	(Plate 19^2, Fig. M)
Navicula rostrata	(Plate 21^1, Fig. A)
Navicula ~~viridula~~ avenacea	(Plate 19^1, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. C)
Neidium iridis var. *amphigomphus*	(Plate 12^1, Fig. D)
Nitzschia (*Angustata or Hungarica* var.)	(Plate 45, Fig. H)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia angustata	Not illustrated
Nitzschia apiculata	Not illustrated
Nitzschia dissipata	Not illustrated
Nitzschia dubia	(Plate 46, Fig. A)

Locality No. 44. Alvecote Nature Reserve. (Generic sample points) (continued)

Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia ovalis	(Plate 50^{1}, Fig. Q)
Nitzschia recta	Not illustrated
Nitzschia recta Alpha	(Plate 49, Fig. G)
Nitzschia sigma	(Plate 52, Fig. B)
Nitzschia sigmoidea	(Plate 52, Fig. A)
Nitzschia subacicularis	Not illustrated
Nitzschia subcapitellata	Not illustrated
Nitzschia tryblionella	(Plate 45, Fig. C)
Nitzschia tryblionella var. *debilis* fa. “*K*”	(Plate 45, Fig. K)
Nitzschia tryblionella var. *victoriae*	Not illustrated
Pinnularia intermedia	Not illustrated
Pinnularia interrupta	(Plate 25, Figs. D & N)
Pinnularia major	(Plate 29, Fig. A)
Pinnularia viridis	Not illustrated
Surirella biseriata	(Plate 57, Fig. A)
Surirella ovata	(Plate 60, Figs. U^{1} & UU)
Surirella ovata “var. *minuta*”	(Plate 60, Fig. YY)
Surirella tenera var. *nervosa*	(Plate 58, Fig. L)
Synedra rumpens	(Plate 5, Fig. Q)
Synedra ulna var. *spathulifera*	
Tabellaria fenestrata	(Plate 3, Figs. A, B & C)
Tabellaria flocculosa	(Plate 3, Fig. D)

Locality No. 44^{2}. Alvecote Nature Reserve. (Sample point 2)

Achnanthes “pseudo affinis”	Not illustrated
Cymbella “pseudo-hybrida”	(Plate 33^{3}, Fig. K)
Gomphonema gracile	(Plate 38^{4}, Fig. GG)
Navicula halophila?	(Plate 16, Fig. D)
Nitzschia filiformis	(Plate 52, Fig. J)
Nitzschia pseudopalea	(Plate 50^{2}, Fig. W)
see *Anomoneoneis*, is *A. vitrae*	(Plate 16^{3}, Fig. U)

Locality No. 44^{6}. Alvecote Nature Reserve. (Sample point 6)

Amphiprora costata	(Plate 32^{1}, Fig. B)
Amphiprora ornata	(Plate 32^{1}, Fig. A)
Coscinodiscus “Alvecote 6”	(Plate 2^{E}, Figs. C & E)
Coscinodiscus ~~“pseudosubtilis”~~ Rothii var. *subsalsa*	(Plate 2^{E}, Fig. D)
Coscinodiscus beta	(Plate 2^{E}, Fig. B)
Coscinodiscus lacustris	(Plate 2^{E}, Fig. F)
Nitzschia “Alvecotii”	(Plate 45, Fig. J)
Stephanodiscus	(Plate 2^{A}, Fig. C)
Stephanodiscus astraea	(Plate 2^{E}, Fig. A)
Stephanodiscus Hantzschii	(Plate 2^{C}, Figs. A, B, C, D & E)
Un-named	Plate2^{B}, Figs. F, I, J & K)

Locality No. 45. Brick Pit, Croft Road.

Un-named	(Plate 2B, Fig. D)
Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Amphiprora ornata	(Plate 32[1], Fig. A)
Caloneis amphisbaena	(Plate 11, Fig. A)
Cyclotella ocellata	(Plate 2, Fig. L)
Cymbella microcephala	Not illustrated
Diatoma elongatum	(Plate 3, Fig. K)
Diploneis ovalis	(Plate 13, Fig. A)
Epithemia intermedia	(Plate 42, Fig. E)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema parvulum	(Plate 38[3], Fig. C[5])
Mastogloia elliptica var. *Danesii*	(Plate 9[1], Fig. A)
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala	(Plate 19[5], Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula digito-radiata var. *elliptica*	(Plate 21, Fig. K)
Navicula gregaria	(Plate 16, Fig. E)
Navicula halophila?	(Plate 16, Fig. D)
Navicula radiosa	(Plate 20, Fig. A)
Navicula viridula var. *slesvicensis*	(Plate 19[3], Fig. E)
Nitzschia ?	(Plate 46, Fig. C)
Nitzschia ?hybrida	(Plate 46, Fig. D)
Nitzschia amphibia	(Plate 50[1], Fig. H)
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia ovalis	(Plate 50[1], Fig. Q)
Nitzschia palea	(Plate 50[2], Fig. V)
Pinnularia ~~?molaris~~ microstauron var. *Brebissonii*	(Plate 24, Fig. C)
Surirella ovalis	(Plate 60, Fig. Y[1])
Surirella ovata	(Plate 60, Fig. U[1])
Synedra affinis	(Plate 5, Fig. K)
Synedra pulchella	(Plate 5, Figs. O & V)

Locality No. 46. Gailey Reservoir – on A5 road near Junction to M6 motorway.

Cyclotella Kützingiana “tripuncta”	(Plate 2D, Fig. A)
Cyclotella Kützingiana (nuda)	(Plate 2D, Figs. C & D)
Cyclotella Kützingiana “quadrapuncta”	(Plate 2D, Fig. B)

Locality No. 47. Hartshill, entrance to Boon’s Quarry from near the Anchor Inn.

Navicula accomodata	(Plate 18, Fig. G)
Navicula gregaria	(Plate 16, Fig. E)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia angustata	Not illustrated
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia palea	(Plate 50[2], Fig. V)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Fig. C)
Surirella ovata var. *pinnata “fa. alpha”*	(Plate 59, Fig. RR)

Locality No. 48. Stream on A4131 (now B4111).

Achnanthes affinis	(Plate 8, Fig. B)
Achnanthes lanceolata	(Plate 8, Fig. F)
Achnanthes lanceolata var. *elliptica* "fa. *J*"	(Plate 8, Fig. J)
Achnathes Haukiana	Not illustrated
Amphora "glacialis"	(Plate 32, Fig. E)
Cocconeis placentula	(Plate 7, Figs. A & B)
Cocconeis placentula var. *euglypta*	(Plate 7, Fig. C)
Cocconeis thumensis	(Plate 7, Fig. F)
Cymatopleura elliptica var. *constricta*	Not illustrated
Diploneis ovalis	(Plate 13, Fig. A)
Frustulia vulgaris	(Plate 10, Figs. B & C)
Gomphonema angustatum	(Plate 38^{1}, Fig. F)
Gomphonema parvulum	(Plate 38^{3}, Fig. C)
Navicula "Alpha"	(Plate 17, Fig. R)
Navicula "Mancetteri"	(Plate 19^{4}, Fig. B)
Navicula "pseudo-cincta"	Not illustrated
Navicula "pseudo-sub-molesta"	(Plate 16^{3}, Fig. W)
Navicula "Volksii"	(Plate 17, Fig. S)
Navicula accomodata	(Plate 18, Fig. G)
Navicula ~~cincta~~ digito-radiata var. *elliptica*	(Plate 21, Fig. L)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula dicephala	(Plate 20^{2}, Fig. G^{1})
Navicula excelsa	(Plate 17, Fig. Y)
Navicula gregaria	(Plate 16, Fig. E)
Navicula mutica var. *Goppertiana*	(Plate 16^{2}, Fig. A)
Navicula pseudo-demissa	Not illustrated
Navicula ~~viridula~~ avenacea	(Plate 19^{1}, Fig. B)
Navicula Witrockii fa. *frusticulus*	(Plate 17, Fig. V)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. T)
Nitzschia angustata	Not illustrated
Nitzschia apiculata fa.	(Plate 45, Fig. L)
Nitzschia dubia	(Plate 46, Fig. A)
Nitzschia linearis	(Plate 49, Figs. A & C)
Nitzschia ovalis	(Plate 50^{1}, Fig. Q)
Nitzschia palea	(Plate 50^{2}, Fig. V)
Nitzschia tryblionella var. *debilis*	V
Pinnularia globiceps var. *Krookei*	(Plate 25, Fig. L)
Pinnularia microstauron var. *Brebissoni*	(Plate 26, Figs. C & G)
Pinnularia subcapitata	(Plate 25, Fig. Q)
Rhopalodia gibba	(Plate 42^{1}, Fig. A)
Stauroneis anceps	(Plate 14, Fig. H)
Stauroneis legumen	(Plate 14, Fig. D)
Stauroneis phoenicentron	(Plate 14, Fig. A)
Stauroneis Smithii	(Plate 14, Figs. C & CC)
Surirella ovalis	(Plate 60, Figs. W^{1}, Y^{3} & Y^{4})
Surirella ovata	(Plate 60, Figs. U^{1} & U^{2})
Surirella ovata "var. *minuta*"	(Plate 60, Fig. YY)
Surirella ovata var. *pinnata* "fa. *alpha*"	(Plate 59, Fig. RR)
Synedra ulna	(Plate 5, Fig. A)

Locality No. 50. Bedworth – Stream by Newdigate Colliery.

Achnanthes lanceolata	(Plate 8, Fig. F)
Amphipleura rutilans	(Plate 10, Fig. J)
Gomphonema angustatum var. *producta*	(Plate 38^1, Fig. EE)
Gomphonema parvulum	(Plate 38^3, Fig. C^2)
Gyrosigma attenuatum	(Plate 10, Fig. G)
Hantzschia amphioxys	(Plate 43, Fig. A)
Navicula "poolei"	(Plate 19, Fig. DD)
Navicula accomodata	(Plate 18, Fig. G)
Navicula anglica "fa. *minuta*"	(Plate 19, Fig. F)
Navicula avenacea fa. "*obtusa*"	(Plate 19^1, Fig. H)
Navicula Buderi	(Plate 17, Fig. O)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula cryptocephala var. *veneta*	Not illustrated
Navicula fossilis	Not illustrated
Navicula gregaria	(Plate 16, Fig. E)
Navicula pseudo-demissa	Not illustrated
Navicula ~~viridula~~ avenacea	(Plate 19^1, Fig. B)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. C)
Nitzschia frustulum var. *subsalsa*	(Plate 50^1, Fig. U)
Nitzschia Hungarica	(Plate 45, Fig. F)
Nitzschia ovalis	(Plate 50^1, Fig. Q)
Nitzschia parvulum	(Plate 54, Fig. A)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Stauroneis Kreigeri fa. *undulata*	(Plate 14, Fig. P)
Surirella ovata	(Plate 60, Fig. U^1)
Synedra ulna	(Plate 5, Fig. A)

Locality No. 51. River Sence – Twycross A444.

Achnanthes lanceolata	(Plate 8, Fig. F)
Gomphonema olivaceum	(Plate 38^2, Fig. B)
Navicula "Twycrossiana"	Not illustrated
Nitzschia "A444"	(Plate 50^2, Fig. BB)
Nitzschia "Twycross"	(Plate 50^2, Fig. AA)
Nitzschia "vario-carino"	(Plate 50^2, Figs. CC & DD)
Pinnularia intermedia fa. *capitata*	(Plate 25, Fig. T)

Locality No. 52. Spring – Hartshill Hayes Wood.

Diatoma anceps	(Plate 3, Figs. N, O & P)
Diatoma elongatum	(Plate 3, Fig. K)
Gomphonema angustatum var. *producta*	(Plate 38^1, Fig. EE)
Gyrosigma Kützingii	(Plate 10, Fig. E)
Meridion circulare	(Plate 4, Figs. A, B & C)
Navicula cryptocephala	(Plate 19^5, Fig. A)
Navicula digito-radiata ? var. *Heufleri*	(Plate 21, Fig. G)
Navicula viridula var. *slesvicensis*	(Plate 19^3, Fig. C)
Nitzschia	(Plate 50^1, Figs. B & T)
Nitzschia acicularis	(Plate 54, Fig. B)
Nitzschia sigma	(Plate 52, Fig. B)
Pinnularia viridis ~~"fa. 30L"~~ var. *fallax*	(Plate 30, Fig. L)
Rhoicosphenia curvata	(Plate 9, Figs. A & B)
Surirella ovata	(Plate 60, Fig. U^2)
Surirella ovata fa.	(Plate 59, Fig. QQ)

Locality No. 53. ‘Dovedale’, Derbyshire

Navicula fluviatilis	(Plate 17, Fig. X)

Locality No. 54. Quina Brook, Shropshire (Nr. Wem).

Nitzschia “Cosbyana”	(Plate 50^{1}, Fig. V)

Locality No. 55. ‘Frog Pond’, Shropshire

Achnanthes taeneata	(Plate 8^{1}, Fig. E)

Locality No. 60. Hartshill Hayes Quarry.

Surirella ovata	(Plate 60, Fig. U^{2})
Surirella ovata fa.	(Plate 59, Fig. QQ)

No Location Cited

Achnanthes brevipes	(Plate 8, Not figured)
Achnanthes brevipes var. *parvula*	(Plate 8, Fig. P)
Achnanthes Hungarica	(Plate 8, Fig. K^{1})
Achnanthes lanceolata var. *elliptica* “fa.”	(Plate 8, Not figured)
Anomonoeoneis exilis	(Plate 15, Not figured)
Cymbella aspera	(Plate 33, Fig. A^{2})
Cymbella cistula	(Plate 33^{1}, Figs. C^{2} & C^{3})
Cymbella ventricosa	(Plate 33^{2}, Figs. D^{2}, D^{3} & D^{4})
Eunotia praerupta	(Plate 5, Fig. C)
Gomphonema ?	(Plate 38^{4}, Fig. G)
Gomphonema accuminatum var. *Gauterei*	(Plate 38, Fig. L)
Gomphonema accuminatum var. *turris*	(Plate 38, To be sketched)
Gomphonema angustatum var. ?	(Plate 38^{1}, Not figured)
Gomphonema angustatum var. *undulata*	(Plate 38^{1}, Not figured)
Gomphonema olivaceum var. “?”	(Plate 38^{2}, Fig. G)
Gomphonema olivaceum var. *“38^{2}D”*	(Plate 38^{2}, Fig. D)
Gomphonema parvulum	(Plate 38^{3}, Figs.C^{1} & C^{4})
Melosira varians	(Plate 1, Fig. B)
Navicula	(Plate 19^{1}, Fig. R)
Navicula ~~angustata~~ Could be *N. cari* v. *angustata*	(Plate 20, Fig. C)
Navicula avenacea fa.*non-rostratum*	(Plate 19, Fig. Q)
Navicula cuspidata var. *Heribaudi*	(Plate 16, Fig. C)
Navicula dicephala	(Plate 20^{2}, Figs. G^{2} & G^{3})
Navicula paramutica	(Plate 16^{2}, Fig. T)
Navicula salinarum	(Plate 19, Fig. D)
Navicula viridula	(Plate 19^{4}, Fig. L)
Neidium affine var. *amphirhynchus*	(Plate 12, Fig. S)
Nitzschia	(Plate 50^{1}, Fig. M)
Nitzschia obtusa	(Plate 54, Not figured)
Pinnularia Braunii	(Plate 25, Not figured)
Rhopalodia menisculus	(Plate 42^{1}, To be sketched)
Surirella biseriata	(Plate 58, Fig. J)
Surirella ovalis	(Plate 60, Figs. W^{2} & Y^{2})
Surirella ovata	(Plate 60, Fig. U^{3})
Synedra pulchella var. *lanceolata*	(Plate 5, Not figured)

No Location Cited (continued)

	Un-named	(Plate 2^B, Figs. A, B, E, G & H), (Plate 17, Fig. B), (Plate 38, Fig. H), (Plate 43, Fig. D), (Plate 49, Fig. D) & (Plate 50^2, Fig. F)

Appendix B
Index of Plate Illustrated Diatoms

Misc.

?*Synedra vaucheria* var. *truncata*	Plate 5, Fig. E

A

Achnanthes “arburyi”	Plate 8, Fig. C
Achnanthes “hyalinus”	Plate 8, Fig. S
Achnanthes ~~“tiddlei”~~ N. dismissa	Plate 8^{1}, Fig. C
Achnanthes affinis	Plate 8, Fig. B
Achnanthes andicola	Plate 8, Fig. A
Achnanthes coarctata	Plate 8, Fig. O
Achnanthes conspicua var. *brevistrata*	Plate 8, Fig. N
Achnanthes exigua var. *heterovalva*	Plate 8, Fig. E
Achnanthes exilis	Plate 8, Fig. D
Achnanthes Hungarica	Plate 8, Fig. K
Achnanthes japonica	Plate 8, Figs. M & V
Achnanthes kryophila	Plate 8^{1}, Fig. D
Achnanthes lanceolata	Plate 8, Fig. F
Achnanthes lanceolata var. *bimaculata*	Plate 8, Fig. G
Achnanthes lanceolata var. *elliptica* “fa. *J*”	Plate 8, Fig. J
Achnanthes Peragalli	Plate 8, Fig. U
Achnanthes plonensis	Plate 8^{1}, Fig. B
Amphipleura pellucida fa. *“obtusa”*	Plate 10, Fig. H
Amphipleura pellucida	Plate 10, Fig. A
Amphipleura rutilans	Plate 10, Fig. J
Amphiprora costata	Plate 32^{1}, Fig. B
Amphiprora ornata	Plate 32^{1}, Fig. A
Amphiprora ornata (*rivularis*)	Plate 32^{1}, Fig. E
Amphora “glacialis”	Plate 32, Fig. E
Amphora ovalis	Plate 32, Fig. A
Amphora ovalis var. *pediculus*	Plate 32, Fig. B
Amphora ovalis var. *pediculus* fa. *ventricosa*	Plate 32, Fig. C
Amphora veneta	Plate 32, Fig. D
Anomonoeoneis exilis	Plate 15, Fig. B
Anomonoeoneis sphaerophora	Plate 15, Fig. A
Asterionella formosa	Plate 4, Fig. S?
Asterionella gracillima	Plate 4, Fig. X

B

Bacillaria paradoxa	Plate 44, Fig. A

C

Caloneis amphisbaena	Plate 11, Fig. A
Caloneis bacillum	Plate 11, Figs. B, C, E, Q
Caloneis bacillum var. *lancettula*	Plate 11, Fig. N
Caloneis Schumanniana (*truchus*) var. *linearis*	Plate 11, Fig. J
Caloneis Schumanniana var. *biconstricta*	Plate 11, Fig. K
Caloneis Schummaniana var. *“major”*	Plate 11, Fig. O
Caloneis ~~silicula~~ ventricosa	Plate 11, Fig. F
Caloneis ventricosa var. *gibberula*	Plate 11, Fig. G
Caloneis ventricosa var. *peisonis*	Plate 11, Fig. D
Caloneis ventricosa var. *truncatula*	Plate 11, Figs. L & M
Caloneis ventricosa var. *tumida*	Plate 11, Fig. H
Cocconeis pediculus	Plate 7, Fig. E
Cocconeis placentula	Plate 7, Figs. A & B
Cocconeis placentula var. *euglypta*	Plate 7, Fig. C
Cocconeis placentula var. *lineata*	Plate 7, Fig. D
Cocconeis placentula var. *Rouxii*	Plate 7, Fig. G
Cocconeis thumensis	Plate 7, Fig. F
Coscinodiscus “Alvecote 6”	Plate 2^{E}, Figs. C & E
Coscinodiscus ~~“pseudosubtilis”~~ Rothii var. *subsalsa*	Plate 2^{E}, Fig. D
Coscinodiscus beta	Plate 2^{E}, Fig. B
Cyclotella ?socialis	Plate 2, Fig. H
Cyclotella “dubitabilis”	Plate 2^{D}, Fig. F
Cyclotella astraea	Plate 2, Fig. F
Cyclotella catanata	Plate 2, Fig. G
Cyclotella compta	Plate 2, Figs. A & B
Cyclotella Kützingingiana “tripuncta”	Plate 2^{D}, Fig. A
Cyclotella Kützingingiana	Plate 2, Fig. C
Cyclotella Kützing*ingiana* var. *planetophora*	Plate 2, Fig. EE
Cyclotella Kützingiana (nuda)	Plate 2^{D}, Figs. C & D
Cyclotella Kützingiana “quadrapuncta”	Plate 2^{D}, Fig. B
Cyclotella Meneghiniana	Plate 2, Fig. D
Cyclotella Meneghiniana (deformed?)	Plate 2, Fig. DD
Cyclotella ocellata	Plate 2, Fig. L
Cyclotella operculata?	Plate 2, Fig. K
Cyclotella stelligera	Plate 2, Fig. E
Cyclotella striata var. *bipunctata*	Plate 2, Fig. J
Cymatopleura angulata	Plate 56, Fig. G
Cymatopleura elliptica	Plate 56, Fig. C
Cymatopleura elliptica var. *constricta*	Plate 55, Fig. H
Cymatopleura elliptica var. *hibernica*	Plate 56, Fig. B
Cymatopleura solea	Plate 55, Fig. A
Cymatopleura solea var. *constricta*	Plate 55, Figs. E & F
Cymatopleura solea var. *gracilis*	Plate 55, Fig. D
Cymbella ?hybrida	Plate 33^{3}, Figs. D & M
Cymbella “pseudo-hybrida”	Plate 33^{3}, Fig. K
Cymbella aspera	Plate 33, Fig. A^{1}
Cymbella Brehmii	Plate 33^{2}, Fig. G
Cymbella cistula	Plate 33^{1}, Fig. B^{2} & C
Cymbella cistula var. *maculata*	Plate 33^{1}, Fig. F
Cymbella cuspidata	Plate 37, Fig. B

C (continued)

Cymbella cymbiformis	Plate 33^{3}, Fig. E?
Cymbella Ehrenbergii	Plate 37, Figs. A, F, G
Cymbella Hustedtii	Plate 33^{2}, Fig. H
Cymbella hybrida	Plate 33^{3}, Fig. F
Cymbella laevis	Plate 33^{3}, Fig. J
Cymbella lanceolata	Plate 33, Fig. A
Cymbella naviculiformis	Plate 33^{3}, Fig. E?
Cymbella obtusa (aequalis)	Plate 33^{3}, Fig. N
Cymbella obtusicula	Plate 33^{3}, Fig. L
Cymbella parva	Plate 33^{1}, Fig. C
Cymbella prostrata	Plate 37, Figs. C & D
Cymbella sinuata (not *minutissima*)	Plate 33^{2}, Fig. B
Cymbella tumida	Plate 37, Fig. E
Cymbella ventricosa	Plate 37, Fig. D & Plate 33^{2}, Fig. D^{5}

D

Denticula tenuis var. *crassula*	Plate 41, Fig. A
Diatoma anceps	Plate 3, Fig. N, O, P
Diatoma elongatum	Plate 3, Fig. K
Diatoma elongatum var. *minor*	Plate 3, Fig. M
Diatoma elongatum var. *tenuis*	Plate 3, Fig. L
Diatoma vulgare	Plate 3, Fig. E & H
Diatoma vulgare var. *grandis*	Plate 3, Fig. J
Diatoma vulgare var. *ovalis*	Plate 3, Fig. G
Diatoma vulgare var. *producta*	Plate 3, Fig. F
Diploneis bioculata	Plate 13, Fig. G
Diploneis didyma	Plate 13, Fig. E
Diploneis oculata	Plate 13, Fig. F
Diploneis ovalis	Plate 13, Fig. A
Diploneis ovalis var. oblongella	Plate 13, Fig. D
Diploneis Petersenii	Plate 13, Fig. C
Diploneis vacillans	Plate 13, Fig. AA

E

Epithemia intermedia	Plate 42, Fig. D & E
Epithemia turgida	Plate 42, Fig. C
Epithemia zebra var. *porchellus*	Plate 42, Fig. A
Epthemia turgida var. *granulata*	Plate 42, Fig. B
Eunotia ~~alpina~~ Naegelii var. *Naegelii*	Plate 6, Fig. A
Eunotia arcus	Plate 6, Fig. B
Eunotia arcus var. *fallax*	Plate 6^{1}, Fig. D
Eunotia exigua	Plate 6, Fig. F & Plate 6^{2}, Fig. A

E (continued)

Eunotia formica	Plate 6, Fig. J
Eunotia gracilis	Plate 6^1, Fig. A
Eunotia Kocheliensis	Plate 6, Fig. H
Eunotia lunaris	Plate 6, Fig. G
Eunotia pectinalis	Plate 6, Fig. D
Eunotia pectinalis var. *minor*	Plate 6, Fig. E
Eunotia pectinalis var. *undulata*	Plate 6^1, Fig. E
Eunotia pectinalis var. *ventralis*	Plate 6^1, Fig. B
Eunotia praerupta var. *inflata*	Plate 6, Fig. M
Eunotia tenella	Plate 6, Fig. C
Eunotia valida	Plate 6, Fig. L
Euntotia lunaris var. *subarcuata*	Plate 6, Fig. K

F

Fragilaria brevistriata	Plate 4, Fig. M
Fragilaria capucina	Plate 4, Fig. F
Fragilaria capucina var. *mesolepta*	Plate 4, Fig. G
Fragilaria construens	Plate 4, Fig. H
Fragilaria construens var. *binodis*	Plate 4, Fig. J
Fragilaria construens var. *center*	Plate 4, Fig. K
Fragilaria crotonensis	Plate 4, Fig. L
Fragilaria Harrisonii var. *“Seeswoodii”*	Plate 4, Fig. U
Fragilaria harrisonii var. *dubia*	Plate 4, Fig. P & R
Fragilaria Harrisonii var. *rhomboides*	Plate 4, Fig. O
Fragilaria Harrisonii	Plate 4, Fig. N
Fragilaria intermedia	Plate 4, Fig. V
Fragilaria leptostauron	Plate 4, Fig. T?
Fragilaria Leptostauron var. *dubia*	Plate 4, Fig. T?
Fragilaria pinnata	Plate 4, Fig. W
Fragilaria pinnata var. *lancettula*	Plate 4, Fig. S
Fragilaria virescens var. *elliptica*	Plate 4, Fig. Y
Frustulia rhomboides	Plate 10, Fig. D
Frustulia vulgaris	Plate 10, Figs. B & C

G

Gomphonema ?	Plate 38^4, Fig. Q
Gomphonema ~~“pseudoabbreviata”~~ ?Brasiliensis	Plate 38^4, Fig. E
Gomphonema accuminatum	Plate 38, Fig. B
Gomphonema accuminatum var. *Brebissonii*	Plate 38, Fig. F
Gomphonema accuminatum var. *trigonocephala*	Plate 38, Fig. J
Gomphonema angustatum	Plate 38^1, Fig. F
Gomphonema angustatum var. *producta*	Plate 38^1, Figs. EE & K
Gomphonema angustatum var. *sarcophagus*	Plate 38^1, Fig. E
Gomphonema constrictum	Plate 38^3, Fig. A

G (continued)

Gomphonema constrictum var. *capitata*	Plate 38^{3}, Fig. B
Gomphonema gracile	Plate 38^{4}, Figs. DD, D, FF, HH, M
Gomphonema intricatum var. *vibrio*	Plate 38^{3}, Fig. H
Gomphonema longiceps var. *Montana*	Plate 38^{3}, Fig. D
Gomphonema longiceps var. *subclavata*	Plate 38^{3}, Fig. J
Gomphonema longiceps var. *suecica*	Plate 38^{3}, Fig. F
Gomphonema olivaceum	Plate 38^{2}, Figs. A & B
Gomphonema olivaceum var. *calcarea*	Plate 38^{2}, Fig. C
Gomphonema parvulum	Plate 38^{3}, Fig. C, C^{2}, C^{3}, C^{5}
Gyrosigma accuminatum	Plate 10, Fig. F
Gyrosigma attenuatum	Plate 10, Fig. G
Gyrosigma Kützingingii	Plate 10, Fig. E

H

Hantzschia “amphioxyoides”	Plate 43, Fig. C
Hantzschia amphioxys	Plate 43, Fig. A
Hantzschia amphioxys “var. *bullei*”	Plate 43, Fig. G
Hantzschia amphioxys var. *producta*	Plate 43, Fig. E

M

Mastogloia elliptica var. *Danesii*	Plate 9^{1}, Fig. A
Melosira granulata var. *muzzanensis*	Plate 1, Fig. C
Melosira varians	Plate 1, Fig. A
Meridion circulare	Plate 4, Figs. A, B, C
Meridion circulare var. *constricta*	Plate 4, Fig. D, D^{1}

N

Navicula	Plate 19^{1}, Figs. F & HH
Navicula “Alpha”	Plate 17, Fig. R
Navicula “Arburyi”	Plate 16^{3}, Fig. T
Navicula “Avoniana”	Plate 16^{3}, Fig. P
Navicula “dicephaloides”	Plate 20^{2}, Fig. J
Navicula “halophilloides”	Plate 16, Fig. K
Navicula “poolei”	Plate 19, Fig. DD
Navicula “pseudocreuzbergensis”	Plate 18, Fig. C
Navicula ~~*“pupuloides” or bacilliformis* var. *cruciata*~~ *Witrockii*	Plate 17, Fig. K
Navicula “Shuttingtonia”	Plate 20^{1}, Fig. L
Navicula “Volksii”	Plate 17, Fig. S

N (continued)

Navicula "parasoides"	Plate 16^{3}, Fig. G
Navicula accomodata	Plate 18, Fig. G
Navicula anglica	Plate 19, Fig. E
Navicula anglica "fa. *minuta*"	Plate 19, Fig. F
Navicula avenacea fa. "*obtusa*"	Plate 19^{1}, Fig. H
Navicula avenacea fa. "*producta*"	Plate 19^{2}, Fig. J
Navicula bacillum	Plate 17, Fig. D
Navicula bacillum fa. *elliptica*	Plate 17, Fig. E
Navicula binodis	Plate 17, Fig. N
Navicula Buderi	Plate 17, Fig. O
Navicula cincta	Plate 20^{1}, Fig. F
Navicula ~~cincta~~ digito-radiata var. *elliptica*	Plate 21, Fig. L
Navicula cocconeiformis	Plate 18^{1}, Fig. A
Navicula crucicula ? var. *obtusata*	Plate 18, Fig. D
Navicula crucicula var. or *Navicula protracta*	Plate 18, Fig. E
Navicula cryptocephala	Plate 19^{5}, Fig. A
Navicula cuspidata	Plate 16, Fig. A
Navicula cuspidata var. *ambigua*	Plate 16, Fig. B
Navicula dicephala	Plate 20^{2}, Fig. G^{1}
Navicula digito-radiata ? var. *Heufleri*	Plate 21, Fig. G
Navicula digito-radiata var. *elliptica*	Plate 21, Fig. K
Navicula exigua	Plate 22, Fig. C
Navicula Galikii (*amphibola*)	Plate 23, Fig. B
Navicula gastrum	Plate 22, Fig. A
Navicula gibbula	Plate 18, Fig. A
Navicula gracilis	Plate 20^{1}, Fig. H
Navicula gracilis fa. "*alpha*"	Plate 20^{1}, Fig. K
Navicula gracilis fa. "*obtusa*"	Plate 20^{1}, Fig. J
Navicula gregaria	Plate 16, Fig. E
Navicula grimmei	Plate 16^{3}, Fig. R
Navicula halophila fa. *subcapitata*	Plate 16, Fig. DD
Navicula halophila?	Plate 16, Fig. D
Navicula Hungarica	Plate 21, Fig. J
Navicula Hungarica var. *capitata*	Plate 21, Fig. B
Navicula Kraskei	Plate 18, Fig. B
Navicula lanceolata	Plate 20^{1}, Fig. E
Navicula lapidosa	Plate 16^{3}, Fig. O
Navicula longirostris	Plate 18, Fig. F
Navicula mutica	Plate 16^{2}, Figs. J & N
Navicula mutica fa. *Cohnii*	Plate 16^{2}, Fig. B
Navicula mutica var. *capitata*	Plate 16^{2}, Fig. H
Navicula mutica var. *Goppertiana*	Plate 16^{2}, Fig. A
Navicula mutica var. *lanceolata*	Plate 16^{2}, Fig. S
Navicula oblonga	Plate 20^{3}, Fig. D
Navicula placentula fa. *rostrata*	Plate 22, Fig. B
Navicula pupula	Plate 17, Fig. A
Navicula pupula fa. *rostrata*	Plate 17, Fig. M
Navicula pupula var. *capitata*	Plate 17, Figs. C & L
Navicula pupula var. *elliptica*	Plate 17, Fig. H
Navicula pupula var. *pseudopupula*	Plate 17, Fig. Q
Navicula pupula var. *pseudopupula* "fa. *elliptica*"	Plate 17, Fig. F

N (continued)

Navicula pygmaea	Plate 23, Fig. A
Navicula radiosa	Plate 20, Fig. A
Navicula radiosa (NOT var. *acuta*)	Plate 20, Fig. B
Navicula Rheinhardtii	Plate 20^{3}, Figs. A & B
Navicula rhyncocephala	Plate 19^{2}, Figs. G & N
Navicula rhyncocephala var. “~~*capitata*~~”	~~Plate~~ 19^{2}, Fig. K
Navicula rhyncocephala var. “~~*Donkinia*~~”	Plate 19^{2}, Fig. M
Navicula rhyncocephala var. “~~*pseudo*~~”	Plate 19^{2}, Fig. J
Navicula rhyncocephala var. “~~*pseudo-rhyncocephala*~~”	Plate 19^{2}, Fig. L
Navicula rostrata	Plate 21^{1}, Fig. A
Navicula rotaena	Plate 16^{3}, Fig. L
Navicula salinarum	Plate 19, Fig. A
Navicula seminulum var. *radiosa*?	Plate 16^{3}, Fig. F
Navicula var. *HH*	Plate 19^{1}, Fig. P
Navicula ~~*viridula*~~ *avenacea*	Plate 19^{1}, Fig. B
Navicula viridula	Plate 19^{4}, Fig. A
Navicula viridula var. *slesvicensis*	Plate 19^{3}, Figs. C, D, E
Navicula Witrockii	Plate 17, Fig. T
Navicula Witrockii fa. *frusticulus*	Plate 17, Fig. V
Navicula? ~~Cari~~	Plate 21, Fig. M
Neidium “sylvaticum”	Plate 12^{2}, Fig. N
Neidium affine	Plate 12, Fig. M
Neidium affine var. *amphirhynchus*	Plate 12, Figs. E & T
Neidium bisulcatum	Plate 12^{2}, Fig. J
Neidium capitatum	Plate 12, Fig. L
Neidium dubium	Plate 12^{2}, Fig. H
Neidium dubium “fa. *“apiculatum”*	Plate 12^{2}, Fig. K
Neidium dubium fa. *constricta*	Plate 12^{2}, Fig. P
Neidium iridis	Plate 12^{1}, Fig. G
Neidium iridis “fa. *Suttonia*”	Plate 12^{1}, Figs. O & P
Neidium iridis fa. *maxima*	Plate 12^{1}, Fig. F
Neidium iridis var. *amphigomphus*	Plate 12^{1}, Figs. D & Q
Neidium Koslowi var. *parva*	Plate 12^{2}, Fig. R
Neidium producta	Plate 12^{3}, Fig. C
Neidium producta “fa. *capitata*”	Plate 12^{3}, Fig. A
Neidium producta fa. “*longiceps*”	Plate 12^{3}, Fig. B
Nitzschia	Plate 50^{1}, Figs. B, R, T & Plate 50^{3}, Figs. K, L, O & P
Nitzschia (*Angustata* or *Hungarica* var.)	Plate 45, Fig. H
Nitzschia ?	Plate 46, Fig. C & Plate 54, Fig. C
Nitzschia ?hybrida	Plate 46, Fig. D
Nitzschia ?sigma	Plate 52, Fig. F
Nitzschia “A444”	Plate 50^{2}, Fig. BB
Nitzschia “Alvecotii”	Plate 45, Fig. J
Nitzschia “Avonensis”	Plate 49, Fig. E
Nitzschia “Cosbyana”	Plate 50^{1}, Fig. V
Nitzschia “P” fa. *capitata*	Plate 50^{3}, Fig. PP
Nitzschia “Senciana”	Plate 50^{2}, Fig. Y

N (continued)

Nitzschia "Sheepyi"	Plate 50^2, Fig. X, Plate 50^3, Fig. Q & Plate 52, Fig. H
Nitzschia "Twycross"	Plate 50^2, Fig. AA
Nitzschia "vario-carino"	Plate 50^2, Figs. CC & DD
Nitzschia "Volksii"	Plate 50^2, Fig. Z
Nitzschia acicularis	Plate 54, Fig. B
Nitzschia acuta	Plate 50, Fig. N
Nitzschia amphibia	Plate 50^1, Fig. H
Nitzschia angustata var. *acuta*	Plate 45, Fig. B
Nitzschia apiculata fa.	Plate 45, Fig. L
Nitzschia capitellata	Plate 50^2, Fig. S
Nitzschia dissipata	Plate 50, Fig. NN
Nitzschia dubia	Plate 46, Fig. A
Nitzschia filiformis	Plate 52, Fig. J
Nitzschia flexa	Plate 52, Figs. G & G^2
Nitzschia fontecola	Plate 50^1, Fig. J
Nitzschia frustulum var. *subsalsa*	Plate 50^1, Fig. U
Nitzschia gracilis (?)	Plate 50^2, Fig. C
Nitzschia Hantziana	Plate 50^2, Figs. E, G, U
Nitzschia Hungarica	Plate 45, Figs. F, G, I
Nitzschia linearis	Plate 49, Figs. A & C
Nitzschia linearis ?var. *tenuis*	Plate 49, Figs. B & BB
Nitzschia ovalis	Plate 50^1, Fig. Q
Nitzschia palea	Plate 50^2, Fig. V
Nitzschia paleaeformis	Plate 50^2, Figs. A & D
Nitzschia parvulum	Plate 54, Fig. A
Nitzschia pseudo dubia	Plate 46, Fig. B
Nitzschia pseudopalea	Plate 50^2, Figs. EE & W
Nitzschia punctata	Plate 45, Fig. A
Nitzschia recta Alpha	Plate 49, Fig. G
Nitzschia recta?	Plate 49, Fig. F
Nitzschia sigma	Plate 52, Fig. B
Nitzschia sigmoidea	Plate 52, Figs. A, B, C, D
Nitzschia tryblionella	Plate 45, Fig. C
Nitzschia tryblionella var. *debilis* fa. *"K"*	Plate 45, Fig. K
Nitzschia tryblionella var. l*evidensis*	Plate 45, Fig. E
Nitzschia tryblionella var. *levidensis* fa. *apiculata*	Plate 45, Fig. D
Nitzschia vermicularis	Plate 52, Fig. E

O

Opephora Martyi	Plate 4, Fig. E

P

Pinnularia ~~?molaris~~ microstauron var. *Brebissonii*	Plate 24, Fig. C
Pinnularia "Arburyi"	Plate 25, Figs. A, J, M
Pinnularia "Dunniana"	Plate 25, Fig. B
Pinnularia "irroratoides"	Plate 25, Fig. O
Pinnularia "irroratoides" fa. *elliptica*	Plate 25, Fig. P
Pinnularia "reedii"	Plate 28, Fig. A
Pinnularia "Suttonensis"	Plate 24, Fig. E
Pinnularia appendiculata	Plate 25, Fig. E
Pinnularia borealis	Plate 27, Fig. A
Pinnularia Braunii var. *amphicephala*	Plate 25, Figs. F & G
Pinnularia dactylus	Plate 27, Fig. D
Pinnularia fasciata	Plate 24, Fig. F
Pinnularia gentilis	Plate 29[1], Fig. H
Pinnularia ~~gibba~~ isostauron	Plate 28, Fig. C
Pinnularia gigas?	Plate 27, Fig. C
Pinnularia globiceps var. *Krookei*	Plate 25, Fig. L
Pinnularia hemiptera	Plate 27, Figs. B, BB, E
Pinnularia intermedia fa.	Plate 25, Fig. S
Pinnularia intermedia fa. *capitata*	Plate 25, Fig. T
Pinnularia interrupta	Plate 25, Figs. D & N
Pinnularia interrupta fa. *minutissima*	Plate 25, Fig. K
Pinnularia irrorata	Plate 25, Figs. C & H
Pinnularia ~~Karelica~~	~~Plate~~ 26, Fig. A
Pinnularia lata	Plate 27, Fig. F
Pinnularia major	Plate 29, Figs. A & D
Pinnularia major "fa. *Sheepyi*"	Plate 29[2], Fig. E
Pinnularia mesolepta	Plate 24, Fig. A
Pinnularia mesolepta var. *angustata*	Plate 24, Fig. B
Pinnularia microstauron	Plate 24, Fig. G
*Pinnularia microsta*uron fa. "*Sheepyi*"	Plate 26, Fig. B
Pinnularia microstauron var. *Brebissoni*	Plate 26, Figs. C, D, F, G
Pinnularia nobilis	Plate 29[1], Fig. E
Pinnularia polyonca	Plate 25, Fig. R
Pinnularia stomatophora	Plate 28, Fig. B
Pinnularia subcapitata	Plate 25, Fig. Q
Pinnularia sublinearis	Plate 24, Fig. D
Pinnularia transversa	Plate 29, Fig. C
Pinnularia viridis "fa. *30DD*"	Plate 30, Fig. DD
Pinnularia viridis "fa. *30J*"	Plate 30, Fig. J
Pinnularia viridis ~~"fa. *30K*"~~ var. *fallax*	Plate 30, Fig. K
Pinnularia viridis ~~"fa. *30L*"~~ var. *fallax*	Plate 30, Fig. L
Pinnularia viridis "fa. *30M*"	Plate 30, Fig. M
Pinnularia viridis "fa. *30N*"	Plate 30, Fig. N
Pinnularia viridis ~~"fa. *Avoniana*"~~ var. *fallax*	Plate 30, Fig. P
Pinnularia viridis ~~"fa. *Berringtonia*"~~ var. *fallax*	Plate 30, Fig. A
Pinnularia viridis "fa. gentsiana"	Plate 30, Fig. C
Pinnularia viridis "fa. *truncata*"	Plate 30, Fig. G
Pinnularia viridis "var. *viridis*"	Plate 30, Fig. D
Pinnularia viridis var. *sudetica*	Plate 31, Fig. A

R

Rhoicosphenia curvata	Plate 9, Figs. A & B
Rhopalodia gibba	Plate 42^1, Fig. A
Rhopalodia gibba var. *ventricosa*	Plate 42^1, Fig. C
Rhopalodia parallela	Plate 42^1, Fig. B

S

Stauroneis acuta	Plate 14, Fig. B
Stauroneis agrestis	Plate 14, Fig. O
Stauroneis anceps	Plate 14, Figs. H & HH
Stauroneis anceps fa. *gracilis*	Plate 14, Fig. J
Stauroneis anceps fa. *linearis*	Plate 14, Fig. K
Stauroneis gracillima	Plate 14, Fig. F
Stauroneis Kreigeri fa. *undulata*	Plate 14, Fig. P
Stauroneis ~~lapponica~~ palustris	Plate 14, Fig. R
Stauroneis legumen	Plate 14, Fig. D
Stauroneis Montana?	Plate 14, Fig. Q
Stauroneis muralla (*Stauroneis ? thermicola*)	Plate 14, Fig. L
Stauroneis obtusa "fa. *rostrata*"	Plate 14, Fig. M
Stauroneis phoenicentron	Plate 14, Fig. A
Stauroneis producta	Plate 14, Fig. N
Stauroneis pygmeae	Plate 14, Fig. E
Stauroneis Smithii	Plate 14, Figs. C & CC
Stephanodiscus	Plate 2^A, Fig. C
Stephanodiscus astraea	Plate 2^E, Fig. A & Plate 2^A, Figs. A & B
Stephanodiscus Hantzschia	Plate 2^A, Fig. BB
Stephanodiscus Hantzschii	Plate 2^C, Figs. A, B, C, D, E
Surirella	Plate 61, Fig. B
Surirella "Alvecoti"	Plate 61, Fig. A
Surirella "Suttonia fa. *apiculata"*	Plate 59, Fig. TT
Surirella "Suttoniana"	Plate 59, Figs. S & SS
Surirella angustata	Plate 59, Figs. CC, O, PP & Q
Surirella biseriata	Plate 57, Fig. A
Surirella biseriata fa. *punctata*	Plate 57, Fig. D
Surirella biseriata var. *bifrons*	Plate 57, Fig. B
Surirella biseriata var. *constricta*	Plate 57, Fig. E
Surirella caproni	Plate 57, Fig. C
Surirella delicatissima	Plate 59, Fig. Z
Surirella elegans	Plate 59, Figs. G & H
Surirella gracilis fa. *obtusa*	Plate 59, Fig. F
Surirella Molleriana	Plate 59, Fig. T
Surirella Molleriana fa. *ovata*	Plate 59, Fig. BB
Surirella ovalis	Plate 60, Figs. W, Y^1, Y^3 & Y^4
Surirella ovata	Plate 60, Figs. A, U^1, U^2, UU & V
Surirella ovata "var. *alpha*"	Plate 60, Fig. ZZ

S (continued)

Surirella ovata "var. *minuta*"	Plate 60, Fig. YY
Surirella ovata fa.	Plate 59, Fig. QQ
Surirella ovata var.	Plate 59, Figs. P & R
Surirella ovata var. *crumens*	Plate 60, Fig. X
Surirella ovata var. *crumens* fa. *salina*	Plate 60, Fig. XX
Surirella ovata var. *pinnata* "fa. *alpha*"	Plate 59, Fig. RR
Surirella saxonica	Plate 61, Fig. DD
Surirella spiralis	Plate 62, Fig. A
Surirella tenera	Plate 59, Figs. M & N
Surirella tenera var. *nervosa*	Plate 58, Fig. L
Surirella tibetica	Plate 58, Fig. K
Syndera ulna var. *oxyrhynchus*	Plate 5, Fig. C
Syndera ulna var. *oxyrhynchus* fa. *contracta*	Plate 5, Fig. F
Synedra acus	Plate 5, Fig. H
Synedra acus var. *radians*	Plate 5, Fig. J
Synedra affinis	Plate 5, Fig. K
Synedra cyclopum	Plate 5, Fig. L
Synedra minuscula	Plate 5, Fig. D
Synedra parasitica	Plate 5, Fig. S
Synedra parasitica var. *subconstricta*	Plate 5, Fig. P
Synedra pulchella fa. *constricta*	Plate 5, Fig. N
Synedra pulchella	Plate 5, Figs. O & V
Synedra pulchella var. *minuta*	Plate 5, Fig. M
Synedra rumpens	Plate 5, Fig. Q
Synedra rumpens var. *fragilaroides*	Plate 5, Fig. R
Synedra ulna	Plate 5, Figs. A & T
Synedra ulna var. *Danica*	Plate 5, Fig. G
Synedra vaucheria	Plate 5, Fig. E

T

Tabellaria fenestrata	Plate 3, Figs. A, B, C
Tabellaria flocculosa	Plate 3, Fig. D

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 *Mastogloia* in Anglesey.
Vol. 29, p. 193	Fossil freshwater diatoms from the Harper River, South Island, New Zealand.
Vol. 29, p. 238	A note on *Nitzschia sigmoidea*.
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	*Hantzschia marina* (Donkin), Grunow.
Vol. 33, p. 44	Observations on the marine taxon known as *Pinnularia ambigua* (Cleave).
Vol. 33, p. 68	Observations of *Pinnularia nodosa*, Ehr.
Vol. 33, p. 242	A note on the taxon *Pinnularia microstauron* var-*brebissonii* (Kurtz) Hustedt.
Vol. 33, p. 305	*Pinnularia corminata* 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.

THROUGH THE MICROSCOPE

'Looking at' is not a passive recording of an image like a photograph being produced by a camera, but is an active process in which the observer is checking his perceptions against his expectations.

Many teachers will be familiar with the experience of helping pupils see what they 'ought' to see through a microscope. Children viewing a biological cell through a microscope for the first time produce drawings which show not only that some have difficulty identifying what are the significant features, but they painstakingly record irrelevant ones, such as air bubbles.

Driver (1983).

Appendix D
Horace George Barber (1908 – 1982)

Horace George Barber was born on the 1st 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 25th 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 14th 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 and impressed them with his draughtsmanship. 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.

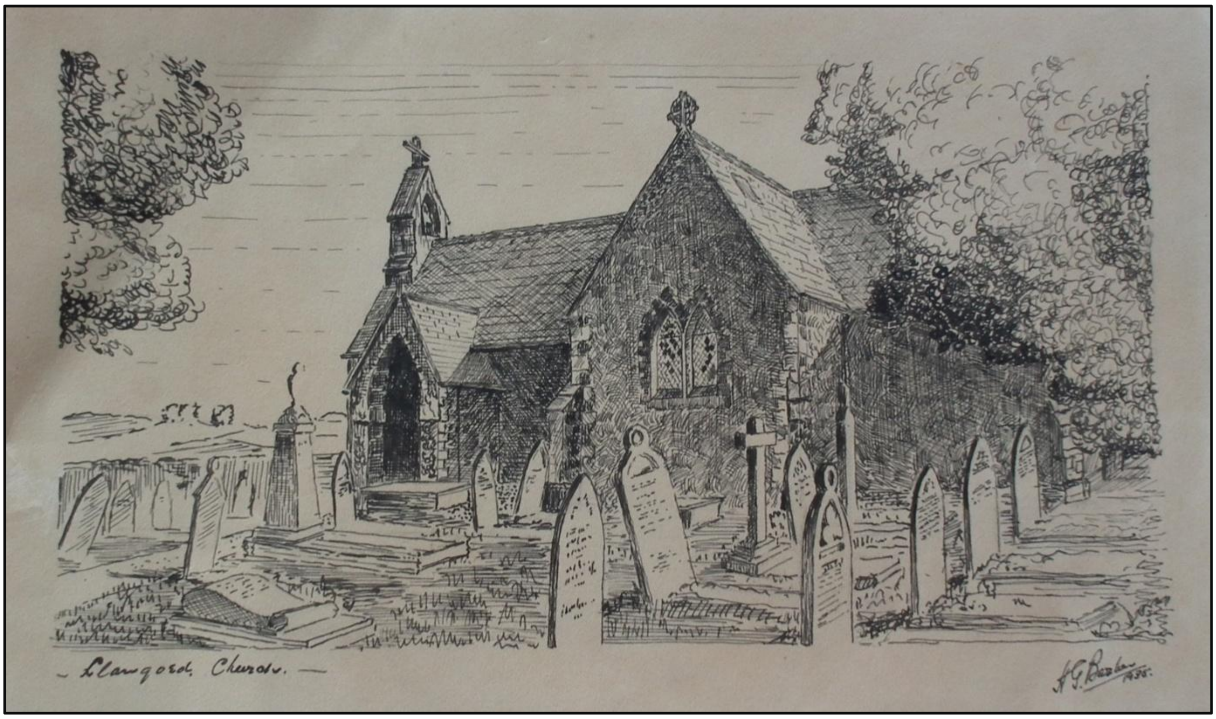
a	Anne-Marie Schmid
b	Debbie Oppenheim
c	Paul Smith (who kindly identified/confirmed the names of the individuals)
d	David George Mann
e	Roger Flowers
a	Maurice O. Moss
b	Klaus-Dieter Kemp
c	Patricia (Pat) Simms
d	Ann Smith
e	Marjorie Carter (wife of John R. Carter)
f	Theresa Gow
g	Mary Mitchell
h	Gill Lockett
i	Peter Boyd
j	Elizabeth (Liz) Y. Haworth
k	Anthony Peabody
l	Robert Ross (14th August 1912 – 2005)
m	Frank Round (1927 – 2010)
n	Horace George Barber (1st September 1908 – 1982)

a	Robert (Bob) Isaac Firth (8th October 1902 – 1982)
b	Barrie Paddock
c	Roger Flower
d	John R. Carter (1908 – 1993)
e	Martin Davey
f	Neil Roberts
g	Mishka Hogan-Guzowska
	The forehead between g & h belongs to Sarah Metcalfe
h	Roger McLean
i	Gwen Barber
j	Karen Serieyssol
k	Bernard Hartley (1917 – 2007)
l	John Anderson
m	Pieter Houpt
n	Tony Chamberlain
o	Samir Antoine
p	Richard (Dick) Crawford
q	Henry Hardin Gleave (13th April 1909 – 17th March 1990)

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

Horace was also an accomplished artist (other than the draughtsman skills used in his diatom illustrations) and a large number of his original work still survives. 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


Llangorsd Church.
H.G. Barker


Sweet Briar Hall, Hospital Street, Nantwich.
H.G. Barker June 1979.


H.G.B. 6/81.


Teal
H.G.Barber 3/80.

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 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 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 2nd from the left)

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

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 remoter 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.


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* (Kutz.) 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 enthusiatic 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) [illustrated below]

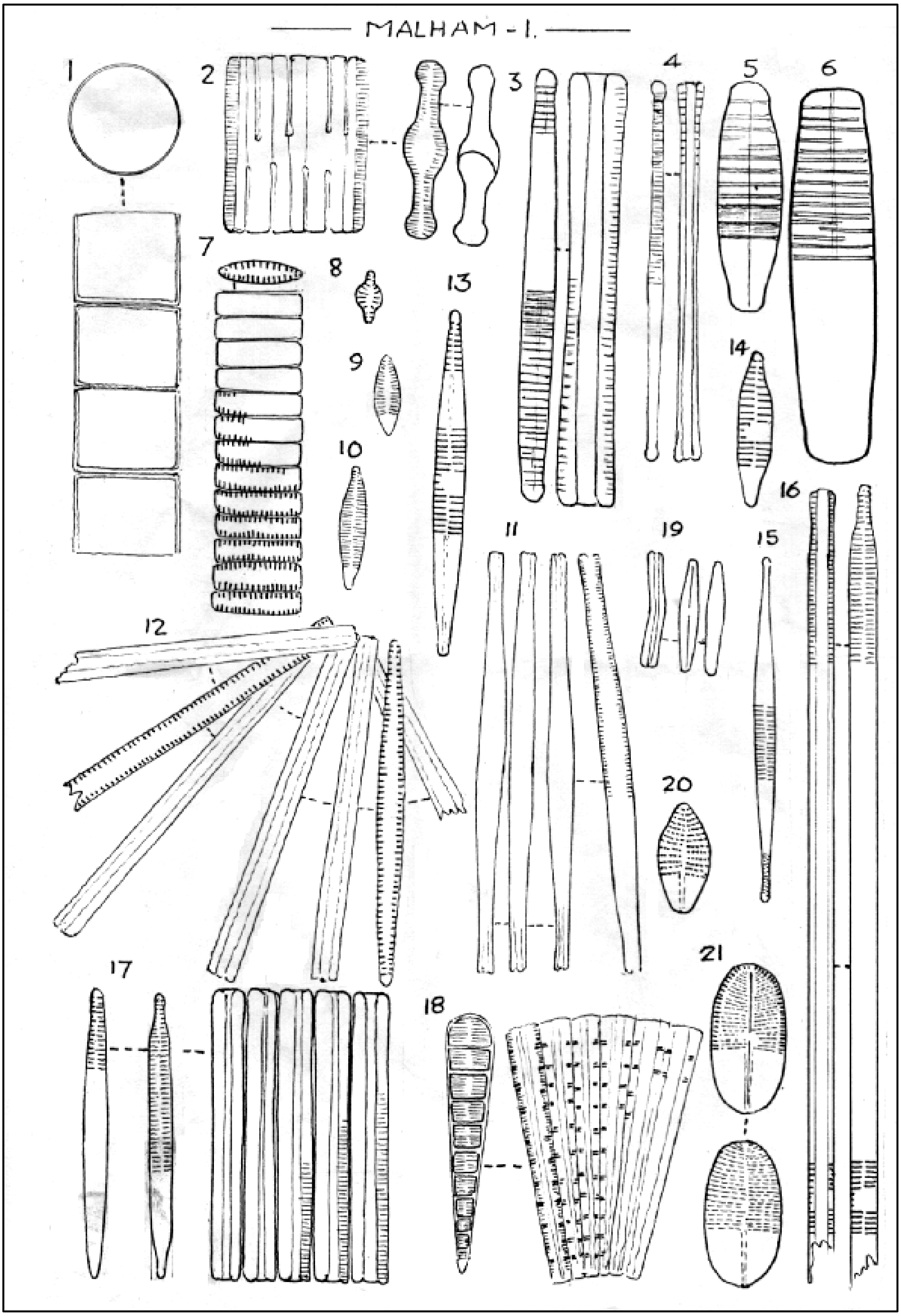
During the meeting of British diatomists held this year November 6th - 8th at Malham Tarn Field Centre opportunity was taken to gather from the shore of the Tarn.

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.

(Co-joined forms shew variation, valvar or girdle views.)

Figure plate 1.

1. Melosira varians Agardh. (Spring) Rare.
2. Tabellaria flocculosa (Roth) Kütz (Spring) Frequent
3. Diatoma vulgare v. grandis (Wm Sm) Grun. Massive.
4. " Elongatum Agardh Massive
5. " vulgare v. producta Grun. Few.
6. " " " ? auxospore form -
7. Fragilaria sp. ? var. venter (Ehr) Grun. occasionally in bands up to 1 mm long.
8. " construens (Ehr) Grun. one only seen.
9. " " v. venter (Ehr) Grun. fa. few.
10. " " " " fa "
11. " crotonensis Kitton A few stellate formations.
12. Synedra actinastroides Lemm. " " "
13. Fragilaria intermedia Grun few.
14. " " " fa. few
15. Fragilaria ~~Synedra~~ sp. ? gracillima Mayer. few.
16. Synedra " ulna (Nitz) Ehr. few.
17. Fragilaria construens v. subsalina Hust. Frequent.
18. Meridion circulare Agardh. (Spring) Few.
19. Achnanthes affinis Grun. Frequent
" microcephala (Kutz) Grun (not figured) "
20. " Clevei Grun. hypovalve only seen.
21. Cocconeis placentula (Ehr) Hust. (Spring only) rare.


MALHAM - I.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

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

Appendix F

Frank Herbert Oldaker F.S.M.C., F.R.O.A.

Frank Herbert Oldaker was born in 1914 in Birmingham. His professional career as an Optician was mostly conducted (50 years) at 30 Coton Road, Nuneaton and “Red Roofs”, 23 Coton Road, Nuneaton.
He was a member, together with Horace Barber, of a very small band of local enthusiasts called the Nuneaton Microscope Society.
When Horace died in 1982 he preserved the volume bearing the current title.
He died on the 28th December 2010.
A short time later his son, Joe Oldaker, was kind enough to pass the volume to the Editor.

Appendix G

Glossary of terms

From The Light Microscopist's Diatom Glossary

Acute {G}{F}

Latin. acutus - to sharpen.

A junction (usually an apex) whose internal angle is less than ninety degrees

Example:
On New Forms of Marine Diatomaceae by W. Gregory. (Navicula minor)
Form rectangular in the middle, accuminate at the ends, which are acute.

Alkaline {Hy}{E}

Has a pH greater than 7; in common usage, a pH of water greater than 7.4. See also Basic.

Example:
Diatoms in Alkaline, Saline Lakes: Ecology and Geochemical Implications (R. E. Hecky) [1973]
Six diatoms achieve dominance in 26 alkaline, saline lakes in East Africa. There is a pronounced tendency for these species to replace each other.

Alpha {F}

Greek.

The greek letter - used to distinguish like forms, possibly even forms that are transitory. See also Beta.

Example:
On Some New Species of Fresh-water Diatomaceae by W. Gregory. (Navicula lacustris)

Anterior {F}

Latin. ante - before.

Normally used to mean away from the axis. Also means to the front.

Example:
Pritchard's Infusoria
(Meridion)
...have a middle opening, as well as two anteriorly.

Apex, Apices {F}{G}

Latin. acutus - a tip.

In diatom terms an apex is generally taken to be a point on the margin though which the axis passes. However, some forms do not possess such an axis in which case an apex is the point at which a diatom contour turns through an acute angle producing a tip. An apex may also be a point at which a feature terminates. e.g. a raphe. Thus you can have four apices on a single raphe - two median apices and an apex at each end furthest from the central nodule.

Example:
(1) The Planktonic Diatoms of Northern Seas by M.V. Lebour.
(Rhizosolenia setigera)
Intercalary bands two long rows pointing towards the apex,...
(2) A Treatise on the Diatomaceae by Henri Van Heurck.
(Navicula Iridis)
Raphe with median apices curved...

Apiculate {G}

Latin. apex - the tip or top of a thing, the point or summit.

Having a short sharp point on an otherwise blunt end.

Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Mastogloia apiculata)
Valves oval or lanceolate-elliptical, with apices apiculate, obtuse.

Auxospore {P}

In combination. Greek. auxein - to increase, spora - a seed.

The name given to a cell formed by the sexual fusion (autogamy) of two cells. An auxospore may also be formed when a cell reaches its maximum size by purely vegetative processes. (The Auxospore may also be termed a Zygote)

Example:
The Planktonic Diatoms of Northern Seas by M.V. Lebour.
(Reproduction)
It is supposed that the main reason for auxospore formation is to bring the cells to a large size again...

Axes (pl.), Axis (sing.) {G}

Latin. axis.

Lines or line about which the parts of a figure are symmetrically or systematically arranged. In diatoms, however, the axis is perceived to be a line joining the two poles or apices in a pennate frustule or a line running through the centre of a centric valve to the margins on either side.

Example:
H.M.S. Challenger - Report on the Diatomaceae (Asterionella glacialis[referring to A. bleakleyii])
...the presence, on the zonal side, of two small symmetrical lines, which run in the direction of their long axes.

Axial Area {G}

Latin. axis - an axle, a broad plank. plus Latin. area - an open space.

The plain (hyaline) area between the raphe and the ends of any transverse striae. In some of the older literature this area may be referred to as the pseudoraphe (when considering the araphid diatoms)

Example:
A Treatise on the Diatomaceae by Henri van Heurck.
(Stenoneis genus)
Transverse striae fine. Axial area indistinct.

Bifid {F}

In combination. Latin. bi - twice,. findere - to cleave or split.

Cleft in two.

Example:
A Treatise on the Diatomaceae by Henri van Heurck.
(Syndetoneis genus)
The horn of one of the valves with its apex dilated, somewhat bifid;...

Carinal Dots {F}

Latin. carina - a keel. plus Dutch. dot - tuft.

See Keel Punctae.

Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Nitzschia thermalis)
...round carinal dots, the two median of which are somewhat distant.

Costae (pl.), Costa (sing.) {F}

Latin. costa - a rib, a side, a wall.

Siliceous thickenings in the valve. Usually appearing as double lines. Most often appearing towards the margins. Sometimes ribs.

Example:
On New Forms of Marine Diatomaceae by W. Gregory.
(Pinnularia rostellata)
Costae strong, subdistant, inclined near the ends...

Diatom

In combination. Greek. dia - through. Greek. temnein - to cut. Also Greek. diatomos - cut through.

Microscopic unicellular alga with an external skeleton of silica

Example:
A Treatise on the Diatomaceae by Henri van Heurck.
(Introduction)
Each individual diatom consists of a single membranous cell...

Dilated {F}

In combination. Latin. dis - apart. Latin. latus - wide. Also Latin. dilatus.
Expanded and flattened.
Example:
H.M.S. Challenger - Report on the Diatomaceae (Synedra capitulata)
Its extremeties are dilated and rounded, and the valve is surrounded by...

Excentric {F}

In combination. Greek. ek - out of. Greek. kentron - centre.
A circle or similar being off centre in relation to another feature.
Synonymous with Eccentric.
Example:
H.M.S. Challenger - Report on the Diatomaceae (Pleurosigma thaitiense)
The flexion is moderate, and the central raphe becomes decidedly excentric towards the ends.

f., form, forma

Latin. forma - form of
This abbreviation or word is used to describe a simple but consistent divergence from the norm when giving a name to a particular occurence of a species.
Example:
New and Rare Diatoms from Oregon and Washington
by H.E. Sovereign.
Stenopterobia intermedia form undulata.

Fibulae (pl.), Fibula (sing.) {F}

Latin. fibula - a clasp, buckle, pin, latchet, brace etc.
A siliceous area that forms a bridge between areas of the valve on either side of the raphe.
Example:
The Morphology of the Diatom Frustule
by H.G. Barber & E.Y. Haworth (Cymbellonitzschia)
...supported by bars (keel puncta or fibulae).

Frustule {F}

Latin. frustum - A piece, bit (possibly) else frustulentus - full of small pieces.
An entire siliceous diatom 'case'. Two valves plus girdle bands.
Example:
H.M.S. Challenger - Report on the Diatomaceae (*Diatoma rhombicum*)
Frustules small, about .0006 in length.

Genus {P}

Latin. genus - kind.
A category (qv) for a taxon including one species or a group of species, of common phylogenetic origin, separated from related similar units (genera) by a decided gap, the gap being in inverse ratio to the size of the unit (genus) (sometimes).

Ghost Striae {F}

Old English. gast. plus Latin. stria - a furrow, groove or channel.
A faint striate line.
Example:
The Morphology of the Diatom Frustule
by H.G. Barber & E.Y. Haworth Ghost striae (the faint continuation of the striae across the valve).

Habitat {H}{Hy}{O}{E}

Latin. dwells.
Ecology: Living place of an organism, defined by its location and physical, chemical and biological properties.
The part of the physical environment where plants and animals live.

Hyaline {F}

Latin. hyalus - glass.
A region of thickned silica.Often bearing no features but not necessarily so.

Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(*Navicula cancellata*)
Rahpe surrounded by a narrow hyaline zone, somewhat enlarged near the central nodule.

Incurved {F}

Latin. incurvare - to end in.
To curve inwards.
Example:
British Diatomaceae by Arthur Scott Donkin.
(*Navicula abrupta*)
...unstriated area narrow, incurved in the middle and at the extremities...

Inflated {F}

In combination. Latin. in - into. Latin. flamma - a flame.
Swollen.
Example:
British Diatomaceae by Arthur Scott Donkin.
(*Navicula integra*)
Valve elliptical-lanceolate, slightly inflated in the middle and suddenly constricted into produced,...

Keel {F}

Dutch. kiel - ship and Olde English. keel - ship.
A projection of silica from the valve surface that contains the raphe.
Usually in line with or approximating to the apical axis.
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(*Navicula bilobata*)
Keel almost central, with carinal dots...

Keel Punctae {F}

Dutch. kiel - ship and Olde English. keel - ship. plus Latin Punctum;Punctus – a prick, small hole or puncture. a point or a dot made in a waxen tablet as the sign of a vote.
Pores, or membranes that give the appearance of pores in the plate underlying the Canal Raphe. Called 'Carinal Dots' by some. They are usually quite conspicuous but are limited to a few Genera. See also Fibulae.
Example:
The Morphology of the Diatom Frustule
by H.G. Barber & E.Y. Haworth (Cylindrotheca)
...crossed by supporting bars or "keel puncta".

Lanceolate {G}

Latin. lancea - a lance.
Wide in the middle, tapering at the ends. Lance Head Shaped. Technically
- Narrow, subparallel margins, tapered toward apex.
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(*Plagiogramma vanheurckii*)
Valve narrowly lanceolate, with apices generally somewhat rostrate capitate,....

Linear, Lineate {G}

Latin. linearis - pertaining to or consisting of lines.
Long and Narrow with parallel sides.
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Navicula rectangulata)
Valve linear, with apices broadly rounded...

Lyrate, Lyriform {G}{F}

Greek. lyra.
Lyre-shaped. (having the terminal lobe much larger than the lateral ones.)
Example:
On New Forms of Marine Diatomaceae by W. Gregory.
(Navicula lyra)
...thus forming, in the entire valve, two lyrate shapes united by their bases.

Margin {F}

Latin. marginis.
The edge of the valve face (in most cases)
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Auliscus sculptus)
In this space arise four other series of plicae, of which the two bearing the ocelli radiate from them towards the centre of the valve, while the two others radiate from the centre towards the margin of the valve.

Median Line {F}

Latin. medianus - middle. plus Latin. linea.
A physical or implied line (not necessarily straight) running through the middle of a frustule, but not a necessarily a raphe. See also Sagittal Axis
Example:
Synopsis of the British Diatomaceae by W. Smith.
(Cocconeis Thwaitesii)
...valve constricted towards the obtuse extremities; median line sigmoid; disc faintly striated...

Navicular or Navicula-Shaped {G}

Latin. navicula - a small boat, skiff.
Boat Shaped.
Example:
Pritchard's Infusoria (Syncyclia)
...a double envelope; inner one, or lorica, siliceous, Navicula-shaped;...

Naviculoid {G}

Latin. navicula - a small boat, skiff.
See Navicular.
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Cymbella aequalis)
Valve lanceolate, almost naviculoid, with dorsal margin regularly arcuate,...

Nodule, Noduli, Nodulus {F}

Latin. nodus - a knot.
A small knob of silica usually at the central node or at the poles (raphe ends at the apices) but has been used to describe features anywhere on the frustule.
Example:
H.M.S. Challenger - Report on the Diatomaceae (*Navicula decipiens*)
It is to be noted, however, that the two noduli are not at the same level,...

Obscure {F}

In combination. Latin. ob - over. Greek. skeue - covering.
Indistinct.
Example:
On New Forms of Marine Diatomaceae by W. Gregory.
(*Coscinodiscus puntulatus*)
It is marked by very fine and obscure lines...

Obtuse {F}{G}

Latin. obtusus.

In diatom terms this most often means blunt or at least not pointed. In geometric terms an internal angle greater than 90 degrees.

Example:
H.M.S. Challenger - Report on the Diatomaceae (*Synedra philippinarum*)
The extremeties are linear and obtuse, and the striae are transverse and continuous.

Ocelli (pl.), Ocellus (sing.) {F}

Latin. ocellus - little eye or eyelet.

A thickened disc or plate of silica that has no features on its rim but is perforated with numerous densely packed pores, areolae or porelli.

Example:
Note on Diatoms by F.B. Taylor.
(Structure and Markings - 65)
...has two small ocelli at the ends of a longitudinal hyaline space...

pH {P}

A number used to represent a degree of alkalinity or acidity. This number was at one time the log to base10 of the reciprocal of the concentration of hydrogen ions. i.e. Potential Hydrogen. However, it is now related by formula to a standard measured solution of potassium hydrogen phthalate - standard value 4 at 15 degrees Celsius.

Example:
Freshwater Algae - Their Microscopic World Explored
by H. Canter-Lund & J.W.G. Lund.

Parallel {F}{G}

Greek. parallelos.

Extended in the same direction and equidistant at all points. Usually used when describing striae and margins.

Example:
On New Forms of Marine Diatomaceae by W. Gregory.
(*Amphora binodis*)
The inner lines run nearly parallel to the outer margins...

Pennate(ae) {G}

Latin. penna - a feather.

One of the two orders of diatoms. See also Centricae.

Symmetrical about a long axis

Example:
The Biology of the Algae by F. E. Round.
This may indicate that the Centric group is older than the Pennate group,...

Produced {G}{F}

In combination. Latin. pro - forward. Latin. ducere - to lead.

A feature that is some way extended, usually becoming prominent.

Example:
On New Forms of Marine Diatomaceae by W. Gregory.
(Navicula lyra var. abrupta)
I have hardly ever seen it with contracted and produced ends, as is so often observed in N. Lyra.

Pseudo -

Greek. pseudes - false.

Prefix meaning false.

Example:

Punctae (pl.), Puncta (pl. & sin.), Punctum (sing.), Punctate {F}

Latin punctum;punctus - a prick, small hole or puncture. a point or a dot made in a waxen tablet as the sign of a vote.

Spots or dots on the valve and girdle bands.

```
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Cymbella cymbiformis)
Raphe surrounded by a narrow hyaline zone, slightly inflated near the central
nodule, and showing there is an isolated punctum, unilateral.
```

Radial Lines {F}

Late Latin. radialis. plus Latin. linea.

Lines of silica or pores etc that radiate from the central nodule towards the rim.

```
Example:
Simbirsk Diatoms by Otto N. Witt
(Lepidodiscus elegans)
...the whole radial lines are divided into two horizontal systems.
```

Radial Striae {F}

Late Latin. radialis. plus Latin. stria - a furrow, groove or channel.

Lines of pores that radiate from the centre towards the margins.

```
Example:
Simbirsk Diatoms by Otto N. Witt
(Triceratium nobile)
The strong dots of the markings form in the middle a ring of radial striae.
```

Raphe {F}

Greek. rhaphe - a seam.

A slit in the valve which has now been associated with movement.

```
Example:
New and Rare Diatoms from Oregon and Washington
by H. E. Sovereign.
(Pinnularia subpalousiana)
Raphe straight, threadlike, central pores bent to one side...
```

Raphe Terminal {F}

Greek. rhaphe - a seam.plus Latin. terminus - end

A point at which the raphe stops.

```
Example:
Morphology and taxonomy of Amphicocconeis gen. nov.  (M. de Stefano) [2003]
However, the genus Psammococconeis lacks the raphe terminal fissures, ...
```

Reservoir {Hy}{H}

A man-made facility for the storage, regulation and controlled release of water.

```
Example:
Diatom succession in an urban reservoir system (C. M. Donar) [1996]
Prior to the establishment of the reservoir, the diatom flora was dominated
by...
```

Rhaphe {F}

Greek. rhaphe - a seam.

See Raphe.

```
Example:
Marine Diatoms of the Philippine Islands by A. Mann.
(Navicula bigemmata)
...a distinct line running on each side of the rhaphe,
in general midway...
```

Ribs {F}

Old English. ribb.

Hyaline areas between the apical axis and the margin. Often used to describe the hyaline areas parallel to the apical axis or between other features. See also Raphe Ribs.

```
Example:
On a Fossil Marine Diatomaceous Depositfrom Atlantic
City, N.J. by C. Henry Kain and E. A. Schultze
(Actinodiscus Atlanticus)
Near the circumference each ray has a strong rib extending for a short distance
along its centre.
```

Rim {F}

Old English. rima.

A hyaline area at the margin, as seen in valve view, that runs the circumference of the valve.

```
Example:
Simbirsk Diatoms by Otto N. Witt
(Aulacodiscus lahuseni)
The flat circular shield bears near the rim a ring-shaped elevation.
```

Rostrate {G}

Latin. rostratus - having a beak or crooked point, beaked, curved.

Beaked or narrowly protracted.

```
Example:
A Treatise on the Diatomaceae by Henri van Heurck.
(Navicula subcapitata)
...somewhat attrenuated at the median portion, with
apices rostrate, gently sub-capitate...
```

Rostrum (sing.), Rostra (pl.) {F}

Latin. rostrum - a beak.

A beak.

```
Example:
Pritchard's Infusoria (Navicula fulva)
...near the ends, the shell is slightly produced in the form of a rostrum.
```

Septa(e) (pl.), Septum (sing.) {F}

Latin. septum - an inclosure, a hedge, fence, barrier, or wall.

A piece of silica that projects from a girdle band into the cell thereby dividing the cell into compartments. See also Diaphragm. See also Annuli.

```
Example:
H.M.S. Challenger - Report on the Diatomaceae (Grammatophora stricta)
...the septa are not so straight, and at the polar extremities...
```

Spine, Spiny {F}

Latin. spina - a thorn.

A process that extends outward terminating in either a blunt or sharp tip.

```
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Hemiaulus genus)
...furnished with processes, often elongated, generally straight, placed on the
outer margin in girdle view and tipped with a spine or mucro...
```

Stauros {F}

Greek. stauros - cross.

A hyaline region which extends from the central nodule to the nearest margin e.g. broadly Cruciform shape.

```
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Stauroneis Reinhardtii)
Raphe surrounded by a narrow hyaline zone, dilated in form of stauros round the
central nodule;...
```

Stout {F}

Old French. estout.
Robust, strong.
Example:
A Treatise on the British Freshwater Algae
by G.S. West & F.E. Fritsch.
(Tabellariaceae)
Frustules stout, tabular in girdle-view...

Striae (pl.), Stria (sing.) {F}

Latin. stria - a furrow, groove or channel.
A line of pores, punctae, spots or dots.
Example:
A Treatise on the Diatomaceae by Henri Van Heurck.
(Anaulus debilis)
...transverse costae, finely striate, striae forming transverse lines.

Striae Frequency {F}

Latin. stria - a furrow, groove or channel. plus Latin. frequens - to stuff.
The number of striae that exist in a given measurement.
Example:
Conspectus of the Families and Genera of the
Diatomaceae - The lens.
(Amphora ventricosa)
Striae frequency about 22 in .001".

Striated, Striation {F}

Latin. stria - a furrow, groove or channel.
Bearing striae.
Example:
Pritchard's Infusoria
(Synedra capitata)
...striated, straight and...

Terminal Fissure {F}

Greek. terma - end. plus Latin. fissum - to cleave.
A hole or slit in the terminal (polar) nodules.
Raphe ends, terminal pores, polar terminals.
Example:
(1) A Treatise on the British Freshwater Algae by G.S. West & F.E. Fritsch.
...and cytoplasm can pass from it into the terminal fissure as so into the outer fissure of the raphe.
(2) The Diatomaceae of Philadelphia and Vicinity by C.S. Boyer. (Pinnularia blandita)
...median line with small semicircular terminal fissures.

Terminal Pore {F}

Latin. terminus. Also Greek. terma - end. plus Greek. poros - a passage.
Raphe ends, terminal pores, polar terminals.
Example:
New and Rare Diatoms from Oregon and Washington
by H. E. Sovereign.
(Pinnularia subpalousiana)
Raphe straight, threadlike, central pores bent to one side and terminal pores toward the same side...

Truncate {G}

Latin. trunco - to shorten by cutting off, cut short.
Having ends that are squared or even.
Example:
Pritchard's Infusoria (Eunotia turgida)
...has a semi-lanceolate lorica, truncated at the ends, and striated;...

Tumid {G}

Latin. tumeo - to swell, be bloated, swollen.

Swollen.

Example:

A Treatise on the British Freshwater Algae
by G.S. West & F.E. Fritsch.
(Cymbella)
...ventral margin slightly convex or concave and in the latter case generally tumid in the middle;...

Turgid {F}

Latin. turgere - to swell.

Swollen.

Example:

Pritchard's Infusoria
(Navicula trinodis)
...having a slight turgidity at the middle of one side.

Type-form {P}

Greek. typos - model. plus Latin. forma - shape.

This normally refers to the species from which the variety or form is derived.

Example:

A Treatise on the Diatomaceae by Henri Van Heurck.
(Asterionella formose v. gracillima)
Valves much narrower than in the type-form.

v. var.

Latin. varietas - various.

An abbreviation of Variety.

Example:

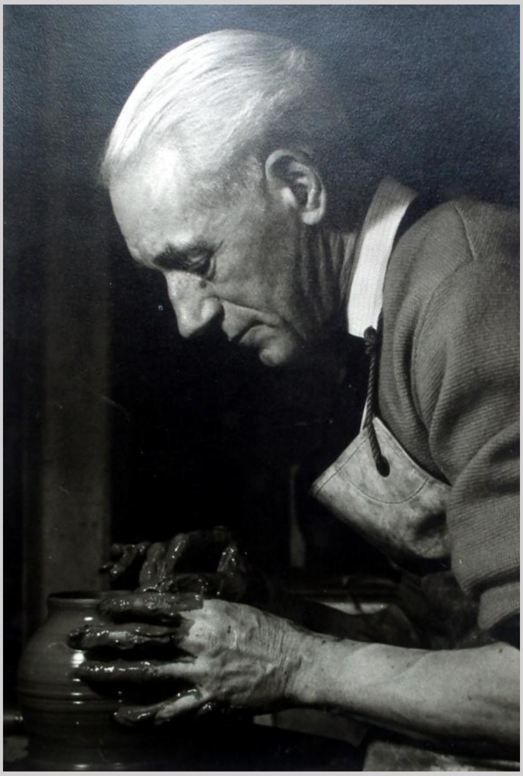
Valve {F}

Latin. valvae - leaves or folds.

One of the pair of components that make up the pill-box frustule. See Hypovalve and Epivalve.

Example:

On New Forms of Marine Diatomaceae by W. Gregory.
(Amphora laevis)
...rising from the inner angle of the valve, and following the margin outwards...



Horace George Barber (1908 – 1982)

Front cover illustrations:

Horace outside 91 Mancetter Road, House name plate, Plate 29, Watercolour by Horace, Horace's signature

Back cover illustrations:

Glazed pot made by Horace, Horace at the potter's wheel