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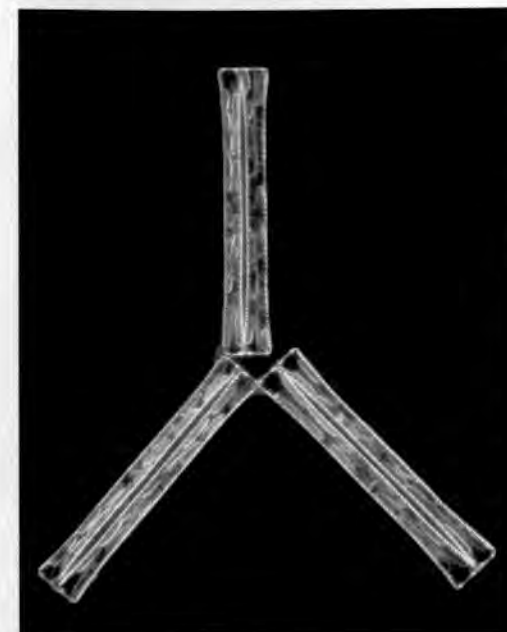
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Little Imp Publications



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Asterionella by Carel Sartory

Letter to the Editor

Dear Editor,

I just finished reading the Vol II, No I issue of The Amateur Diatomist, and enjoyed it thoroughly.

I see your note on wanting old mountants, and the article on Arochlor, and on Visibility Index, all of which reminded me of a site I visited recently, and can recommend to you; it is PhychoTech, at www.phycotech.com.

They have a Sedgwick-Rafter Counter, whose cell is made of ceramic, and it has a gridded bottom. They also have a Nannoplankton Counting Chamber, also made of ceramic. Both of these are excellent for making quantitative determinations of Diatoms, and other algae and plankton. I have even used them to quantify turbidity.

In addition, however, they offer Naphrax, which has a refractive index of about 1.74. What is especially unusual is that they offer it in quantities up to 1 kg! 30ml is US\$32, 200ml is US\$ 255, 1kg is US\$ 890!

Incidentally, we used Arochlor 5442 for mounting the 2000+ particles in The Particle Atlas, a photomicrographic atlas of dust particles of various kinds. We also use(d) Arochlor 1260 for "crystal rolling" - orienting a crystal in a particular orientation for quantitative conoscopy. Arochlor 5460 was used for field work, as it could be dispensed in dry flakes, and melted using a match.

Best Wishes,

John Delly

Old Papers - Revisited

In this series of articles we will reproduce some hard to find papers from years gone by.

OBSERVATION ON DIATOMACEAE FROM THE
NEIGHBOURHOOD OF HERTFORD by Isaac Robinson

There was an Isaac Robinson, Member of the Wesleyan Scientific Society 1888 and 1889.

Transactions of the Hertfordshire Natural History Society 1883 -
'Notes on a Microscopical Aquarium' by Isaac Robinson.

From the 1881 Census:-

The Wash, Hertford St Andrew, Hertford, England

Isaac ROBINSON M 42 M Godalming, Surrey, England Rel: Head Occ: Draper & Outfitter

Celia ROBINSON M 41 F Chelmsford, Essex, England Rel: Wife

Hugh DARTON U 12 M West Hackney, Middlesex, England Rel: Nephew Occ: Scholar

Phoebe SKINNER U 17 F Ware, Hertford, England Rel: Servant Occ: Servant (Cook)

Caroline LANE U 19 F Gt Hadham, Hertford, England Rel: Servant Occ: Servant Housemaid

Eliza HUMPHREYS U 34 F Manafon, Montgomery, Wales Rel: Attendant Occ: Servant Attendant



OBSERVATIONS ON DIATOMACEÆ FROM THE NEIGHBOURHOOD OF HERTFORD.

By ISAAC ROBINSON.

ABOUT three years ago I read a short paper on the Diatomaceæ* with particular reference to the species found in our own county. Since that time Mr. Francis Ransom has contributed a paper on the same subject,† which, however, dealt principally with the nature and habits of these organisms. It might therefore be considered that a third paper was superfluous at the present time. My apology, however, must be that I have been enabled to make considerable additions to the list of local species, and that some facts of an interesting character, in reference to the distribution and reproduction of the Diatomaceæ, have come under my notice.

Diatoms are characterised by the possession of silicious epiderms which usually consist of two symmetrical valves and a connecting hoop, the three parts together enclosing the living substance of the organism. This living substance consists of a mucilaginous fluid, invested in a membranous sac or covering, in which float the granules of endochrome, giving to the living frustule a golden-brown colour. This unicellular constitution of the organism appears to be one of great simplicity, and it never ceases to my own mind to be a subject of wonder how it is enabled to produce those beautiful frustules which are the delight of the microscopist; which, whether circular, oval, hexagonal, oblong, or otherwise, are so marvellously perfect; and which, with all their delicate design and tracery, are formed of a material of so indestructible a character as well-nigh pure silica.

The Diatomaceæ are found in fresh water, in brackish water, and in the sea, much the larger number being fresh-water and marine forms. Our own county, as a matter of course, only affords examples of the fresh-water species. The number of these found in Great Britain, as recorded by Professor Smith,‡ was 238, and some others have, since the publication of his work, been added by other observers. The number of species recorded as found in our own county up to the present time is about 150, nearly the whole of which have been found near Hertford, although many of them have been also recorded from elsewhere. A list of the species is appended. Two species, which are not included in the list, may be mentioned here, for, though they must be regarded as absentees from our own county so far as present observation has gone, they have been found not far distant from its boundaries. One is *Asterionella formosa*, found in the canal of the East London Water Works near Lea Bridge, and the other is *Gomphonema geminatum*, found in Epping Forest.

* 'Trans. Herts Nat. Hist. Soc.,' Vol. III, p. 1.

† *Ib.* p. 197.

‡ 'Synopsis of the British Diatomaceæ,' 1853-56.

One species included in the local list—*Achnanthes inflata* (Grunow) = *Monogramma ventricosa* (Ehr.) = *Stauroneis inflata* (Kütz.)—is a very rare form, and appears to have been found only once previously in Great Britain. I first discovered it in September, 1882, on moss (*Hypnum riparium*) growing in the River Lea, on a stone step by my own garden at Hertford. I found it again in July, 1885, under exactly the same conditions, but recent searches for it have proved fruitless. Some of the specimens were identified by Mr. Kitton of Norwich, who mentions it in his list of the Diatomaceæ of Norfolk as *Achnanthes ventricosa* (Ehr.), and who informs me that he once found it in some moss-washings in that county, and that he was not aware of any other British habitat. It has been found plentifully in New Zealand.

I met with another species of *Achnanthes* in October, 1883, which I then considered to be *Achnanthes subsessilis*. On a more careful examination, however, it did not appear to coincide clearly with any described species, and it was afterwards thought by Mr. Kitton to be what he termed a "starved condition" of *Achnanthes coarctata*. It was growing, at the time I found it, on a large flower-pot containing a plant of *Agapanthus umbellatus*, in my garden at Hertford. I found it subsequently, in September, 1885, growing on the same flower-pot, where I believe it still continues to flourish.

Another instance of the localisation of a particular form is afforded in the case of *Denticula sinuata*, a species mostly found in mountainous districts. I have repeatedly found it growing in a small pond near Penbridge Lane, but never elsewhere in the county.

The distribution of the Diatomaceæ is much assisted by the swollen condition of our streams and rivers after heavy rain, and in many cases they contribute an appreciable proportion of the muddy colouring matter which the rivers contain. On the 8th of April, 1886, I took from the River Lea at Hertford, for the purpose of microscopical examination, one pint of water. The water was at the time much discoloured in consequence of there having been a considerable rainfall on the previous day, amounting to nearly half an inch. On carefully examining the solid matter contained in this small quantity of water, I was surprised to find upwards of fifty species of Diatomaceæ, some of which were very numerously represented. I should state that these were not such as were simply floating on the river, but that, after agitating the surface of the water, the bottle was filled by placing its neck several inches below the surface. This distribution is further facilitated by dry dust in summer, and by what are known as dust storms, in the solid matter of which Ehrenberg detected upwards of a hundred species.

The usual mode of increase of the Diatomaceæ is by the process of self-division, by which one frustule becomes two frustules. This is accomplished by the division of the cell-contents into two portions, each one of which commences forthwith the formation of a new

valve internally. When this is completed the two portions separate, each possessing one old and one new valve, and thus two perfect plants take the place of the original one. By each of these the process is continued, and therefore the increase of numbers proceeds in a constantly augmenting proportion. The exact time occupied in this process of self-division is not known, but probably under favourable circumstances it proceeds very rapidly. It is not, however, regarded as one of true reproduction, but is considered to be more analogous to that of gemination. It would appear also that it cannot be continued indefinitely, but that, after a time, probably from the exhaustion of the vital energy of the plant, a process of sporangial reproduction intervenes. The instances in which this latter stage has been observed are, however, comparatively rare, and very little is known definitely with regard to it. Professor Smith, in 1856, enumerated thirty-two species in which it had been observed, and O'Meara stated, in 1875, that twenty-eight others had in the interval been added to the list. The precise method adopted in the formation of the sporangia appears to vary in different species, but the general characteristic of the process is the production of greatly enlarged frustules, resulting from the union of the cell-contents of the parent frustules. These enlarged frustules are doubtless the parents of a new generation, but much careful observation and study are still required to trace the process satisfactorily throughout. One of the subsequent stages appears to be the production of cysts, containing many young specimens closely packed together, which on arriving at maturity doubtless separate and start in life on their own account. Although such examples are rare, I have been so fortunate as to meet with a few instances in our own locality, which illustrate different stages of this sporangial development. Perhaps the most interesting of these occurred in October last, when I found in a broad ditch in the King's Meads, about midway between Hertford and Ware, a large number of very perfect specimens of the sporangia of *Cymbella Ehrenbergii*. This species is not included in Smith's list of observed species, and I am not aware that it has previously been met with. The sporangial frustules were much larger than their usual size, and much more nearly approached a symmetrical form.

In April, 1886, I found in some material taken from the River Beane, on Waterford Marsh, a large number of cysts of *Cymatopleura apiculata*. Some of these contained a considerable number of young specimens, in various stages of development, and of various sizes. In the smaller specimens the wavy outline peculiar to this species was not apparent, although it was clearly shown in the larger ones. One characteristic of these cysts, which struck me as very peculiar, was the association of frustules of different genera in the same cyst. Thus I found that *Cymatopleura apiculata* was in very many instances associated with a small *Surirella*—probably *S. crumena*—and, from the number of examples which I observed, I think the association could not have been purely accidental. I also found a number of similar specimens amongst some

material subsequently collected, in the following June, in the same locality, which, in addition thereto, contained a number of large cysts of *Synedra Ulna*. In the same collection I also found examples of the sporangial development of several other species, amongst which were *Gomphonema constrictum* and *Pinnularia viridula*, and also some singular specimens of *Odontidium mutabile*, the constituent frustules of the filaments of which were of very unequal size. This condition is a most unusual one, as the filaments are generally of uniform width throughout, even if of considerable length. I can only account for it on the supposition that they were the result of sporangial development.

With reference to the uses of the Diatomaceæ, and the place which they occupy in the economy of Nature, we appear to have but little knowledge. We cannot doubt but that they accomplish some useful purpose. Aggregated in numbers that defy all efforts of numerical computation, it is possible that by the absorption of carbonic acid and the production of oxygen, they may do much to maintain the purity of the waters in which they are found.

LIST OF HERTFORDSHIRE DIATOMACEÆ.

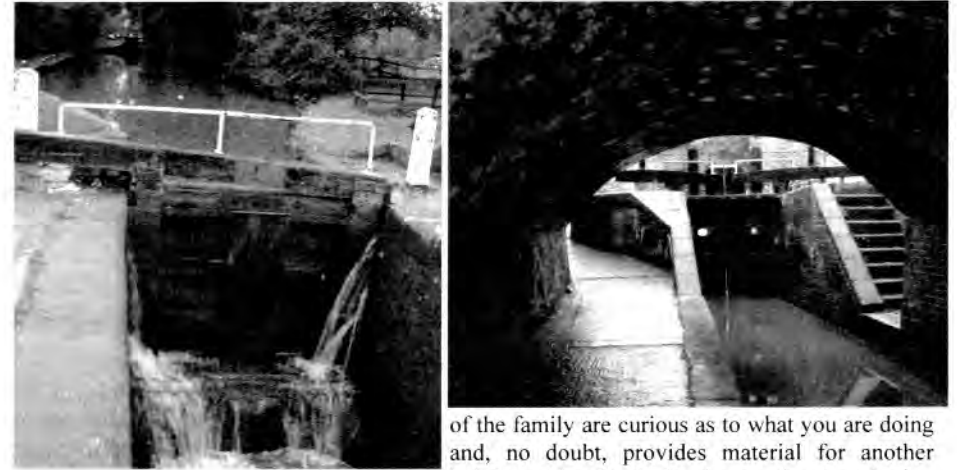
<i>Epithemia turgida</i> , <i>W. Sm.</i>	<i>Cymatopleura Solea</i> , <i>W. Sm.</i>
„ <i>granulata</i> , <i>Kutz.</i>	„ <i>apiculata</i> , <i>W. Sm.</i>
„ <i>alpestris</i> , <i>W. Sm.</i>	„ <i>parallela</i> , <i>W. Sm.</i>
„ <i>Sorex</i> , <i>Kutz.</i>	„ <i>elliptica</i> , <i>W. Sm.</i>
„ <i>Westermanii</i> , <i>Kutz.</i>	<i>Nitzschia sigmoidea</i> , <i>W. Sm.</i>
„ <i>gibba</i> , <i>Kutz.</i>	„ <i>linearis</i> , <i>W. Sm.</i>
„ <i>ventricosa</i> , <i>Kutz.</i>	„ <i>tenuis</i> , <i>W. Sm.</i>
„ <i>Zebra</i> , <i>Kutz.</i>	„ <i>Amphioxys</i> , <i>W. Sm.</i>
<i>Eunotia Arcus</i> , <i>W. Sm.</i>	„ <i>vivax</i> , <i>W. Sm.</i>
<i>Cymbella Ehrenbergii</i> , <i>Kutz.</i>	„ <i>dubia</i> , <i>W. Sm.</i>
„ <i>cuspidata</i> , <i>Kutz.</i>	„ <i>acicularis</i> , <i>W. Sm.</i>
„ <i>ventricosa</i> , <i>Kutz.</i>	„ <i>plana</i> , <i>W. Sm.</i>
<i>Amphora ovalis</i> , <i>Kutz.</i>	„ <i>palea</i> , <i>W. Sm.</i>
„ <i>minutissima</i> , <i>W. Sm.</i>	<i>Aniphleura pellucida</i> , <i>Kutz.</i>
<i>Cocconeis Pediculus</i> , <i>Ehr.</i>	<i>Navicula crassinervia</i> , <i>De Bréb.</i>
„ <i>placentula</i> , <i>Ehr.</i>	„ <i>serians</i> , <i>Kutz.</i>
<i>Cyclotella Kutzingiana</i> , <i>Thw.</i>	„ <i>cuspidata</i> , <i>Kutz.</i>
„ <i>operculata</i> , <i>Kutz.</i>	„ <i>rhynchocephala</i> , <i>Kutz.</i>
„ <i>Rotula</i> , <i>Kutz.</i>	„ <i>firma</i> , <i>Kutz.</i>
<i>Campylodiscus costatus</i> , <i>W. Sm.</i>	„ <i>ovalis</i> , <i>W. Sm.</i>
„ <i>spiralis</i> , <i>W. Sm.</i>	„ <i>minutula</i> , <i>W. Sm.</i>
<i>Surirella biseriata</i> , <i>De Bréb.</i>	„ <i>affinis</i> , <i>Ehr.</i>
„ <i>linearis</i> , <i>W. Sm.</i>	„ <i>inflata</i> , <i>Kutz.</i>
„ <i>splendida</i> , <i>Kutz.</i>	„ <i>gibberula</i> , <i>Kutz.</i>
„ <i>nobilis</i> , <i>W. Sm.</i>	„ <i>amphirhynchus</i> , <i>Ehr.</i>
„ <i>craticula</i> , <i>Ehr.</i>	„ <i>producta</i> , <i>W. Sm.</i>
„ <i>ovalis</i> , <i>De Bréb.</i>	„ <i>ambigua</i> , <i>Ehr.</i>
„ <i>angusta</i> , <i>Kutz.</i>	„ <i>amphisbæna</i> , <i>Bory.</i>
„ <i>minuta</i> , <i>De Bréb.</i>	„ <i>sphærophora</i> , <i>Kutz.</i>
„ <i>Amphioxys</i> , <i>W. Sm.</i>	„ <i>pusilla</i> , <i>W. Sm.</i>
„ <i>crumena</i> , <i>De Bréb.</i>	„ <i>tumida</i> , <i>W. Sm.</i>
<i>Tryblionella gracilis</i> , <i>W. Sm.</i>	„ <i>dicephala</i> , <i>Kutz.</i>
„ <i>angustata</i> , <i>W. Sm.</i>	„ <i>cryptocephala</i> , <i>Kutz.</i>

- Navicula binordis*, Ehr.
 ,, *Bacillum*, Ehr.
 ,, *Rostellum*, W. Sm.
 ,, *Gastrum*, Ehr.
 ,, *limosa*, Kutz.
 ,, *Tabellaria*, Ehr.
 ,, *gentilis*, Donk.
Pinnularia major, W. Sm.
 ,, *viridis*, W. Sm.
 ,, *oblonga*, W. Sm.
 ,, *lata*, W. Sm.
 ,, *acuta*, W. Sm.
 ,, *radiosa*, W. Sm.
 ,, *gracilis*, Ehr.
 ,, *viridula*, W. Sm.
 ,, *divergens*, W. Sm.
 ,, *stauroneiformis*, W. Sm.
 ,, *gibba*, Ehr.
 ,, *mesolepta*, Ehr.
 ,, *interrupta*, W. Sm.
 ,, *borealis*, Ehr.
Stauroneis Phœnicenteron, Ehr.
 ,, *gracilis*, Ehr.
 ,, *acuta*, W. Sm.
 ,, *anceps*, Ehr.
 ,, — var. *gracilis*, Rab.
 ,, *linearis*, Ehr.
Pleurosigma attenuatum, W. Sm.
 ,, *lacustre*, W. Sm.
 ,, *Spencerii*, W. Sm.
Synedra lunaris, Ehr.
 ,, *bi-lunaris*, Ehr.
 ,, *pulchella*, Kutz.
 ,, *minutissima*, Kutz.
 ,, *radians*, W. Sm.
 ,, *Ulna*, Ehr.
 ,, *oxyrynchus*, Kutz.
 ,, *obtusa*, W. Sm.
 ,, *capitata*, Ehr.
 ,, *delicatissima*, W. Sm.
 ,, *hamata*, W. Sm.
 ,, *Vaucheria*, Kutz.
 ,, *tenera*, W. Sm.
Cocconeia lanceolatum, Ehr.
Cocconeia cymbiforme, Ehr.
 ,, *Cistula*, Ehr.
 ,, *parvum*, W. Sm.
Gomphonema constrictum, Ehr.
 ,, *acuminatum*, Ehr.
 ,, *cristatum*, Ralfs.
 ,, *dichotomum*, Kutz.
 ,, *tenellum*, W. Sm.
 ,, *capitatum*, Ehr.
 ,, *olivaceum*, Ehr.
 ,, *intricatum*, Kutz.
 ,, *Vibrio*, Ehr.
 ,, *curvatum*, Kutz.
 ,, *Cygnus*, Ehr.
Meridion circulare, Ag.
Himantidium pectinale, Kutz.
 ,, *Arcus*, W. Sm.
 ,, *gracile*, Ehr.
Odontidium mutabile, W. Sm.
 ,, *Tabellaria*, W. Sm.
 ,, *Harrisonii*, W. Sm.
 ,, *parasiticum*, W. Sm.
Denticula tenuis, Kutz.
 ,, *sinuata*, W. Sm.
Fragillaria capucina, Desm.
 ,, *virescens*, Ralfs.
Achnanthes subsessilis, Kutz.
 ,, *exilis*, Kutz.
 ,, *inflata*, Grunow.
Achnantheidium lanceolatum, De Bréb.
 ,, *lineare*, W. Sm.
Diatoma vulgare, Bory.
 ,, *elongatum*, Ag.
Tabellaria flocculosa, Kutz.
 ,, *fenestrata*, Kutz.
Melosira varians, Ag.
Orthosira arenaria, W. Sm.
 ,, *orichalcea*, W. Sm.
 ,, *spinosa*, W. Sm.
Encyonema prostratum, Ralfs.
 ,, *cæspitosum*, Kutz.
Colletonema vulgare, Thw.
 ,, *neglectum*, Thw.
 ,, *subcohærens*, Thw.

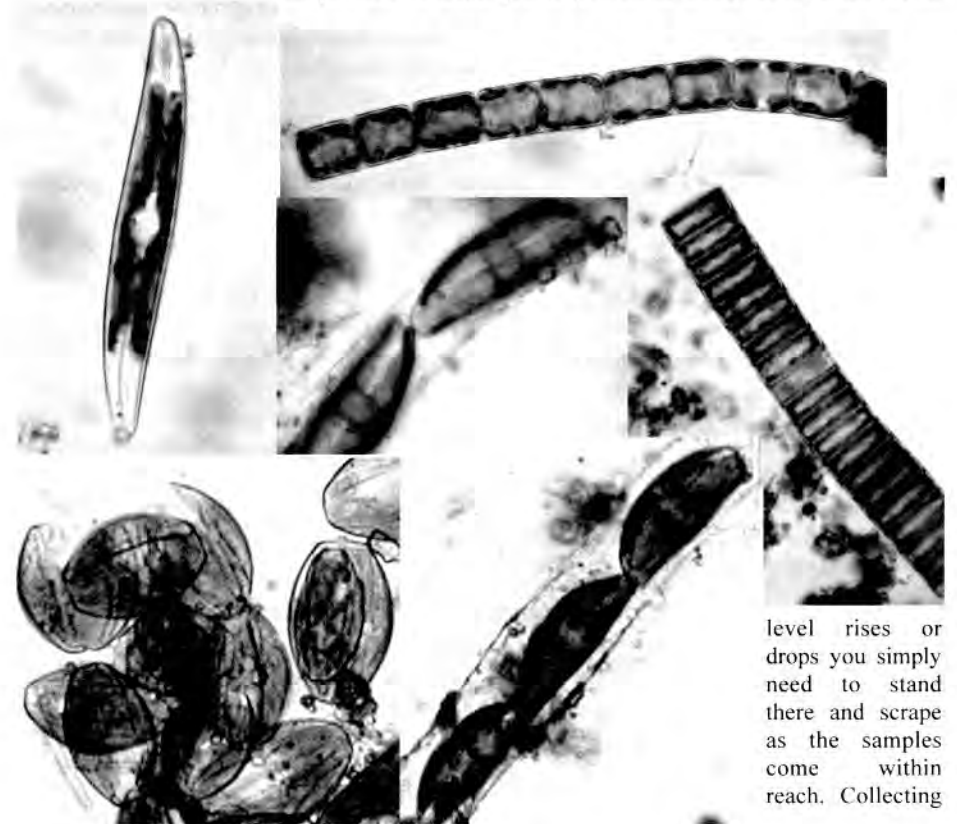
Lock Gates

Locks and Lock Gates on canals provide an excellent home for diatoms. The gates themselves and the walls of the lock are constantly doused with water. They are, however, dangerous places to go climbing down and this approach to collecting at these locations is not recommended. Don't be tempted to lean over to scrape that rather tempting looking patch of brown tantalisingly out of reach. There is a much better approach.

I have invariably found that people using the canals for boating holidays are the most affable souls and you simply have to wait at a lock until a suitable narrow boat happens along. As they approach the lock a courteous request to stand on the prow of the boat to scrape 'some algae from the lock gates' is always met with a quizzical look, an affirmative response and a call to the family below to come and look at this 'strange old bloke' on the front of the boat. All members



of the family are curious as to what you are doing and, no doubt, provides material for another holiday tale. Don't be hasty about gathering samples that are above you or beneath the surface of the water. As the



level rises or drops you simply need to stand there and scrape as the samples come within reach. Collecting

done and bottled and the narrow boat safely eased out of the lock you might be invited for a cup of tea and a discourse on the peculiarities of Diatoms and Diatom Hunters. The more bizarrely you dress the more the likelihood of posing for photographs, another cup of tea, a slice of Carrot Cake and a leisurely trip up the canal pointing out various local features.

At some point you are deposited on the bank, you wave a farewell to the family, wish them glorious weather for the remainder of their holiday and then suddenly realise that you have a four mile walk back to where you left the car! At this juncture it is a good idea to look for another family heading back from whence you came.

Hardman

Dear Editor,

I am seeking information about a diatom mounter named Hardman. There is a very brief reference in 'Bracegirdle - Microscopical Mounts and Mounters' and also an illustration on the page 45 (plate 20), but these references tell us nothing about the mounter. It does appear that he was British. I have one slide, a nice arrangement of diatoms which contains quite a lot of detail. The original label is inscribed '75 diatoms from Santa Monica; mounted 12 December 1892 by L. Hardman aged 84 years old. His name does not appear in the PMS membership list for 1892 which was recently published (Balsam Post No. 60). From the quality of my slide and the aforementioned illustration it seems that he was an accomplished mounter, probably not making slides for sale. I would be interested to learn more about him.

Fred Loxton

Brethovaire, 86 Haymoor Road, Poole, Dorset, BH15 3NU.

Editors Note: A strange coincidence this communication. The article below had already been incorporated into this number. It includes the small detail we have of this mounter.

The Natural History Museum (London) Diatom Collection

as noted in the International Survey of Diatom Collections

by

H. de Wolf and F.A.S. Sterrenburg

with additional notes (in italics) and slide images by Steve Gill

Whilst these collections exist they are not on public display and access to them is difficult for the Amateur. We have decided to include the list, with some additional notes on some diatomists, in a single part rather than splitting it over two numbers.

Adams, F.

Frederick Adams.

Member of the Quekett Microscopical Club

Beauvoir, St. Saviour, Jersey.

By profession a civil engineer - a representative of the Pearson firm of contractors (founded by Lord Cowdray). Spent much of his life in Mexico, responsible for harbour and railway installations.. Spent some time in Barbados where he examined and collected some of the

diatomaceous deposits. He mounted type slides for his own collection and acquired many by diatomists who preceded him, e.g. Kitton. By his death his personal collection of slides numbered between twenty and thirty thousand, all catalogued and indexed. (These slides were bequeathed to the Natural History Museum, London and to the Royal Microscopical Society). In 1932 he retired to Jersey his health failing. He died on November 14th 1938.

Americanum Diatomarum Exsiccata (slide set)

Archibald, R.E.M.

b. 1940 author of

a. On the Raphe Ledge in the Genus Amphora (Bacillariophyta). With 3 plates. Etc. BACILLARIA: Volume 6. 1983. 89 plates. 19 figs. 292 p. 8vo. Bound.

b. with F. R. Schoeman - Amphora castellata Giffen as observed with the Light and Electron Microscopes. With 10 plates. BACILLARIA: Volume 7. 1984. 48 photographic plates. 7 figs. 200 p. 8vo.

and many other papers.

Arnott, G.A.W.

George Arnold Walker Arnott (1799-1868) b. Edinburgh, 6th February 1799; d. Glasgow 17th May 1868; bur. Sighthill Cemetery, Glasgow. M.A. Edinburgh 1818. LL.D. Aberdeen 1837; F.L.S. in 1825. Regius Professor of Botany, Glasgow 1845. Author of British Flora (with W. J. Hooker) 1850, Botany section of Encyclopaedia Britannica 7th Edition.

Barber, Horace

Horace G. Barber 1908-1982

Entry in The Microscope Vol. VI No. 1 of 1945 states

'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.'

Employed by London, Midland and Scottish Railway (subsequently merged into British Rail) until 1966. His retirement was spent mainly drawing diatoms.

Articles in Quekett Journals

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 (this will be A. S. 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 enthusiastic amateur. The Cover illustration of the booklet is from a drawing by Horace Barber.

The illustrations and work on British diatomaceae eventually was 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)

In conjunction with J. R. Carter.

1978 - *Pinnularia carminata* *Microscopy* Vol 33 Pages 305-307

In conjunction with E. Y. Haworth

1981 - *A guide to the morphology of the diatom frustule* (Scientific Publications, Freshwater Biological Association, No. 44)

Elected to QMC 14th May 1946. Living, according to December 1948 Members list at 'Hafan',

91 Mancetter Road, Nuneaton, Warwickshire.

Barker, J.W.

Barnett,

Bartholomew, (fossil collection)

James Riley Bartholomew

Brooklyn, New York.

Diatomist.

Bastow, Fraser

R. Fraser Bastow - Author of

a. *A note on the fresh-water diatoms of Devon*. (1949) *Journal of the Quekett Microscopical Club*. Ser. 4. 2(6), 1949 : (1).

b. *British fresh-water diatoms* *Microscopy, The Journal of the Quekett Microscopical Club* - Vol. 3 No. 2 pp.122 (Mar 1950) [Pub. 1950]

and others.

Batters,

Possibly - Edward Arthur Lionel Batters (1860-1907) b. Enfield, Middlesex 26th December 1860; d. Gerard's Cross, Bucks. 11th August 1907. Algologist.

Baxter, W.

Wynne Edwin Baxter

Born - Lewes, Sussex 1844

Died - London 1st October 1920. - buried Lewes.

A coroner by profession.

Treasurer of the Royal Microscopical Society.

Diatomist.

Translated Henri van Heurcks 'Treatise on Diatomaceae' 1896.

Address at one time - 170 Church Street, Stoke Newington, London, N.

On 21st November 1906 a Culpeper style microscope was presented to the RMS. This was an exceptionally complete example including trade card of E. Culpeper. (*The Great Age of the Microscope* by G. L'E. Turner 2)

On 15th April 1903 presented the RMS with an all brass Culpeper form microscope by Dollond. (*The Great Age of the Microscope* by G. L'E. Turner 10)

15th April 1908 saw the presentation of a compound and simple folding foot, compass jointed microscope by Shuttleworth to the RMS collection (*The Great Age of the Microscope* by G. L'E. Turner 32)

18th May 1904 saw the presentation to the RMS collection of a compound microscope by W. Ladd (*The Great Age of the Microscope* by G. L'E. Turner 86)

On the 15th February 1913 presented the RMS with a compound microscope signed by Cauchoix a Paris (*The Great Age of the Microscope* by G. L'E. Turner 212)

On the 15th November 1905 presented a Lucernal and Solar Microscope by Adams, London (*The Great Age of the Microscope* by G. L'E. Turner 244)

The 1881 Census records provide the following extra information:-
Dwelling: 208 High St, Lewes All Sts, Sussex, England

Wynne E. BAXTER M 36 M Lewes, Sussex, England Rel: Head Occ: Solicitor
 Kate B. BAXTER M 32 F Northampton, Northampton, England Rel: Wife
 Edith M. B. BAXTER 10 F Lewes, Sussex, England Rel: Daur Occ: Scholar
 Kate B. BAXTER 7 F Lewes, Sussex, England Rel: Daur Occ: Scholar
 Francis W. BAXTER 4 M Lewes, Sussex, England Rel: Son
 Henry W.H. RANCE M 38 M Cambridge, Cambridge, England Rel: Visitor Occ: Solicitor (LI (D))
 Ricarda C. RANCE M 28 F Canada Rel: Visitor
 Kate JOHNSON U 25 F Denby, York, England Rel: Governess Occ: Governess Private
 Clara EAGER 25 F Tunbridge Wells, Kent, England Rel: Serv Occ: Cook Domestic Servant
 Ellen SIMMONDS 24 F Lewes, Sussex, England Rel: Serv Occ: Housemaid Domestic Servant
 Maria HARDEN 22 F Selham, Sussex, England Rel: Serv Occ: Nurse Domestic Servant

Beck & Smith.

Berkeley, (herbarium)

Rev. Miles Joseph Berkeley (1803-1889)

b. Biggin, Oundle, Northampton 1st April 1803. d. Sibbertoft, Market Harborough 30th July 1889.
 Gained B.A. at Cambridge in 1825. Elected Fellow of the Linnean Society 1836. Elected Fellow
 of the Royal Society 1879. Rector of Sibbertoft 1868. Author - *Gleaning in British Algae* 1833.
 Many other papers.

Bessell, J.B.

Bessell, Jas. B.. Joined the Postal Microscopical Society in September 1885 and was a member
 for only two seasons 1884/85 and 1885/86. During this period was living at Sidney Villa,
 Fremantle Square, Bristol. In 1888 and 1889 was a member of the Wesley Scientific Society
 living at 8 Elm Grove Road, Cotham, Bristol. And during this period contributed two article to
 the Society Journal - Notes on Mounting Selected Diatoms - January 1889 and Paper on
 Diatomaceae - April 1889.

Science Gossip December 1883 Exchange Column -

'A Stag beetle for specimens of equisetum or micro slides of same. - J. D. Bessell, Fremantle
 Square, Bristol.'

The 1881 Census contains the following information:-

Dwelling: Sidney V Fremantle Sq., Bristol St James & St Paul Out, Gloucester, England

James Benjn. BESSEL M 33 M Bristol Rel: Head Occ: Draper (Master)

Mary H. BESSEL M 32 F Madeley, Shropshire, England Rel: Wife

Sydney Jas. BESSEL 2 M Bristol Rel: Son

Charles L. BESSEL 1 M Bristol Rel: Son

Mary A. MARSHALL U 20 F Bedminster, Somerset, England Rel: Serv Occ: Nursemaid
 (Domestic)

Eliza DOLMAN U 18 F Grantham, Lincoln, England Rel: Serv Occ: General Servant (Domestic)

In *The Wesley Naturalist* April 1888; May 1888

Diatoms for Sale.-Spread slides, 6d. each; Selected, 9d.; Arranged groups, 1s. and upwards. J.
 B. Bessell, 8 Elmgrove Road, Bristol.

Also in *The Wesley Naturalist* Vol. II. May 1888

Diatoms. *Actinoptychus* (*Heliopelta*) and *Actinocyclus*, from Nottingham, U.S.A.. Nine specimens
 arranged in group, 2s. per slide post free. J. B. Bessell, 8 Elmgrove Road, Bristol

Also in *The Wesley Naturalist* July 1888; August 1888; September 1888

Wanted, a good 1-10in. or 1-12in. Objective. Will give first-class Diatom Slides in exchange. - J.
 B. Bessell, 8 Elmgrove Road, Bristol

Also in *The Wesley Naturalist* December 1888; January 1889; February 1889

Books Wanted. Lingsley's *Town Geology*. or any of Ruskin's *Work*. Will give good exchange in
 Mounted Diatoms. - J. B. Bessell, 8 Elmgrove Road, Bristol.

Bone,

Bone, E. C. P.

Articles appearing in the *Quekett Journal*

1969 - *Glyphodiscus stellatus* Greville, Note on the Dissimilar Nature
 of the Component Valves of the Frustule Vol. 31, pages 113-114

1970 - *Triceratium montereyii* Brightwell, Note on the Dissimilar
 Nature of the Form of the Component Valves of the Frustule Vol. 31,
 pages 307-308

The following articles were done in conjunction with R. Gosden.

1967 - *New Fossil Marine Diatoms from Oamaru, New Zealand* Vol.
 30, pages 268-272

1968 - *New Fossil Marine Diatoms from Oamaru, New Zealand (2nd Series)* Vol. 31, pages 70-
 78

Frederick S. C. Reed 'An atlas of Oamaru Diatomite Diatoms' acknowledges E C P Bone of
 Brighton, England.

Member of the Quekett Microscopical Club from 1961.

Bowerbank,

Probably James Scott Bowerbank (1797-1877)

b. London 14th July 1797. d. 8th March 1877

Brebisson, Alphonse de (herbarium)

(1798-1872)

Brigger, (fossil collection)

Albert L. Brigger.

Yorbalinda, California. (1930's-1970's.)



Elected to Quekett Microscopical Club 11th June 1946.

Address in 1948 members list - 221 West Adams Avenue, Alhambra, California, U.S.A.

Articles in the *Quekett Journal*

1960 - *A Mounting Medium for Diatoms* Vol. 28, pages 275-277

1971 - *Condition in Aulacodiscus thumii* Schmidt Vol. 32, pages 38-39

The article below was in conjunction with S. H. Meakin

1949 - *New and Rare Diatoms* Vol. 26, pages 41-42

Mandra, York T., A. L. Brigger and Highoohi Mandra .
Preliminary report on a study of fossil silicoflagellates from Oamaru, New Zealand.
April 27, 1973
Hanna, G Dallas, Norman Ingram Henvey, A. L. Brigger (Part I) and R. Ross (Part II).
Some Eocene diatoms from South Atlantic cores: Part I. New and rare species of *Arachnoidiscus*.
Part II. *Rutilaria* Greville.
April 15, 1976
(Note: Norman Ingram Henvey, M.P.S., F.L.S., F.R.M.S. was elected to the Quekett Microscopical Club 6th December 1932, in 1939 members list address 15, The Chase, Hillingson, Middlesex and in 1945 address given was British Museum [Natural History], Cromwell Road, S.W.7. Stated interests - Diatoms. Quekett Microscopical Club Committee member 1937-1938, 1938-1939. Present at the Quekett Microscopical Club Conversazione on Tuesday 12th October 1937 at the Rooms of The Royal Society of London, Burlington House, Piccadilly, W.1. showing - Plankton Diatoms. Present at the Quekett Microscopical Club Conversazione on Tuesday 11th October at Burlington House, showing - New species of diatoms.)
Hanna, G Dallas and A. L. Brigger - Some fossil diatoms from Barbados. - July 1, 1964
Brigger, A. L. and G Dallas Hanna - A review of *Kittoni*, a genus of diatoms. - September 15, 1965
Hanna (Part I), G Dallas, N. Ingram Henvey (Part I), A. L. Brigger (Part I), R. Ross (Part II).
Some Eocene diatoms from South Atlantic cores: Part I. New and rare species of *Arachnoidiscus*.
Part II. *Rutilaria* Greville. - April 15, 1976
Mandra, York T., A. L. Brigger and Highoohi Mandra
Chemical extraction techniques to free fossil silicoflagellates from marine sedimentary rocks.
July 9, 1973
Hanna, G Dallas and A. L. Brigger - Fossil diatoms from southern Baja California.
November 30, 1966
The University of California Santa Barbara (UCSB) includes The Museum of Systematics and Ecology which supports a library of over 1000 volumes; 500 government publications and related reports; numerous card files on nomenclature, literature, and systematics collections; reprints; journals; Meckler fiche collections of botanical type specimens; and map and slide collections.
Including a Special Collection A.L. Brigger and R.W. Holmes Diatom Library and Archive Collection
'Preparation of "fossil" diatomaceous earth' by Brigger, A.L. unpublished
'List of diatoms literature in A.L. Brigger Library (Yucaipa, California)' by Brigger, A.L. unpublished- library now deposited in library of University of California at Santa Barbara
'New Zealand diatoms. 479 species and varieties' by Brigger, A.L. 1963 - Rec'd by G.D. Hanna Sept. 1963 (unpublished)
'A review of *Kittonia*, a genus of diatoms' by Brigger, A.L. - Hanna, G D. - Occasional Papers of the California Academy of Science 15 Sep 1965 On shelf under Hanna in Miscellaneous Diatom Papers 1928-1976. (CASDL)
'Condition in *Aulacodiscus thumii* Schmidt' by Brigger, A.L. - Microscopy, The Journal of the Quekett Microscopical Club 1971 PG: 38-39, 3 figs.
'A mounting medium for diatoms' by Brigger, A.L. - Microscopy, The Journal of the Quekett

Microscopical Club 1960 PG: 275-277 Ser. 4, Vol 5, (Vol. 28 of the entire series) Also included in "A Diatom Notebook" by James F. Fidiham 1976 (unpublished)
Identified Genera *Robinetta* G.D. Hanna & A.L. Brigger 1964
Brigger & Holmes
Albert L. Brigger.
Yorbalinda, California. (1930's-1970's.)
Elected to Quekett Microscopical Club 11th June 1946.
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Hanna, G Dallas and A. L. Brigger
Some fossil diatoms from Barbados.
July 1, 1964
Brigger, A. L. and G Dallas Hanna
A review of *Kittoni*, a genus of diatoms.
September 15, 1965
Hanna (Part I), G Dallas, N. Ingram Henvey (Part I), A. L. Brigger (Part I), R. Ross (Part II).
Some Eocene diatoms from South Atlantic cores: Part I. New and rare species of *Arachnoidiscus*.
Part II. *Rutilaria* Greville.
April 15, 1976
Mandra, York T., A. L. Brigger and Highoohi Mandra
Chemical extraction techniques to free fossil silicoflagellates from marine sedimentary rocks.
July 9, 1973
Hanna, G Dallas and A. L. Brigger
Fossil diatoms from southern Baja California.
November 30, 1966

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Including a Special Collection A.L. Brigger and R.W. Holmes Diatom Library and Archive Collection

'Preparation of "fossil" diatomaceous earth' by Brigger, A.L. unpublished

'List of diatoms literature in A.L. Brigger Library (Yucaipa, California)' by Brigger, A.L. unpublished- library now deposited in library of University of California at Santa Barbara

'New Zealand diatoms, 479 species and varieties' by Brigger, A.L. 1963 - Rec'd by G.D. Hanna Sept. 1963 (unpublished)

'A review of *Kittonia*, a genus of diatoms' by Brigger, A.L. - Hanna, G.D. - Occasional Papers of the California Academy of Science 15 Sep 1965 On shelf under Hanna in Miscellaneous Diatom Papers 1928-1976. (CASDL)

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'A mounting medium for diatoms' by Brigger, A.L. - Microscopy, The Journal of the Quekett Microscopical Club 1960 PG: 275-277 Ser. 4, Vol 5, (Vol. 28 of the entire series) Also included in "A Diatom Notebook" by James F. Fidiham 1976 (unpublished)

Identified Genera Robinetta G.D. Hanna & A.L. Brigger 1964

Browne, G.M.

George Mansfield Browne

Member of The Liverpool Microscopical Society 1888 living at 15 South Hill Road, Liverpool.

Elected to Liverpool Microscopical Society 1872.

In the cabinets of the Liverpool Microscopical Society

1881 Census details as follows:-

Dwelling: 15 South Hill Rd., Toxteth Park, Lancashire, England

George M. BROWNE M 60 M Liverpool, Lancashire, England Rel: Head Occ: Retired Corn Merchant

Jemima E. BROWNE M 39 F Ireland Rel: Wife

Mary E. BROWNE U 1 F Liverpool, Lancashire, England Rel: Daur

Mary EVANS U 30 F Liverpool, Lancashire, England Rel: Servant Occ: Cook

Violet LOME U 21 F Fotheringham, Northumberland, England Rel: Servant Occ: Nurse

Ann MURPHY U 17 F Liverpool, Lancashire, England Rel: Servant Occ: Nursemaid

Carter, J.R. (types)

14820
Diatomaceae
Havergate Island
Suffolk
Brackish silt
25% *Cyclotella atomus*
J. R. Carter
Mod Plx



John R. Carter (Scotland) b. 1908

Castracane, A.F.

Conte Abate Francesco Castracane

Chaffers,



Probably William Chaffers

Cholnoky, B.J.

Dr. B. J. Cholnoky (South Africa) b. 1899

Cleve, P.T. & Moller, J.D. (slide set)

Cole, Arthur C.

Arthur Charles Cole.

b. 1821 d. 24th December 1900 (Senile decay) 79 years old. At 21 Chatts Road. The death was notified by H. Pearce, Occupier 21 Chatts Road, Battersea. Who was H. Pearce? There was a Horace Pearce F.L.S. of Stourbridge who had an article in Science Gossip September 1882 Botany section 'Dispersion of seeds.'. One assumes that the onset of this was the reason he seems to have disappeared circa 1890. I wonder what happened to the son who advertised with him! (There was a Horace Pearce, The Limes, Stourbridge advertising in Science Gossip March 1876, F.G.S. in 1882 in Science Gossip of July Article - Glacial Action in North Wales.)

In the QMC member list for 1877, 1878, 1879, 1880 - Arthur C. Cole, St. Domingo House, Oxford Gardens, Notting Hill, W.

In the QMC member list for 1881 - Arthur C. Cole, F.R.M.S., St. Domingo House, Oxford Gardens, Notting Hill, W.

Member of Postal Microscopical Society 1881 - 1889

Joined Quekett Microscopical Club September 22nd 1876

Elected to Royal Microscopical Society 1879

Hon. Member of Microscopical Society of Liverpool 1881, member from 1873.

Portrait in The Microscope Vol. VII. No. 11 January/February 1950 page 309 Address

1870 66 St. Domingo Vale, Anfield, Liverpool

1881-1887 St. Domingo House, 53 Oxford Gardens, Notting Hill, London, W.

The 1881 Census details:-

Dwelling: 53 Oxford Gardens, Kensington, London, Middlesex, England

Arthur C. COLE M 59 M Eastcheap E C, Middlesex, England Rel: Head Occ: Microscopist (Philo)



Emily COLE M 59 F Gosport, Hampshire, England Rel: Wife Occ: Microscopist Assist
 Rose E. COLE U 34 F Paddington, Middlesex, England Rel: Daughter Occ: Microscopist Assist
 Martin J. COLE U 33 M Camberwell, Surrey, England Rel: Son Occ: Microscopist Assist
 Mary H. COLE U 27 F Peckham, Surrey, England Rel: Daughter Occ: Microscopist Assist
 Gertrude M. COLE U 25 F Peckham, Surrey, England Rel: Daughter Occ: Microscopist Assist
 Kate KANNAH U 24 F Paddington, Middlesex, England Rel: Servant Occ: General Servant

Science Gossip May 2nd 1881

MICROSCOPICAL SPECIALITIES.

ARTHUR C. COLE, F.R.M.S., AND SON,

Having completed arrangements to increase both the supply and variety of their Preparations, beg to announce that their **VARIOUS SERIES**, a most Extensive Assortment of **PATHOLOGICAL and PHYSIOLOGICAL SPECIMENS, CHEMICAL COMPOUNDS, DIATOMACEE, and MISCELLANEOUS OBJECTS,** can now be obtained **FROM ALL THE PRINCIPAL OPTICIANS IN LONDON AND THE PROVINCES,** by whom Lists will also be furnished on application.

For Wholesale Terms apply to—

ST. DOMINGO HOUSE,
63, OXFORD GARDENS, NOTTING HILL, LONDON, W.

1888 - 1889 St. Domingo House, 171 Ladbrooke Grove Road, Notting Hill, London, W.

In 1888 recorded as an Honorary Member of the Liverpool Microscopical Society

Slides normally bear a little crest bearing a Bulls head, surrounded by the words 'Cole Deum' which means Worship God. Achieved a Prize Medal at the Exposition Universelle in Paris 1867.

Author of the weekly publication 'Studies in Microscopical Science' beginning on May 6th 1882. Each issue came with a slide (one of which is illustrated) and was priced at 1s for the text and slide

Author of - Popular Microscopical Studies - London 1883-4

Studies in Microscopical Science 4 Volumes 1883-1886

The methods of Microscopical Research 1884

Science Gossip December 1880/February 1881/May 1881, November 1881 inside front cover Advertisement as 'Arthur C. Cole, F.R.M.S., and Son.' At St. Domingo House, 53 Oxford Gardens, Notting Hill, London, W.

Science Gossip January 1872 Exchanges column -

'Choice slides of selected Diatomaceae in exchange for unmounted and unprepared insects in perfect condition, and properly preserved in spirit or otherwise. - Address Arthur C. Cole, 66, St. Domingo Vale, Everton, Liverpool.'

The advertisement below appeared on the back cover of The quarterly Journal of Microscopical

MICROSCOPICAL SPECIALITIES.

Series I.—24 Pathological Preparations in Cases	42	2	0
II.—24 Physiological Slides	2	2	0
III.—24 Physiological Slides	2	2	0
IV.—48 Physiological Slides	4	4	0
V.—24 Preparations to illustrate Anatomy of Frog	2	2	0
A.—18 Diatomaceae (selected)	7	10	0
B.—24 " (very rare)	1	14	0
T. II, III, complete in One Case	4	10	0

Pathological and Physiological Preparations in cases and con-
 stantly increasing variety, and of most valuable illustrations. 1s/6d to 5s/6d per doz.
 Descriptive List and full Particulars on application to
ARTHUR C. COLE & SON, 63, OXFORD GARDENS, NOTTING HILL, LONDON, W. (Opp of 62, St. Domingo Vale, Everton, Liverpool.)

Science - July 1878

Science Gossip June 1882 Microscopy Section -

'Studies in Microscopical Science. - We doubt whether any department of natural science is exhibiting so much diligence as microscopy. This is evidenced by the increasing current of microscopical literature. Mr. Arthur C. Cole, F.R.M.S., has commenced contributions from his own extensive stock of practical knowledge under the above title. The first two parts are beautifully got up, the coloured illustrations being exquisite. We wish the new venture hearty success.'

In The Northern Microscopist June 1882 - 'Studies in Microscopical Science. - Under this title an 8vo. Eight page journal is issued at weekly intervals, edited by A. C. Cole, F.R.M.S., to accompany a series of preparations intended to show the students how microscopical work should be prepared. Three numbers have been issued, each illustrated by means of a well executed chromo-lithograph, the first showing the yellow fibro-cartilage in the ear of the cow, magnified 333 diameters; the second illustrates a doubly stained section of the stem of copper beech, Fagus cuprea, while the third show a transverse section of the shaft of a long human bone. The illustrations are exceedingly well done, and the slides sent out with them excellent, and beside this, the letterpress gives one the whole of the information known to refer to the subjects under consideration. We notice several important omissions in the Bibliography, but this section, no doubt, will be rendered more complete as time goes by.'

In the Northern Microscopist July 1882 a review of the next four Studies in Microscopical science and also 'Starches. - A series of twenty four sections of starch bearing vegetables and starch granules has been sent out by Mr. A. C. Cole, F.R.M.S., for the use of botanical students. We have been favoured with a set of these preparations, which demonstrate very clearly the forms of the starches, the manner in which they are borne in the plant, and show us clearly that very different means must be employed for preparing the various kinds in a state of purity.....'

Science Gossip January 1884

'Studies in Microscopic Science. - Edited by A. C. Cole, F.R.M.S. - We very much regret that in the paragraph in our last issue on "A New Morphological Institution" we inadvertently overstated the relationships which existed between Mr. A. C. Cole and Mr. J. E. Ady, in the first volume of this admirable work, which was so well done, and so thoroughly successful from all points, literary, scientific, and artistic, that we deem it a great pity any difference of opinion should exist among those who contributed to so great a success. We inadvertently stated that M. Ady was the actual and Mr. A. C. Cole the nominal editor; whereas the legal status of the relationship was that Mr. Ady edited the "Studies", under "the advice and direction" of Mr. Cole. Mr. Cole's name appeared all through as editor, and the weekly parts of the 2nd vol. now issuing, also bear his name as editor. The preface to the first volume states that all the articles except three were written by Mr. J. E. Ady. This much, however, appears certain, that to Mr. Cole belongs the credit and honour of bringing out the "Studies".....'

Present at a Royal Microscopical Society meeting 27th November 1889 exhibiting - Transverse Section of Human Left Median Nerve, stained for Photomicrography; and photograph of same slide. Optical Vesical of a Human Embryo in the sixth week. T.S.

Interestingly, there was an Alfred C. Coles, M.D., D.Sc., F.R.S.E. who joined the Quekett Microscopical Club January 28th 1913. In the Quekett Microscopical Club members list of 1914 the address was "York House", Poole Road, Bournemouth.

In Nature 29th November 1906 is an Advertisement for the publication Studies in Micropotography by Ernest Howard Adye, M.A., Ph.D. which lists other books by the same author and includes 'Cole's "Studies in Microscopical Science Vol. 1'.

Science Gossip October 1882 -

'Studies in Microscopical Science. - (Edited by A. C. Cole, F.R.M.S.) The scientific and artistic merit of these weekly issues, instead of falling beneath the high character they attained at first, have, if possible, improved upon it.....'

Comber, T.

Thomas Radcliffe Comber, F.L.S., (1837-1902)

Born in Brazil. Processed the diatom soundings from the Challenger expedition.

Paper Read before the Royal Microscopical Society 21st May 1890 and printed in its transactions (Journal of the Royal Microscopical Society 1890 part 4) - On a simple form of Heliostat, and its application to Photomicrography.

Paper - 'On the occurrence of Endocysts in the genus Thalassiosira' - R.M.S. - 1896

Born - Pernambuco, Brazil 14th November 1837.

Died Blackpool, Lancashire 24th January 1902.

Elected F.L.S. 1878.

Diatomist.

'Geographical statistics of European flora' in the Journal of Botany 1877.

Author - On the Diatomaceae of the Neighbourhood of Liverpool. 8vo, pp. 12. Liverpool 1858.

Diatoms in the Department of Botany, Natural History Museum.

Phanerogams at Liverpool University.

References:- Catalogue of Scientific Papers compiled and published by the Royal Society I, 26., VII, 419., IX, 558., XIV, 320. ; Correspondence of G. A. Walker-Arnott in Department of Botany, Natural History Museum ; Guide to the Literature of Botany by B. D. Jackson 1881, 227 & 230. ; Journal of Botany 1902, 386 (with portrait) ; Proceedings of the Linnean Society 1901-2, 30. ; Journal of the Royal Microscopical Society 1902, 158. ; The History of the Collections contained in the Natural History Departments of the British Museum, 141.

Compere,

P. Compere. Author of -

a. *Nitzschia fragilariopsis*, a new species from NW Sudan forming ribbon-like colonies. Proceedings of the Eighth International Diatom Symposium Paris, August 27 - September 1, 1984. Koenigstein 1986. 115 photographic plates. 56 tables. 145 figs. X, 781 p. 8vo. Bound. (ISBN 3-87429-265-7)

b. Ultrastructural aspects of the frustule of some forms of *Cymbella hustedtii* Krasske. Sixth Symposium on Recent and Fossil Diatoms, Budapest 1980. Koenigstein 1981. 92 plates. VIII, 487 p. 8vo. Bound. (ISBN 3-87429-192-8).

c. with Delmotte, A., Diatoms in two hot springs in Zambia (Central Africa). Proceedings of the 9th International Diatom Symposium, Bristol, September 1986. Published 1988. Illus. 480 p. 8vo. (ISBN 3-87429-27-4/ ISSN 0933-0755)

Cottam, Arthur

C.R.A.S., M.B.A.A.

(1838-1912) Died Bridgewater, Somerset 23rd November 1912. Buried - Bridgewater

Astronomer, entomologist and diatomist. (Watford, Herts).

Paper - 'Notes on the Flora of Watford' - Transactions of the Watford Natural History Society I, 1875, 14. (Also contributed to 'A Flora of Hertfordshire' by R. A. Pryor - 1887 [Check this])

Obituary or entry - Catalogue of Scientific Papers compiled and published by the Royal Society

XIV 373.

Author of 'Charts of the Constellation' (1889)

Joined the Quekett on May 28th, 1869.

In 1872, 1873, 1874, 1875, 1876, 1877, 1878 Members list - Arthur Cottam, F.R.A.S., Office of Woods, Whitehall, S.W.

In 1879, 1880, 1881 Members list - Arthur Cottam, F.R.A.S., H.M. Office of Woods, Whitehall, S.W.

In 1908, 1909, 1911 Quekett Microscopical Club members list address given as Furze Bank, Durlough Road, Bridgewater. Then only F.R.A.S.

Address - St. Johns Road, Watford.

Founder member of the Watford Natural History Society in 1875.

Died 23rd November 1912.

Cousin of Arthur C. Cole.

In the Quekett Journal

1876 - On a new *Aulacodiscus*, from the West Coast of Africa Vol. 4. Pages 149-153

1878 - On the 'Autographic' process of lithography as applicable to the Illustration of Scientific Papers Vol. 5, pages 6-8

Transactions of the Hertfordshire Natural History Society and Field Club December 1880 - 'Note on the pupation of the Stag-beetle' by Arthur Cottam, F.R.A.S.

The Entomologists Monthly Magazine - February 1900 - '*Argynnis Niobe*, var. *Eris*, taken in England. - As I entertain no doubt that the specimen of this rare butterfly, which I discovered last autumn in the collection of the Rev. A. P. Waller

(Note:- Rev. A. P. Waller of Waldringfield Rectory, near Woodbridge is named as Suffolk Recorder for the Insect Immigration Committee of the South-Eastern Union of Scientific Societies in 1933)

at Bridgewater. was captured in this country. I think it ought to be recorded. Unfortunately, both the locality and date are uncertain. It was taken by Mr. Waller's brother about 1879, either in a wood near Bury St. Edmunds, or in Monks Wood, Hunts. Mr. Waller thinks he took it at Bury St. Edmunds; he recollects taking fritillaries at that time in both localities, and that he took one that had no silver spots on the underside; he supposed it to be a variety of *A. Euphrosyne*, but took no steps to identify it. He never collected anywhere out of England, and the whole of his collection was made by himself. It was quite a small one, and a few years ago he gave it to his brother, who also had taken no steps to identify the insect since it came into his possession. I brought the specimen to London, and at the Natural History Museum identified it. I afterwards showed it to Mr. Barrett (possibly C. G. Barrett member of the South London Entomological and Natural History Society), who confirmed the identification. The specimen is well marked, set to show the under-side, and, except for the loss of one antenna, is in good condition. - Arthur Cottam, Eldercroft, Watford: January 1900."

Following this there are questions posed by the editors of the magazine as to whether the specimen might have been an escapee from pupae imported into the country.

In The Entomologists Monthly Magazine - April 1900 - '*Argynnis Niobe*, var. *Eris*, taken in England. - With reference to my note, I have since learnt that my statement that the insect might have been taken in Monks Wood, Hunts, is incorrect. Mr. Waller did not collect there, but in Monk Park Wood, which is about four miles south of Bury St. Edmunds. This removes the uncertainty



as to the locality of the capture, which was undoubtedly in Suffolk. - Arthur Cottam, Eldercroft, Watford: March, 1900.'

In The Entomologists Monthly Magazine - October 1900 - 'Colias Hyale and Edusa in Somersetshire. - I spent the first three weeks of August at Bridgewater, and in a clover field near there we found C. Edusa in fair numbers and very fine. Of ten females that we captured three were the var. Helice. We took only one Hyale, and another was seen in the neighbourhood. Edusa was also seen on the sand hills near Brean. - Arthur Cottam, Eldercroft, Watford : September 1900.' And also 'Lycoena Bellargus (Adonis) in Hertfordshire. - I have this month (September) for the first time, found this butterfly on the chalk downs at Aldbury, where I have often looked for it, as Hippocrepis comosa, its food plant, grows there abundantly, and I though it ought to be found there. There is no record that I can find of this insect having been previously taken in this county. L. Corydon occurs every year on these hills in the greatest profusion. - Arthur Cottam, Eldercroft, Watford : September 1900.'

Science Gossip February 1875 Zoology Section - a notice heralding the intended formation of the Natural History &c. Society at Watford. One of the names given as organisers is Arthur Cottam, St. Johns Road, Watford.

The 1881 Census details are as follows:-

Dwelling: Essex Rd., Watford, Hertford, England

Arthur COTTAM M 44 M Camberwell, Surrey, England Rel: Head Occ: Civil Serv Of H M Woods & Forests Land Revenue

Mary COTTAM M 40 F Edware, Middlesex, England Rel: Wife Occ: Wife

Arthur COTTAM U 19 M Putney, Surrey, England Rel: Son Occ: Student Of Architecture

Mary Ann KITTLE U 56 F Semer, Suffolk, England Rel: Serv Occ: Cook Domestic Serv

Agnes BRITTON U 21 F Dunmow, Essex, England Rel: Serv Occ: Housemaid Domestic Serv

Debes, E.

Deby, Julien (original collection)

Born. - Laeken, Belgium 10th March 1826.

Died. Sheffield 14th April 1895.

Elected F.R.M.S.

Diatomist.

Settled in London about 1877.

Collection in Department of Botany, Natural History Museum.

Manuscripts were catalogued by J. Ratray.

'Bibliotheca Debyana' (1889)

Les Diatomees by Pelletan includes introduction by Deby (188).

References:- Le Diatomiste II. 189 (includes portrait and bibliography). ; Catalogue of Scientific papers compiled and published by the Royal Society, XIV. 515. ; Debya Pat.

Author - Bibliotheca Diatomologica seu catalogus librorum et collectionum exsiccatarum Bascillarieas quascumque sistenium - 1891

Author - Analysis of the diatomaceous genus Campylodiscus; being a prelude to a monograph of the same (Privately printed) 1891

Co-Author with F. Kitton - A bibliography of the microscope and micrographic studies, part III - The diatomaceae (For private distribution) - 1882

'Bibliotheca Debyana: being a catalogue of books and abstracts relating to natural science, with special reference to microscopy, in the library of, Vol. 1.' - 1889

Author - 'De la recherche microscopique du sang au point de vue medico-legal' - 1876

In the 1881 Census he is recorded as below:-

Dwelling: Holland Rd., 75 Kensington, London, Middlesex, England

Julien M. DEBY M 53 M Belgium Rel: Head Occ: Mining Engineer

Jeanne DEBY M 36 F Belgium Rel: Wife

Emilie DEBY U 21 F Belgium Rel: Daur

Arthur DEBY U 16 M Belgium Rel: Son Occ: Scholar

Louis DEBY U 9 M Belgium Rel: Son Occ: Scholar

Clara HOBBS U 26 F Bridgewater, Somerset, England Rel: Serv Occ: Cook Domestic

Elizabeth PEAK U 23 F Delverton, Somerset, England Rel: Serv

In the QMC members list of 1879, 1880 - Julien Deby, C.E., F.R.M.S. of 72 Warwick Gardens, Kensington, W. - elected January 24th 1879

In the QMC members list of 1881 - Julien Deby, C.E., F.R.M.S. of 75 Holland Road, Kensington, W. - elected January 24th 1879

Delogne, H. (slide set)(exsiccata)

C. H. Delogne. Author of Diatomees des environs de Bruxelles. (?), Bulletin des Seances. 3. (?) 78-86. Desmazieres, (sample set)

De Toni & Levi (sample set)

Dickie, G.

Professor George Dickie (Annals of Nat. Hist. 1848)

Dillwyn, (herbarium)

Lewis Weston Dillwyn (1778-1855). A british Pottery owner and Member of Parliament from 1832 for Glamorgan. He was an Amateur malacologist and phycologist. Donkin, Arthur Scott

Drebes, (slide set)

Elton,

Erbar. Crittogam. Ital. (sample set)

Eulenstein, (slide set)

Dr. Th. Eulenstein

Firth, William Allott

In the QMC members list of 1881 - W. A. Firth of Whiterock, Belfast - elected July 22nd 1881

Entered Queens University, Belfast in 1869 to read Theoretical and Practical Chemistry, but attended only two terms. Schooled at the Royal Belfast Academical Institution. Father Joseph Firth. Joined Belfast Naturalists Field Club (with his father) about 1876 until about 1897. Known as a painter and musician. Some time resided at Glenview Terrace, Springfield Road. B. 1853 Barnsley, Yorkshire D. 26th July 1923.

Fathers name Joseph.

Notice of his death in Belfast Telegraph

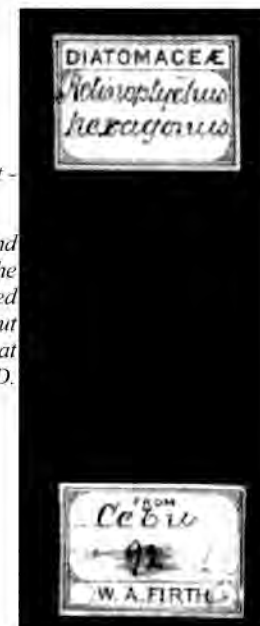
Quekett Microscopical Club member from 1881.

Addresses:-

Springfield Terrace, Belfast (1885)

95 City View Terrace, Falls Road, Belfast (1887-1890)

Glenview Terrace, Springfield Road, Belfast (1890-1894)



92 Clifton Park, Belfast (1897)

25 Victoria Gardens, Belfast (1901)

31 Ponsonby Avenue, Belfast (1903)

7 Parkend Street (1904-1907)

348 Ravenhill Road (1908)

W. A. Firth used the pseudonym 'Micro' and also as 'Diatom' when advertising in English Mechanic and World of Science as below on

February 2nd 1912 - 'Microscopical. - Slide, 12 Selected Diatoms, Loch Doon, Scotland. Styrax mounting 1s. - Micro, Ravenhill Road, Belfast.

August 9th, 30th, 1912. - 'Microscopical. - Selected Diatoms. Slide 12 various beautiful species North America 1s. - Micro, 348 Ravenhill Road, Belfast.'

September 13th - 'Microscopical. - Slide, 12 Selected diatoms. Maryland, 1s.; California, 1s.; Alexandria, 1s. - Micro, 348 Ravenhill Road, Belfast.'

October 4th - 'Microscopical. - Slide, 12 selected Diatoms, Seaweed, California, 1s.; Hungary, 1s. - Micro, 348 Ravenhill Road, Belfast.'

November 15th - 'Micro, Slide, 12 selected Diatoms, Styrax mounting, Madagascar, 1s.; Lamdash, 1s. - Micro, 348 Ravenhill Road, Belfast.'

November 29th, 1912 - 'Microscopical. - Slide 12 selected Diatoms Jacksons Paddock Oamaru 1s. Singapore, 1s. - Micro, 348 Ravenhill Road, Belfast.'

December 6th, 1912 - 'Microscopical. - Slide, 12 selected Diatoms. Hungary, 1s.; Jutland, 1s., Inverness, 1s. - Micro, 348 Ravenhill Road, Belfast.'

December 6th, 1912 - 'Microscopical. - Slide, 12 selected Diatoms. New Jersey, 1s.; Boglands, Belfast, 1s. - Micro, 348 Ravenhill Road, Belfast.'

December 20th, 1912 - 'Microscopical. - Slide, 12 selected Diatoms. Singapore, 1s.; Brazil, 1s.; Canada, 1s. - Micro, 348 Ravenhill Road, Belfast.'

December 27th, 1912 - 'Microscopical. - Slide, 12 selected Diatoms. Monmouth, Maine, with Navicula rhomboides. 1s. - Micro, 348 Ravenhill Road, Belfast.'

January 3rd, 1913 - 'Microscopical. - Slide 12 selected Diatoms, Styrax mounting. California, 1s. Maryland, 1s. - Micro, 348 Ravenhill Road, Belfast.'

January 10th, 1913 - 'Microscopical. - Slide 12 selected Diatoms. Oamaru, New Zealand, 1s., Jutland, 1s. - Micro, 348 Ravenhill Road, Belfast.'

January 24th, 1913 - 'Microscopical. - Slide 12 selected diatoms. Sponge sand, 1s., California, 1s. - Micro, 348 Ravenhill Road, Belfast.'

W. A. Firth read a paper before the Belfast Naturalists Field Club 17th June 1888 on the Confusion between the Mourne localities. And included a list of Diatoms from Lough Mourne Source; Photo-micrography, Edmund J. Spitta, The Scientific Press Ltd. 1899.

"We know of no mounter of diatoms in the United Kingdom that can surpass Mr. Firth, of Clifton Park Avenue, Belfast, and few that can equal him, save Mr Gatrell, of Barnes, whose work is of the most excellent quality; [Whilst these pages are passing through the press Mr. Gatrell has sent us some Amphipleura pellucida mounted in realgar and other diatoms in quinidine and piperine which are of the highest order of merit, especially the Amphipleura pellucida, which of late has been so difficult to obtain.] but Thum, of Leipzig, and Moller, of Wedel Holstein, also supply slides of exceptional merit and perfection.

Science Gossip June 1877 Exchanges Column -

'A few slides of "Synapta", with anchors and plates, and crystals of Zeolite for Polariscope, to exchange for other interesting slides. - William A. Firth, Whiterock, Belfast.'

Science Gossip August 1877 Exchanges column -

'Specimens of Synapta inhaerens in exchange for good Micro. Slides. - William O. Firth, Whiterock, Belfast.'

Science Gossip November 1877 Exchange Column -

'Wanted, samples of New Nottingham and other good foreign Diatomaceous deposits. Two co. Antrim Earths and well mounted slides to offer in exchange. - Communicate with W. A. Firth, Whiterock, Belfast.'

Science Gossip March 1878 Exchange Column -

'Wanted, recent Diatoms from Monterey Bay and Cuxhaven Mud, Diatomaceous Earth from Stoneyford, County Antrim, and well-mounted slides offered in exchange. - William A. Firth, Whiterock, Belfast.'

Firth, R.I. & Hartley, Bernard

Robert Isaac Firth. (1902-1982)

Education Officer.

Diatomist.

In conjunction with Bernard Hartley prepared over 2000 slides of British Diatoms. This collection now resides in the British Museum and is appropriately called the Firth-Hartley Collection. The raw material from which R. I. Firth made his mounts was bequeathed to Bernard Hartley who has conserved the stock. It is now in the capable hands of Klaus D. Kemp.

Honorary Member Quekett Microscopical Club, elected 15th November 1977

Papers etc. -

1977 - The diatoms of Broad Oak Water, Accrington. Journal of the Accrington Naturalists and Antiquarian Society Volume 7 pages 22-24.

1981 - The diatoms of the tarmac runway of 5 Albany Road, Seaford Sussex. Journal of the Accrington Naturalists and Antiquarian Society. Vol. 11. Pages 34-36

In the Quekett Journal

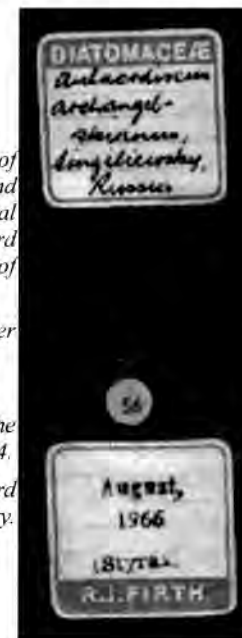
In conjunction with Bernard Hartley

1971 - A Pennine Diatom Site Vol. 32, pages 108-113

1981 - A collection of Microscope Slides of British Diatoms, including 1,000 Slides of Selected and Named Species, and over 500 Strewn slides from British localities. (London: Department of Botany, British Museum (Natural History).

Advertisement in The Microscope October 1938, March 1939, May 1939 - 'Diatom slides in exchange for cleaned and uncleaned Diatomaceous Earths, Slides, etc. - R. I. Firth, 52 Queens Road, Accrington, Lancs.'

Advertisement in The Microscope November 1939 - 'For Sale: Choice mounts of Actinoptychus heliopelta in Styrax, 1s. 3d. post free. Firth, 52 Queens Road, Accrington.'



Advertisement in *The Microscope* January/February 1940 - 'Diatomaceae: 15 beautiful diatoms perfectly arranged in rosette 2s. 6d. List of localities and species slides post free. Firth, 52 Queens Road, Accrington.'

In January of 1946 saw R. I. Firth giving two demonstration at meetings of the Brighton and Hove Natural History Society at the Booth Museum, Brighton. One demonstration was on the cleaning and preparation of Diatoms and the other on Mounting Spread Slides.

Attended a *Conversazione* of the Brighton and Hove Natural History Society at the Royal Pavilion, Brighton on October 13th 1951 with an exhibit.

An advertisement in *The Microscope* Vol. VI, No. 3 1946 - 'For Sale: American Monthly Microscopical Journal (1880-3), 4 Vols., 45/-; American Journal of Microscopy (1876-8), 5 vols. In 2, 42/-; Spitta: Microscopy, 1909, 21/-; Taylor: Notes on Diatoms, 12/6; Index to Schmidts Atlas, £1; Diatom Species and Localities Index, 10/-; Leitz Bench Microtome, £4; Eyepieces, Camera Lucidas, Dissecting Lens, Botanical, Entomological and Foram Slides, Dancer Microphotographs, etc. Stamp for particulars and list. FIRTH, 6 Windover Crescent, Lewes, Sussex.'

In the Small Advertisements column of *The Microscope* November/December 1953 Vol. 9, No. 10. 'Van Heurck Circuit Stage, stand only: £37 10s. Objectives, eyepieces, slides, books, etc.: S.A.E. list. Firth, 6 Windover Crescent, Lewes.'

An advertisement in *The Microscope* Vol. 12, No. 1 July/August 1958 - 'P. & L. Grand Model Microscope, fully mechanised, stand only: £25. Swift "Universal", 3 objectives, 2 eyepieces, etc. : £35. Leitz Low-power binocular, 4 objectives, 2 pairs eyepieces: £27 10s. 0d. Objectives, eyepieces, condensers, etc. : List, Firth, 6 Windover Crescent, Lewes, Sussex.'

Frazer, J.H.

Fritsch, F.E.

Giffen,

Prof. Malcolm H. Giffen (South Africa) b. 1902

Gill,

Gill, W. F. E., M.P.S.

William Frederick Ernest Gill. Premises in 1940 - 139 Shirehampton Road, Lea Mills Park, Bristol or Sea Mills Park.

Registered as a Chemist and Druggist 1st April 1921 (No. 22886)

Label - Chemist, St. Edyth's Pharmacy, Sea Mills Park, Bristol Phone 681272

Gray, W.J.

Gregory, William (original collection)

Gregory, W. & Co., Opticians, 51 Strand, London

1853 - Notice of a diatomaceous earth found in the Isle of Mull. (*Transactions of the Microscopical Society of London* Vol 1. Pages 92-99)

1853 - Additional Observations on the Diatomaceous Deposit of Mull

1854 - Observations on the diatomaceous deposit of Mull.

1854 - Additional observations on the diatomaceous deposit of Mull. (*Quarterly Journal of Microscopical Science* Vol. 2. Pages 24-28)

1854 - Notice of new forms and varieties of known forms occurring in the diatomaceous earth of Mull; with remarks on the classification of the Diatomaceae. (*Quarterly Journal of Microscopical Science* Vol. 2. pages 90-100)

1855 - On a post-tertiary lacustrine sand, containing diatomaceous exuviae, from Glenshira, near Inverary. (*Quarterly Journal of Microscopical Science* Vol. 3. Pages 30-43)

1855 - On some new species of freshwater Diatomaceae, with remarks on the value of certain specific characters. (*Proceedings of the Botanical Society of Edinburgh* (1855) pages 28-41)

1856 - Notice of some new species of British fresh-water Diatomaceae. (*Quarterly Journal of Microscopical Science* Vol. 4. Pages 1-14)

1856/7 - On the post-tertiary diatomaceous sand of Glenshira. Part II, containing an account of a number of additional undescribed species. 9 *Transactions of the Microscopical Society of London* Vol 4, pages 35-48 and Vol 5. Pages 67-88)

1857 - On new forms of marine Diatomaceae, found in the Firth of Clyde and in Loch Fine. (*Transactions of the Royal Society of Edinburgh* Vol. 21. Pages 473-542).

In 1896 a Mr. Gregory appears as a customer of Elizabeth Eleanor Dancer. It is probable that this referred to W. Gregory & Co. It is not indicated what price was being paid by the company for micro-photographs but it was likely to be in the region of 7/6d per dozen, the retail value of which was 12/-.

Was also a subscription agent for Volume 1 for Arthur C. Coles - *Studies in Microscopical Science* (1882) from 51 Strand, W.C.

The 1873 QMC members list includes - William Gregory of 400 Strand, W.C. - elected May 23rd 1873. Is this the same W. Gregory? The 1874, 1875, 1876, 1877, 1878, 1879 QMC members list includes - William Gregory of 406 Strand, W.C. - elected May 23rd 1873.

Greville, Robert Kaye (original collection)

Born. - Bishop Auckland, Durham, 13th December 1794.

Died Murrayfield, Edinburgh, 4th June 1866.

LL.D. Glasgow, 1824.

Elected F.L.S. 1827.

Elected F.R.S.E. 1821.

'Scottish Cryptogamic Flora' (1823-28)

'Flora Edinensis' (1824)

'Algae Britannica' (1830)

Contributed 'Cryptogamia' to Loudons 'Hortus Britannicus'

Contributed to E.B. 2666, 2717.

Herbarium at Botanic Gardens Edinburgh and Glasgow.

Diatoms in Herbarium at British Museum.

Drew for the Botany Magazine (3040 &c.).

Drawings of 'Algae Brit.' Given to J. H. Balfour.

Paper - 1859 - Description of new species of British Diatomaceae, chiefly observed by the late Prof. Gregory. (*Quarterly Journal of Microscopical Science* Vol 7. Pages 79-86). This probably refers to the diatomist W. Gregory.

References:- Correspondence of Sir. W. J. Hooker at Kew. ; Correspondence of George Bentham at Kew. ; Botanical correspondence of John Lindley at Kew. ; Correspondence of William Wilson, correspondence of G. A. Walker-Arnott, and Rylands correspondence all at the Department of Botany, Natural History Museum. ; *Thesaurus Litteraturae Botanicae* by G. A. Pritzel, 1872, 128. ; *Guide to the Literature of Botany* by B.D. Jackson 1881, 553. ; *Catalogue of Scientific Papers compiled and published by The Royal Society*, III, 12., VII, 836. ; *Journal of Botany* 1866, 538. ; *Thesaurus Litteraturae mycologicae et lichenologicae* by G. Lindau and P. Sydow (1907-24),



J. 560. : *Dictionary of National Biography XXIII*, 164. *Kew Portraits*, 54.

Greville, R. - *Descriptions of new and rare diatoms - Quarterly Journal of Microscopical Science - 1861-1866*

Greville, R. - *Monograph of genus Auliscus - Quarterly Journal of Microscopical Science 1863*

Greville, R. - *Descriptions of diatomaceae in Californian Guano - 1859*

Greville, R. - *Plagiogramma, new genus of diatomaceae - 1859*

Greville, R. *Asterolamfræ of Barbados deposit - 1862.*

Professor of Botany in Edinburgh. He also collected insects and molluscs and was an active opponent of slavery.

Author - Scottish Cryptogamic Flora. 6 Vols. 8vo, plates 360. Edinburgh, 1823-1828.

Author - Algae Britannicae, or descriptions of the Marine and other Inarticulate Plants of the British Islands belonging to the order Algae. 8vo. pp. 306, plates 19. Edinburgh, 1830.

Author - Report on a Collection of Diatomaceae made in the district of Braemar, by Professor Balfour and Mr. George Lawson. 8vo, pp. 10, plate 1. London 1855

Author - Description of some New Diatomaceous forms from the West Indies. 8vo, pp. 6, plate 1. London 1857

Author - Descriptions of some New Species of British Diatomaceae, chiefly observed by the late Prof. Gregory. 8vo, pp. 2. London 1859

Author - Note on a structure observed in Surirella. 8vo, pp. 2. London 1859

Author - Descriptions of Diatomaceae observed in Californian Guano. 8vo, pp. 12, plates 2. London 1859.

Author - Description of some new species and varieties of Naviculæ, &c., observed in Californian Guano. 8vo, pp. 8 plate 1. Edinburgh 1859

Author - On plagiogramma, a new Genus of Diatomaceae. 8vo, pp. 6, plate 1. London 1860

Author - On Campylodiscus, &c. 8vo, pp. 4 plate 1. London 1860

Author - A monograph of the Genus Astrolampra, including Asteromphalus and Spatangidium. 8vo, pp. 25, plates 2. London 1860

Author - Descriptions of New and Rare Diatoms - Series 1, 8vo, pp. 7, plate 1. London 1861

Author - Descriptions of New and Rare Diatoms - Series 2, 8vo, pp. 7, plate 1. London 1861

Author - Descriptions of New and Rare Diatoms - Series 3, 8vo, pp. 5, plate 1. London 1861

Author - Descriptions of New and Rare Diatoms - Series 4, 8vo, pp. 9, plate 1. London 1861

Author - Descriptions of New and Rare Diatoms - Series 5, 8vo, pp. 12, plate 2. London 1861

Author - Descriptions of New and Rare Diatoms - Series 6, 8vo, pp. 7, plate 1. London 1862

Author - Descriptions of New and Rare Diatoms - Series 7, 8vo, pp. 6, plate 1. London 1862

Author - Descriptions of New and Rare Diatoms - Series 8, 8vo, pp. 10, plate 1. London 1863

Author - Descriptions of New and Rare Diatoms - Series 9, 8vo, pp. 16, plate 2. London 1863

Author - Descriptions of New and Rare Diatoms - Series 10, 8vo, pp. 12, plate 2. London 1863

Author - Descriptions of New and Rare Diatoms - Series 11, 8vo, pp. 8, plate 2. London 1864

Author - Descriptions of New and Rare Diatoms - Series 12, 8vo, pp. 8, plate 2. London 1864

Author - Descriptions of New and Rare Diatoms - Series 13, 8vo, pp. 8, plate 2. London 1864

Author - Descriptions of New and Rare Diatoms - Series 14, 8vo, pp. 10, plate 2. London 1864

Author - Descriptions of New and Rare Diatoms - Series 15, 8vo, pp. 11, plate 2. London 1865

Author - Descriptions of New and Rare Diatoms - Series 16, 8vo, pp. 16, plate 2. London 1865

Author - On the Asterolampræ of the Barbadoes Deposit. 8vo, pp. 16, plates 2. London 1862.

Author - Descriptions of new Genera and Species of Diatoms from the South Pacific: Part I. 8vo, pp. 10, plate 1. Edinburgh 1863.

Author - Descriptions of new Genera and Species of Diatoms from the South Pacific: Part II. 8vo, pp. 7, plate 1. Edinburgh 1863.

Author - Descriptions of new Genera and Species of Diatoms from the South Pacific: Part III. 8vo, pp. 6, plate 1. Edinburgh 1865.

Author - A monograph of the Genus Auliscus. 8vo, pp. 18, plates 2. London 1863

Author - Descriptions of New Genera and Species of Diatoms from Honk Kong. 8vo, pp. 7, plate 1. Annals. Nat. Hist. London 1865.

Author - Descriptions of New and Rare Diatoms - Series 17, 8vo, pp. 10, plates 2. London 1865.

Grove, E.

Edmund Grove

Guthrie,

Hardman, L. (original collection)

Lawrence Hardman Born 23rd July 1808, died post 1890.

Of Liverpool. Diatomist. Slides in Herb. Mus. Brit. Hist. Coll. 153. (De Toni., Syll. Alg. II p. CXXVII.)

Triceratium Hardmanianum Grev.

A label depicted in Bracegirdles 'Microscopical Mounts and Mounters' by this mounter includes his initials and a dedication to E. Grove Esq. Hasle. G.R.

Hassall, (herbarium)

Arthur Hill Hassall (1817-1894). A botanist who included Irish Bryozoans in his studies.

Hauck et Richter (sample set)

Heribaud, J. (original collection)(fossil collection)

Frere J. Heribaud

Jenner, (herbarium)

Jenner, A. author of Flora of Tunbridge Wells. London. - pg.260 1 pl, (1845) [Pub. 1845]

Job, H.S.

Johnson, C.

Christopher Johnson (1782-1866)

b. Lancaster 23rd July 1782 d. Lancaster 21st June 1866. Educated in Edinburgh. Surgeon and Diatomist. Translated 'On Animal Nature of Diatomaceae'.

Jones, A.M.

Arthur Morley Jones.

Hon. Reporter for Quekett Microscopical Club in 1936-37, 1937-38, 1938-39, 1939-1940-1941-1942, 1942-1943 also Hon. Assist. Treasurer 1939-1940-1941-1942, 1942-1943 also President elected Feb. 1948-1949.

Present at the Quekett Microscopical Club Conversazione on Tuesday 12th October 1937 at the Rooms of The Royal Society of London, Burlington House, Piccadilly, W.1. showing - Diatom: Triceratium pentacrinum.

Present at the Quekett Microscopical Club Conversazione on Tuesday 11th October at



Burlington House, demonstrating The Mounting of Diatoms.

Present at Quekett Microscopical Club Gossip Meeting 26th October 1937 exhibiting - Selected diatoms from Singiliewsky, Russia.

Elected to Quekett Microscopical Club Nov 17th 1905.

In 1939 Quekett Microscopical Club members list at - 102 Argyle Road, West Ealing, W.13.

In 1948 QMC members list at address - 102 Argyle Road, West Ealing, W.13. Tel:- Perivale 4694. Stated interests - Critical Microscopy; Biology; Botany, including diatoms; Entomology.

Paper read 20th February 1943 - Diatom Movement - in conjunction with A. A. Eliot Merlin (1860-1946).

QMC meeting Burlington House 15th January 1944 exhibiting diatoms.

Jordan, A.

Adolf Jordan.
Of Bodenbach
Diatomist.

Jurgens, (sample set)

Jurgens, G.H.B., author of *Algae aquaticae quas in littore maris dynastiam Jeveranam et Frisiam orient, Decades. Jever. - Vol. I-XX pp. (1816) [Pub. 1816]*

Kitton, Fred (slide set)

Frederic G Kitton (1827-1895)

Born - Cambridge 24th April 1827. Died - London 22nd July 1895.

Diatomist and Microscopist.

A biography of Frederic Kitton was published in *Le Diatomiste*. I'm not sure which number it is but it on page 201. Entitled *Notice biographique sur M. Frederic Kitton by Dr. Henri van Heurck*. It contains a full list of all his publications and should probably be copied.

Published set of Norfolk diatoms, 1881. NORFOLK DIATOMS. Series I-IV, numbers 1-100. 1885. Specimens are strewn mounts on microscope slides. A set as above exists in the Farlow Herbarium - Harvard University.

References - G. A. Walker-Arnott correspondence (Department of Botany, Natural History Museum; Catalogue of Scientific Papers compiled and Published by the Royal Society VII, 83; X, 407; XII, 387; XVI 299.; Memoir by his son (portrait and bibliography included), 1895; 'Diatomiste', II, 201 (portrait and bibliography included); *Journal of Botany* 1895, 312.; *Journal of the Quekett Microscopical Club* 1895, 152. *Transactions of the Norfolk and Norwich Naturalists Society* VI, 201; *Kittonia - Grove and Sturt*.

Hon. F.R.M.S. (*Science Gossip* January 1882)

Article *Science Gossip* January/February 1882 - Early History of the Diatomaceae.

Science Gossip February 1882 Article reviewing a review - Fineness of Striation as a specific Character of Diatoms.

Science Gossip April 1882 Article - On the Origin of Hair-bell, Foxglove &c. also in the same issue 'Cutting Sections of Coal'.

Science Gossip July 1882 Microscopy Section - another 'Cutting Sections of Coal' article.

Science Gossip August 1882 Microscopy Section - a note explaining the meaning of the sign x in relation to magnification. Also another note on Cutting Coal Sections

Science Gossip September 1882 - Another Article in the on-going saga of 'Cutting sections of coal'.

Science Gossip September 1882 Botany section - Ladies Traces.

Science Gossip October 1882 - A rather terse missive concerning the figure x when used as a magnification term and also a note on the term 'talc' as used in sliders.

Many articles in *Science Gossip* with the initials F.K.

Science Gossip November 1882 - Article 'Preparation of Diatoms.'

Part II of *An Essay on the Classification of the Diatomaceae* by M. Paul Petit (Translated by F. Kitton, Hon. F.R.M.S.) was read before the Royal Microscopical Society June 6th 1877 and is published in the August 1877 Part CIV of the *Monthly Microscopical Journal* [*Transactions of the Royal Microscopical Society*]

F. Kitton wrote a chapter on the *Polariscope for Half-hours with the Microscope* by E. Lankester, M.D., F.R.S. (1877)

Co-Author with J. Deby - *A bibliography of the microscope and micrographic studies, part III - The diatomaceae* (For private distribution) - 1882

Co-Author - *DIATOMS: Directions for collecting, preserving, transporting, preparing and mounting Specimens of the Diatomaceae*. By Prof. Arthur Mead Edwards, M.D.; Prof. Christopher Johnston, M.D.; Prof. Hamilton L. Smith, LL.D.; and Frederic Kitton, Esq. - Published by the Industrial Publication Company, New York, 1878 (Note at this time that Arthur Mead Edwards, Prof. Hamilton L. Smith and Frederick Kitton were all honorary members of the QMC).

There were so many articles and pieces of correspondence in the pages of *Science Gossip* that the rest of this volume would be taken up by enumerating these.

In 1883 was a Corresponding Member of la Societe Belge de Microscopie.

The 1881 Census has the following details:

Dwelling: Bedford Cross St., Heigham, Norfolk, England

Fredk. KITTON M 53 M Cambridge, Norfolk, England Rel: Head Occ: Preparer Of Microscopic Objects (Sci Purs)

Mary KITTON M 48 F Alrewas, Stafford, England Rel: Wife Occ: Preparer Of Microscopic Objects (Sci Purs)

Arthur KITTON U 23 M Norwich, Norfolk, England Rel: Son Occ: Tobacconist

Walter S. KITTON U 19 M Norwich, Norfolk, England Rel: Son Occ: Surveyor Unemployed (Merchants Clerk)

Edith KITTON U 17 F Norwich, Norfolk, England Rel: Daughter Occ: Governess (T)

George E. KITTON U 13 M Norwich, Norfolk, England Rel: Son Occ: Scholar

Frank KITTON U 11 M Norwich, Norfolk, England Rel: Son Occ: Scholar

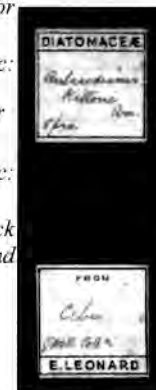
Florence KITTON U 9 F Norwich, Norfolk, England Rel: Daughter Occ: Scholar

In the 1877, 1878, 1879, 1880, 1881 QMC Honorary Members list - Frederick Kitton, Hon. F.R.M.S., &c., 10 Haymarket, Norwich. - elected September 22nd 1876.

Kutzing, Frederick Traugot (original collection)(sample set)

Leonard, E.

Edward Leonard.



Elected to Quekett Microscopical Club November 21st, 1902.
 Address in 1908 - "Cranbrook", Waterloo Park, near Liverpool.
 In 1909, 1911 Quekett Microscopical Club Members list - 2 Cannon Mount, Claughton, Cheshire
 In 1914 Quekett Microscopical Club members list - 14 Fairview Road, Oxtou, Birkenhead
 Canon Mount, Claughton, Cheshire 1909-1911
 14 Fairview Road, Oxtou, Birkenhead 1915
 93 Shrewsbury Road, Birkenhead 1922
 Diatomist. References found in the Meakin Collection to Leonard.

Leonormand, (herbarium)

Leuduger-Fortmorel, G. (a few slides)

Dr. Georges Leuduger-Fortmorel

Long, B.M.

Long, J.A.

John Albert Long (1863-1944).

Diatomist

J. A. Long collection of diatoms (in tubes) with K. D. Kemp.

In 1909 was a subscriber to the Bradford Scientific Journal.

Address given as Westgate Hill, Bradford.

Addresses in Keighley, Bradford and latterly Menston, Leeds.

Schoolmaster by occupation.

Taught to mount diatoms by W. A. Firth

Meakin, S.H.

Meakin, S. H. - 54 Pingle Road, Sheffield 7 (1937 on). Also 11 Hartington Avenue (1931), Sheffield also 66 Sandford Grove, Sheffield (1923)

Samuel Henry Meakin (1876-1955)

Elected to Quekett Microscopical Club 13th April 1943. In 1945 and 1948 was at 54 Pingle Road, Sheffield 7. Stated interest 1945 - Diatoms. Stated interests 1948 - Brass and glass; diatoms.

(from an obituary in the Quekett Microscopical Club Journal by A. Morley Jones See Morley Jones, A.)

S. H. Meakin, who died on 23rd March 1955 was well known to all Quekett Microscopical Club members who were interested in the Diatomaceae, by the series of articles in the Journal describing new and rare diatoms, written in collaboration with J. W. Barker (John William Barker, B.Sc., A.R.C.S. elected to QMC 9th May 1939. Address from 1945 members list - 8 Balcaskie Road, Eltham, S.E.9. Stated interests - Diatoms, photomicrography.) and A. L. Brigger (see Meakin references). Note:- In The Microscope March April 1955 Vol. 10 No. 6 is the following - 'As we go to press we learn with regret of the death of Mr. S. H. Meakin, the well-known diatomist. Mr. Meakin had been a subscriber and contributor to The Microscope since its inception.'

Meakin was an engineer, and his hobbies were gardening, photography and microscopy. Shortly after the end of the first world war, owing to a sever physical disability, he decided to retire from his profession and take up an occupation which could be followed at home. At this time the correspondence columns of the 'English Mechanic' contained many letters dealing with microscopical matters and Meakin replied to a letter from myself (A.M.J.) offering help in mounting diatoms.



He soon became an accomplished mounter and J. A. Long and Reverend Dingley P. Fuge helped him in nomenclature in the early stages of his work. His engineering skill enabled him to build his own microscope (to which he later added a commercial binocular eyepiece) and to make many pieces of accessory apparatus, including the mechanical fingers which he used with such success in the manipulation and mounting of diatoms, of which his preparations are unsurpassed. His extraordinary skill in manipulating diatoms and splitting frustules and even valves into their component parts enabled him to make full use of his unusually keen powers of observation. Meakin described his apparatus in a series of articles in 'The Microscope', later republished in book form with instructions on collecting and mounting diatoms.

His excellent photographic reproductions of figures of diatoms were well known.

As a Christmas Greeting Meakin usually sent his friends and correspondents a beautifully mounted diatom enclosed in a cardboard box which he had made with infinite care.

Meakin was an ideal correspondent being punctual in replying and including clarity of content.

His observations of facts, based on his handling and mounting of thousands of diatoms, were unquestionably accurate, but his conclusions were often controversial, and as he upheld his opinions with the utmost enthusiasm, his correspondence was always most stimulating.

Samuel Henry Meakin appears as a customer in the accounts of J. T. Norman where two sales are recorded. One in May 1926 and another in June of the same year.

Advertisement in The Microscope October and November 1937 - 'Wanted, DIATOMS cleaned or uncleaned in exchange for other material, slides or photographs of diatoms. - Meakin, 54 Pringle Road, Sheffield.'

Advertisement in The Microscope May 1938 - 'DIATOMS cleaned or uncleaned in exchange for other material, slides or photographs of diatoms. - Meakin, 54 Pringle Road, Sheffield.'

Advertisement in The Microscope July 1938 - 'DIATOMS cleaned or uncleaned in exchange for other material, slides or photographs of diatoms. - S. H. Meakin, 54 Pringle Road, Sheffield.'

Advertisement in The Microscope October 1938 - 'DIATOMS cleaned or uncleaned in exchange for other material, slides or photographs of diatoms. - S. H. Meakin, 54 Pringle Road, Sheffield.'

Advertisement in The Microscope March 1939, May 1939 - 'Diatom Material, recent or fossil, cleaned or uncleaned, anted in exchange for other material or diatom slides. Correspondence invited. - S. H. Meakin, 54 Pringle Road, Sheffield, 7.'

Articles in the Quekett Journal

1938 - Note on a new diatom from Joes River, Barbadoes Vol. 24, page 100

1942 - Notes on Diatoms Vol. 24, pages 230-233

1950 - A note concerning the non-validity of Stictodiscus conserpus, n.sp. Ba. & Me. Vol. 26, page 162



The articles below were written in conjunction with J. W. Barker.

1943 - *New Genera and Species of Diatoms from Russia* Vol. 24, pages 251-255

1944 - *New and Rare Diatoms* Vol. 25, pages 18-22

1945 - *New and Rare Diatoms* Vol. 25, pages 76-79

1946 - *New Diatoms from the Moreno Shale* Vol. 25, pages 143-144

1947 - *Diatoms from Russian Deposits* Vol. 25, pages 175-178

1948 - *New and Rare Diatoms* Vol. 25, pages 233-235

1949 - *New and Rare Diatoms* Vol. 25, pages 301-303

The article below was in conjunction with A. L. Brigger

1949 - *New and Rare Diatoms* Vol. 26, pages 41-42

The article below was in conjunction with C. C. Swatman.

1936 - *A note on Craspedoporus elegans and Porodiscus interruptus* Vol. 23, pages 197-199

(Note:- Cecil Charles Swatman. Elected to Quekett Microscopical Club 8th February 1921. In 1939 and 1945 Members list was at 23 Canning Road, Walthamstow, E. 17. Stated interest - Diatoms. Quekett Microscopical Club committee member 1937-38, 1938-39, 1939-1940-1941-1942, 1942-1943. Present at the Quekett Microscopical Club Conversazione on Tuesday 12th October 1937 at the Rooms of The Royal Society of London, Burlington House, Piccadilly, W.1, showing - Diatoms: and Hippuric acid [polarized light]. Present at Quekett Microscopical Club Gossip meeting 24th August 1937 exhibiting - Selected diatoms; three Actinopterychus from cutting for new National Route 1010, Newport, Cal. In 1937 Deepees Ltd were advertising 'Swatmans diatom sieves' [see Quekett Microscopical Club Journal inside front cover March 1938]. C. C. Swatman Present at the Quekett Microscopical Club Conversazione on Tuesday 11th October at Burlington House, demonstrating - The Cleaning of Diatoms.)

Articles in *The Microscope*

January 1939 - *Mounting Moth and Butterfly Wing Scales*

June 1939 (reprinted Vol. 13, No. 3, July/August 1961) - *The Study of Diatoms (I)*

July 1939 - *The Study of Diatoms (II Cleaning; Strewn slides)*

August 1939 - *The Study of Diatoms (III Media; Strewn slides)*

September 1939 - *The Study of Diatoms (IV Selected slides)*

November 1939 - *The Study of Diatoms (V Mechanical Fingers)*

Articles in *Watsons Microscope Record*

Mounting Diatoms in Hyrax - September 1933 (No. 30)

Mounting Diatoms - May 1934 (No. 32)

Publishers of The Microscope - "Mounting Diatoms with notes on Cleaning Material" by S. H. Meakin and C. C. Swatman. Price 5s. 2d. post free.

How to Study Diatoms-2, A Mechanical Finger by Meakin, S.H. - *The Microscope* Sep.-Oct. 1961 - Also included in "A Diatom Notebook" by James F. Fidiham 1976 (unpublished)

How to Study Diatoms-3, Mounting Selected Slides by Meakin, S.H. - *The Microscope* Jul.-Aug. 1962 - Also included in "A Diatom Notebook" by James F. Fidiham 1976 (unpublished)

Mr. S. H. Meakin read the Diatom section of the manuscript for Wilfrid J. Garnetts 'Freshwater Microscopy (1953) and mounted a slide of freshwater diatoms specifically for the volume. The photographs of this appear a Plates XII and XIII in the book.

Mills, F.W.

Frederick William Mills, F.L.S., F.R.M.S. (1868-1949). Joined Postal Microscopical Society in 1890. Address in 1892 given as Camera Club, Charing Cross Road, W.C. Diatomist. See

An Index to the Genera and Species of the Diatomaceae and their synonyms (1816-1932), 1933
Member of the Yorkshire Naturalists' Union Huddersfield Borough 1894 living at Thornleigh, Huddersfield. Joined in 1893, Life Member in 1894 and also F.R.M.S.

Elected Royal Microscopical Society in 1912.

Paper in conjunction with R. H. Philip 1901 - *The Diatomaceae of the Hull District* (*Transactions of the Hull Scientific and Field Naturalists Club* Vol 1. Pages 157-223).

Paper in *Journal Royal Microscopical Society* (1932) - *Some diatoms from Warri, South Nigeria*.

Honorary Member Quekett Microscopical Club elected 10th February 1948 then at address 'Petticombe', Monkleigh near Bideford, North Devon, Bideford 383 - stated interests Diatoms; Foraminifera, FLS also 1948.

'Quoted as being the last of the great English Diatomists of the nineteenth century.'

Elected to Quekett Microscopical Club 25th February 1913.

In 1939 Quekett Microscopical Club members list was at Woodford Hall, Milton Damerel, N. Devon.

In 1945 Members list was at Morcambe Farm, Thornbury, N. Devon. When his stated interest was diatoms.

Still in QMC members list December 1948

Died at Monkleigh, near Bideford, North Devon, 5th October 1949 aged 82. Born in Huddersfield, Yorkshire, educated at Rugby. Solicitor in Huddersfield (family business) until 1922 when with failing health he retired. Varied interests including Painting, photography (Premier Award at the Vienna International Exhibition of Photography) sailing and motor-cycling.

Migula, (sample set)

Migula, W., *Kryptogamen-Flora von Deutschland, Deutsch-Oesterreich und der Schweiz im Anschluss an Thome's Flora von Deutschland* : Band II. Algen : 1. Teil : Cyanophyceae, Diatomaceae, Chlorophyceae. (1907), Gera : Verlag fuer Botanik, 1907. Direktor Prof. Dr. Thome's Flora von Deutschland, Oesterreich und der Schweiz in Wort und Bild : Band VI : Kryptogamen-Flora : Moose, Algen, Flechten und Pilze : Band II. Algen : 1. Teil, and other papers.

Moller, Johannes Dietrich

Morley-Jones, A

See Jones, A.M.

Mougeot, Dupray & Roumagiere (sample set)

Norman, George

Born. - Hull, 1824.

Died. - Peebles 5th July 1882.

List of Hull Diatomaceae in *Transactions of the Microscopical Society VIII* (1860).

Worked at Yorkshire plants.

Diatoms in Hull Museum, catalogued by R. H. Philip.

References:- *Catalogue of Scientific papers compiled and published by The Royal Society*, IV, 643, VIII, 517, X, 939, XIII, 541. ; *Correspondence of G. A. Walker-Arnott in Department of Botany, Natural History Museum*. ; *Transactions of the Hull Field Naturalists Club* I, 105 (includes portrait) and II, 14. ; *The Naturalist* 1903, 307. *Pleurosigma Normanii* Ralfs.

Author - *Notes on some new and rare Diatomaceae, from the stomachs of Ascidae*. 8vo, pp. 2.

London 1857.

Author - List of Diatomaceae occurring in the neighbourhood of Hull. 8vo, pp. 23. London 1860.

Author - On some undescribed Species of Diatomaceae. 8vo, pp. 5. plate 1. London 1860.

Author - List of Diatomaceae, occurring in the neighbourhood of Hull. 2nd edit., 8vo, pp. 32. Hull 1865

Author - Hunting for Diatoms. 8vo, pp. 10. London 1862.

Odam,

Charles Leslie Odam, M.A. (Camb.), M.R.C.S. (Eng.), L.R.C.P. (Lond.) (Dr.), F.R.M.S.

Elected to Quekett Microscopical Club 1st December 1936.

In 1939 Quekett Microscopical Club members list was at Castleacre, 21 Adelaide Avenue, S.E.4.

In 1945 and 1948 members list was at 230 Brockley Road, S.E.4. (1948 - Tel:-Tideway 1811).

Stated interests - Diatoms, Protozoa, Cladocera (The latter absent from 1948 interests).

Papers -

1949 - A beginners guide to diatom recognition (Journal of the Quekett Microscopical Club Vol. 2. Pages 330-334)

1951 - Diatoms of the Thames Estuary. (Journal of the Quekett Microscopical Club Vol. 3. Pages 225-236)

1953 - Periodic observations of the plankton diatoms of a Kentish river. (Journal of the Quekett Microscopical Club. Vol. 3. Pages 437-447)

Quekett Microscopical Club Hon. Treasurer 1938-1939, 1939-1940-1941-1942, 1942-1943

Present at the Quekett Microscopical Club Conversazione on Tuesday 12th October 1937 at the Rooms of The Royal Society of London, Burlington House, Piccadilly, W.1. showing - Pond Life; *Eurycerus lamellatus*.

Present at the Quekett Microscopical Club Conversazione on Tuesday 11th October at Burlington House, showing - Living Pondlife.

Present at the Quekett Microscopical Club Gossip 23rd November 1937 exhibiting - Freshwater flagellates: *Menoidium* and various englenoids, stained tincture of iodine to show flagella.

Present at the Quekett Microscopical Club Gossip 21st December 1937 exhibiting - Choanoflagellate *Salpingoeca* (?) amphoridium. Apo. 3-min. and Holos. O.I. condenser.

A note in December 1944 QMC Journal relates '...owing to war duties, has been unable to attend meetings and act as Treasurer.'

Okeden, T.

O'Meara, Eugene

Reverend Eugene O'Meara b. circa 1815. D. Newcastle Lyons, Co. Dublin 20th January 1880. M.A. Dublin 1858. One of the founders of the Dublin Microscopical Club. Diatomist.

Paddock, T.B.B.

Paddock, T.B.B., *Plagiotropis* Pfitzer and *Tropidoneis* Cleve, a summary account., J. Cramer Berlin-Stuttgart 1988. (1988.) and other papers.

Payne, F.W.

Polunin,

Rabenhorst, L. (3 separate exsiccata sets)

Ludwig Rabenhorst (1806-1881). German. A pharmacist by profession. Interests in Cryptogamic

Botany. Hailed from Leipzig. Founder of the journal 'Hedwigia'.

Ralfs, J. (herbarium)

John Ralfs (1807-1890)

Born - Millbrook, Southampton 13th September 1807. Died - Penzance 14th July 1890.

M.R.C.S. in 1832.

Settled in Penzance in 1837.

'Analysis of British Plants', 1839.

'British Desmidiaceae', 1848

Author - Remarks on the species of *Desmidium*. 8vo, pp. 5, plate 1. London 1843.

Author - On the Diatomaceae. Part 1. 8vo, pp. 11, plates 2. London 1843.

Author - On the Diatomaceae. Part 2. 8vo, pp. 8, plate 1, London 1843.

Author - On the British Diatomaceae. Part 1. 8vo, pp. 7, plate 1. London 1843.

Author - On the British Diatomaceae. Part 2. 8vo, pp. 7, plate 1. London 1843.

Author - On the British species of *Meridion* and *Gomphonema*. 8vo, pp. 11, plate 1. London 1843.

Author - On the British Species of *Grammonema* and *Eunotia*. 8vo, pp. 5, plate 1. London 1843.

Author - On the British Species of *Acnathes*. 8vo, pp. 5, plate 1. London 1844.

Author - The British *Demidieae*. 8vo, pp. 226, plates 35. London 1848.

Author - On the *Nostochineae*. 8vo, pp. 23, plates 2. London 1850.

Author - Remarks on *Dickieia*. 8vo, pp. 2, plate 1. London 1851.

Diatomaceae in Pritchards Infusoria.

Flora of West Cornwall and Scilly - Manuscript in Penzance Library.

Corrsponded with Sir W. J. Hooker, M. J. Berkeley (Department of Botany - Natural History Museum), C. E. Broome also of the NHM, and G. A. Walker-Arnott of the same.

Published a set of British Algae. - BRITISH ALGAE, DRIED SPECIMENS OF MARINE AND FRESHWATER ALGAE, INCLUDING THE

DESMIDIEAE AND DIATOMACEAE. Volume I, numbers 1-40. (A set as above exists in the Farlow Herbarium - Harvard University.

Collections in the Department of Botany, Natural History Museum.

Penzance (Paddy), c. 1850.

Specimens are dried on paper. References - *Thesaurus Literaturae Botanicae* by G.A.Pritzel, 2nd Edition, 256.; *Guide to the Literature of Botany*, by B. D. Jackson, 1881, 595 ; *Catalogue of Scientific Papers compiled and published by the Royal Society*, V, 80, XII, 597 ; *Journal of Botany* 1890, 289 (including portrait); *Flora of Cornwall LVII (including portrait)*; *Transactions of the Penzance Natural History Society* 1890-1, 225; *Bibliotheca Cornubiensis* by G. C. Boase and W. P. Courtney, II, 542; *Dictionary of National Biography*, XLVII, 209; also *John Ralfs - an old Cornish botanist* by A. G. Lewis, 1907; *Ralfsia* Berkeley.

Report and Transaction of the Penzance Natural History and Antiquarian Society 1882-83 - John Ralfs M.R.C.S., Vice President. Also papers 'The Lichens of West Cornwall', 'Additions to the Fungi of West Cornwall'.

Possibly the genus *Ralfsia* is named after him however, Chapman and Chapman 1973 claim G. Ralfs as the source for the name.

The 1881 Census provides us with the following:-

Dwelling: 15 St Clare Street, (Madron) Penzance, Cornwall, England

Elizabeth Eve QUICK U 49 F Sennen, Cornwall, England Rel: Head Occ: Lodging House Keeper

Mary QUICK W 86 F Zennor, Cornwall, England Rel: Mother

John RALFS W 73 M Millbrook, Hampshire, England Rel: Lodger Occ: Medical Professor Not Practising M.R.C.S.L. & L.W.E.A.

Roper, F.C.S.

Freeman Clarke Samuel Roper, B. Hackney 23rd September 1819. D. Eastbourne 28th July 1896. F.L.S. 1857.

Ross, Robert (original collection)

Rylands, T.G. (original collection)

Thomas Glazebrook Rylands (1818-1900)

b. Warrington 24th May 1818 d. Warrington 14th February 1900. A Wire manufacturer by trade. Elected a Fellow of the Linnean Society 1862. Diatomist.

Salah,

Salah, M.M., Diatoms from Blakeney Point, Norfolk. New species and new records from Gre...., *Journal of the Royal Microscopical Society*. - Vol. 72 No. 3 pp.155-169. (1953) [Pub. 1953]

Saxton,

Thomas R. Saxton, A.M.I.C.E., F.R.M.S.

Advertised in *English Mechanic* 1917.

In 1939 and 1945 and 1948 Quekett Microscopical Club members list was at 43 East Bank, Stamford Hill, N. 16.

Elected to Quekett Microscopical Club 2nd April 1909.

Schoeman,

Schoeman, F.R., Diatoms from the Orange Free State, South Africa, and Lesotho I. (1970), *Beihefte zur Nova Hedwigia*, Vol. 31, pg. 331 - 353. [Pub. 1970] and many other papers.

Schrader, H.J.



Shuttleworth, (herbarium)

Probably Robert James Shuttleworth (1810-1874).

b. Dawlish, Devon February 1810 d. Hyeres 19th April 1874. Educated in Edinburgh and Geneva. Elected Fellow of the Linnean Society 1856. Conchologist and critical botanist.

Sims, P.A.

Patricia A. Sims (England) b. 1932

Smith, H.L. (slide set)

Hamilton Lanphere Smith (1818-1903)

Occupation - Businessman and Professor.

Hobart College, Geneva, New York.
Pasadena, California (1930's - 1950)

Diatomist & photomicrographer. First President of the Southern California Microscopical Society (1940). Labels, light pink, cream color

The Farlow Herbarium - Harvard University has the following - DIATOMACEARUM SPECIES TYPICAE. Centuries I-VI, numbers 1-600; supplement numbers 601-750. Boston (Stodder). 1876-1888. Specimens are strewn mounts on microscope slides.

Professor H. L. Smith recommends the employment of Shellac varnished paper rings to finish a slide.

An article concerning the Above was published in 'Science' and an abstract printed in the *American Monthly Microscopical Journal* page 183 1880. (If you have a photocopy of this article it would be appreciated). This was also mentioned in an article in *Science Gossip* December 1882 by W. J. S..

Is this the same H. L. Smith - 'A contribution to the life-history of the Diatomaceae' 1886-7. & 'A synopsis of the British Diatomaceae with remarks on their structure, functions, and distribution, and instructions for collecting and preserving specimens.' 1853-56 & 'List of British Diatomaceae' 1859.

Co-Author - DIATOMS : Directions for collecting, preserving, transporting, preparing and Mounting Specimens of the Diatomaceae. By Prof. Arthur Mead Edwards, M.D.; Prof. Christopher Johnston, M.D. ; Prof. Hamilton L. Smith, LL.D. ; and Frederic Kitton, Esq. - Published by the Industrial Publication Company, New York. 1878

Author - Notes of Diatomaceae, found near Gambia, Ohio. 8vo, pp. 3. London 1860.

In the 1872, 1873 QMC Honorary Foreign Members list - Prof. Hamilton L. Smith, President of Hobart College, Geneva, New York, U.S.A. - elected July 26th 1872.

In the 1874, 1875, 1876, 1877, 1878, 1879, 1880, 1881 QMC Honorary Members list - Prof. Hamilton L. Smith, President of Hobart College, Geneva, New York, U.S.A. - elected July 26th 1872.

Smith, W.

Reverend William Smith (1808-1857)

Born - Ballymoney, co. Antrim, 12th January 1908. Died Cork, 6th October, 1857.

Elected F.L.S. 1847.

Professor of Natural History, Cork, 1854.

Author of Synopsis of British Diatoms - 1853-6.

Correspondence in the correspondence of G. A. Walker-Arnott (Department of Botany, Natural History Museum).

Diatomaceae in the Natural History Museum - List (B.M. publication) 1859.

References - *Thesaurus Literaturae Botanicae* by G. A. Pritzel 2nd Edition 1872, 300. ; *Guide to the literature of Botany* by B. D. Jackson, 1881, 607. ; *Catalogue of Scientific papers compiled and published by the Royal Society*, V, 733. ; *Proceedings of the Linnean Society* 1857-8, XXXVII.

Smith & Beck

Mathematical and Optical Instrument Manufacturers. (formed 1847)

6 Coleman Street, London (1847-1857)

31 Cornhill, London. E.C. (1865-1871)

James Smith and Richard Beck,
James Smith d. 1870. retired 1865.

Stidolph, S.R. (types, samples)

Stosch, von, H.A.

Sturt, G.

Sundstrom,

Sundstrom, B.G. *The marine diatom genus Rhizosolenia, a new approach to the taxonomy.....*
Akademisk avhandling, som for avlaggande av filosofie doktorsexamen vid Mat - pg.117 39 pls.
(1986) [Pub. 1986] and other papers.

Sterrenburg, F.A.S. (types)

Straub,

Straub, F. *Variabilite comparee d'Achnanthes lanceolata (Breb.) Grunow. 2: approche b.....*
Ouvrage dedie a H. Germain, Koeltz - pg.243-250, 6 figs. (1990) [Pub. 1990] Swatman, C. C.

Taylor,

Tempère,

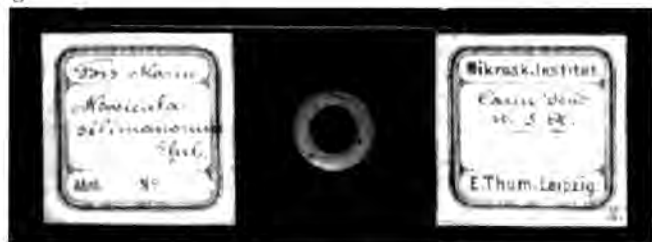
Jean Clodius Tempere

Tempère J. & Peragallo (slide set 1st. & 2nd. ed.)

Thum, E.

Thum, E., Leipzig, Institut fur Mikroskopie

Thum, E. - Leipzig



Source: Photo-micrography, Edmund J. Spitta, The Scientific Press Ltd, 1899.

"We know of no mounter of diatoms in the United Kingdom that can surpass Mr. Firth, of Clifton Park Avenue, Belfast, and few that can equal him, save Mr. Gatrell, of Barnes, whose work is of the most excellent quality: [Whilst these pages are passing through the press Mr. Gatrell has sent us some *Amphipleura pellucida* mounted in realgar and other diatoms in quinidine and piperine which are of the highest order of merit, especially the *Amphipleura pellucida*, which of late has been so difficult to obtain.] but Thum, of Leipzig, and Moller, of Wedel Holstein, also supply slides of exceptional merit and perfection.

Eduard Thum (1847-1926)

Owner and Founder of Institut fur Mikroskopie, 35 Bruderstrasse, Leipzig to 1894 and then situete at Johannis-Alle. Originally an instrument maker, ceased this at 28 to take up mounting slides.

Edward Thum was born 7th April 1847.

As a young man he developed an interest in microscopical plants and animals and mounted such for the microscope. At the age of 28 he abandoned his trade as a scientific instrument maker in favour of preparing microscopic objects, a trade which he continued for the rest of his life.

His training as an instrument maker served him well when it came to making collecting apparatus and processing equipment for diatoms.

When he first began his mounting business he would mount most objects but gradually began to specialise in the creation of laid preparations. At first he did this with *Radiolaria* but soon concentrated on *Diatoms*.

In 1906 the Institut was integrated into the Franckh'sch Verlagsnandlug in Stuttgart. Thum, however, just continued to produce his beloved diatom preparations.

Tilden, (sample set)

Tulk, J.A.

van Heurck, Henri Ferdinand (slide set)

Henri Ferdinand van Heurck (1838-1909)

Wallich, G.C. (original collection)

George Charles Wallich. B. Calcutta, India 1815. D. 31st March 1899. M.D. Edinburgh 1836 (Early education in Aberdeen). F.L.S. 1860. Indian Medical Service 1838-1857 as Military Surgeon. Catalogued Bengal Diatoms. Son of Nathaniel Wallich (1786-1854) superintendent of Calcutta's Botanical Garden. After service in India returned with his family to Britain. During a trip to England in 1850 he had collected and sketched marine animals and was thereafter recommended by Thomas Henry Huxley and Sir Roderick Impey Murchison as naturalist on board the H.M.S. *Bulldog* expedition of 1860. Following publication of his finding controversies regarding his discoveries erupted with Wyville Thomson, W. B. Carpenter and John Murray. Wartman & Schenk (sample set)

West, G.

West, W. & West, G.S.

George Stephen West. B. Bradford 20th April 1876. D. Birmingham 7th August 1919. B. A. at Cambridge 1898. D.Sc. at Birmingham University 1906. Mason Professor 1916. Son of William West who follows. William West - b. Leeds 22nd February 1848. D. Bradford, Yorkshire 14th May 1914. F.L.S. 1887. Chemist by occupation. Lecturer in Botany at the Technical College, Bradford 1886. Wheeler, H.C.

Whittaker,

Oscar Whittaker

Wilson,

Wise, Frederick Clunie

Witt, O.N.

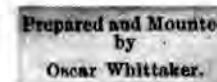
Dr. Otto Nicolaus Witt (1853-?), Westend Bei Berlin

Co-author (with Alfredo Truan Y Luard) of 'Die Diatomaceen der Polycystinenhreide von Jeremie in Hayti Westindien' published in Berlin in 1888.

Wray,

Original References:

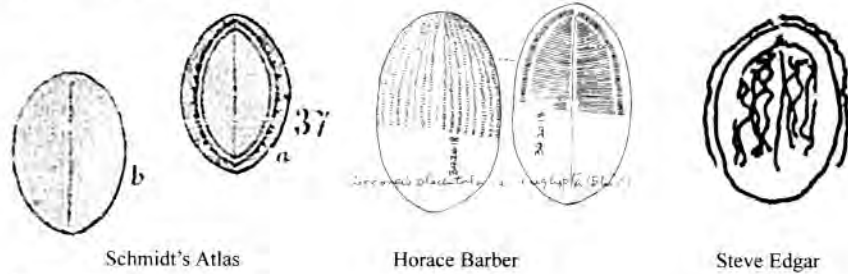
1. Fryxell, G.A. (1975). Diatom collections. In: Proceedings of the 3rd Symposium on Recent and Fossil Marine Diatoms (Reimer Simonsen, Ed.), Nova Hedwigia, Beiheft 53, 355-365. 2. Holmgren et al. (1990). Index Herbariorum, part 1 Ed. 8 (Regnum Vegetabile vol. 120). 3. De Wolf, H. and Sterrenburg, F.A.S. (1991). International survey of diatom collections, Diatom Research 6(1), 205-206 4. Sterrenburg, F.A.S. (1990). Diatom collections, legend or legacy? Diatom Research 5(2), 425-427 5. Natural History Museum, Cromwell Road, London, SW7, England Tel + 44 71 938 91 23



Simple Sketches Conveying the salient points.

Perusing the many and varied texts relating to the Diatoms one is struck by the variation in the detail executed in the drawings that accompany the descriptions. We have found that the most finely detailed drawings can actually make it more difficult to identify a species under the microscope. There is, without doubt, a case for simple sketches. Whilst these may vary from author to author they have a remarkable consistency. We are fortunate in having some original work of Horace Barber, the most accomplished draughtsman, some from A. Schmidt's Diatom Atlas and also some of the field sketches of Steve Edgar. These illustrations are unfussy but convey the salient points.

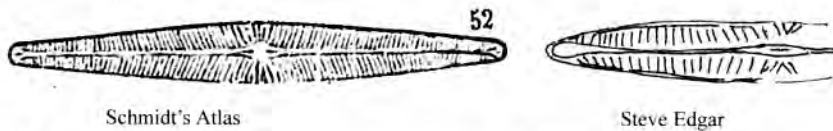
Cocconeis placentula



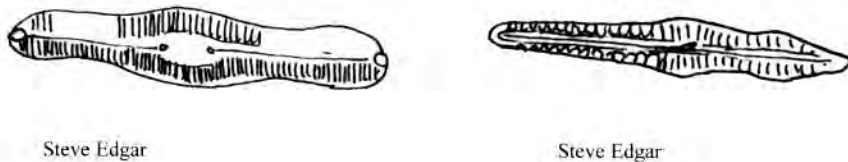
Diatoma elongatum



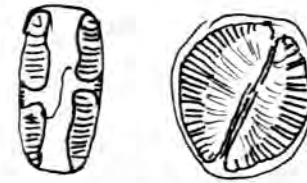
Navicula radiosa



Caloneis bacillaris



Amphora pediculus



Steve Edgar

Field sketches such as these are more than adequate. Some features of interest tend to get exaggerated which serves as a reminder of a particular feature rather than its prominence. As such drawings such as these should be used as guides rather than perfect representations of a particular form.

Field Microscopes (II) The Enhelion Micron

Some may remember the design of this portable microscope from the 80s when it was first introduced as the Lensman.

Since then it has undergone a number of modifications, design-wise and material-wise. Its optical principles remain broadly the same. It is made of a lightweight moulded body that has a non-slip finish.

There are two magnifications - 80x and 160x.

These are selected using a right-angle selector on the underside of the body (A in the image on the next page). The underside is also where the focus is conveniently situated for operation with the thumb as you are holding the device (B).



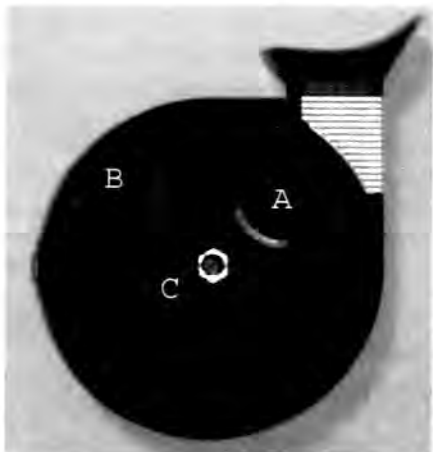
It's amazing what you can see with a Micron!

From prepared microscope slides and fluids to insects and solid objects - coins, geological samples etc, the palm size Micron can tackle just about any task. Even sensitive specimens like rare plants can be examined without disturbing them or taking samples.

quick and easy to use
palm-sized and powerful
magnifies x 10, x 80, x 160
limitless applications

- views solid or transparent objects and fluids
- winner of 8 major awards
- attachable to a digital/35mm SLR camera
- email a specimen anywhere in the world
- robust cap with foam interior

Micron



The light source may be either natural daylight or battery powered light bulb that is housed in a swinging arm. When in the closed position the light is directed to the specimen to provide incident illumination. When in the deployed position transmitted illumination is provided.



There are two light levels selected by a three position switch in the side of the body. The centre point is the OFF position.

The whole unit is powered by 2 AA batteries which are only used to power the lamp. In field operation in daylight there is no power consumption at all and the batteries are not engaged.

There is a standard tripod mount on the underside (C).

The image is presented as an oblong area unlike the normal circular image of a standard microscope. It is possible to purchase a C-mount adapter and also a camera adapter but I have not been able to locate such at any of the suppliers.

A slide is retained on the stage (sample side up) with a magnetic ring which holds the slide firmly but still allows you to move the slide without having to exert a lot of pressure. You may also use the microscope directly by holding it adjacent to the object of interest.

The image is clear though fine focussing takes a little time to master.



The whole package is light and portable and in our opinion is a good field microscope. It is substantially cheaper than the McArthur types described in the last issue, but does not have the finer optical characteristics.

Looking on the internet I came across a couple of suppliers and also one, Alana Ecology, who list this model as 'out of production'.

The following Enhelion Micron Accessories have been made:-

Photo Link, Digital Link, Soft carry case, Neck lanyard, Table tripod, Measuring graticule, Polarising filters,

<http://www.globalrevolution.co.uk>

Enhelion Micron Microscope

A truly take anywhere microscope with glass optics and built-in lighting. The lighting allows both reflected and dark-ground illumination with two brightness levels. Contents: Microscope, holder, slides and user instructions. Supplied in a hard, plastic, padded carry case. Dimensions (HxDia): 27 x 103mm / Weight: 225g. 9 element precision, fully coated glass optics. Switchable magnification of 80x and 160x Ramsden eyepiece with square field of view. Removable to use as a 10x hand lens. Ferrous stage to allow magnets to hold specimens (circular ring magnet supplied) Powered by 2x AA batteries (not supplied) Tripod socket. One specimen and one blank slide supplied.

Price: £130.00

Brunel

Lensman- Micron Field Microscope

This microscope is ideally suited to field work. It represents a genuine breakthrough in design producing a powerful optical system small enough to fit into a pocket.

The top surface of the Lensman forms the specimen stage and the operating controls are placed on the underside where they are easily controlled by the thumbs. The stage is ferrous metal allowing specimens to be retained with special magnetic carriers. The microscope employs a nine element folded optical system and part of the top case articulates to form a lighting arm with a range of illuminations providing conventional transmitted, dark ground and reflected light viewing. The Lensman can be placed against fixed solid objects such as a moss covered rock, enabling microscopic observations in situ. Magnifications x80 and x160. Diameter 105mm Weight 250gms.

Price £84.26

For ease of use it is certainly worth considering and the 160 times operation allows you to determine whether your sample is worth keeping.

Favourite locations. Llanfairfechan

This place name, for me, conjures up images of Victorian diatomists. It was a favoured location of many of the famous British diatomists, and numbers of slides from many of the well known mounters have been seen bearing this name on their labels.

The name of the town is constructed from three Welsh words:-

LLAN meaning church or village
 FAIR Welsh for Mary
 FECHAN meaning the lesser or smaller



Thus "Llanfairfechan" may be translated as "Church of St. Mary The Lesser".

It is believed that the term 'lesser' has been given as the 'great church' of St Mary's is situated several miles away in the City of Bangor.

Llanfairfechan is a North Wales coastal town nestling at the foot of some spectacular mountainscapes situated about halfway between Conwy and Bangor. The town looks out across



extensive mud-flats towards the Isle of Anglesey and Puffin Island across the Menai Strait and to its back is the magnificent Snowdonia National Park.

Llanfairfechan was developed in the late 19th Century as a Victorian holiday resort, popular for its sea air and safe bathing. Much of the town's Victorian character remains, with a long spacious promenade and original stone-built shops in the town centre.

At low-tide the sand and mud-flats are exposed.



Letter to the Editor

Dear Editor,

Re: Review of Pure Diatom Cultures by Mike Samworth.

Your readers might like to be made aware of the following:-

Quekett Journal 1979. Vol 33. pg. 448-459. A general technique for the culture of rotifers.

The author cultures the food organism associated with the particular rotifer to be cultured which is often a diatom or other alga. He uses a proprietary plant food (a good one which includes sequestered trace elements). Method is given in detail.

It ought to work with marine forms too, if sterilised, filtered sea water were used.

He had problems getting it to work for diatom feeding rotifers, but this was NOT that he had problems culturing the diatoms, it was because they stuck to the glass or fell to the bottom, and could not be got at by the rotifers!

Cheers Ray.Parkinson@btinternet.com

How a diatom gets its name.

When a diatom is discovered that cannot be identified with any previously described specimen, a paper is generally prepared describing the individual. If possible, a number of individuals are studied and from these a general description of the features is compiled. From these several specimens, one is normally chosen that exhibits most (if not all) of the characteristics described, including those characters that make it different. This then becomes the 'holotype specimen'. In times past the holotype was often a description rather than a physical slide with a single specimen and one now has to rely on the accuracy of the original observation and in many cases one is unable to verify such observations against the original specimen itself.

Once such a holotype has been described it becomes that basis on which all other specimens are judged. Unfortunately it is almost impossible to describe a species with such precision that all individuals of that species conform. There are many thousands of millions of individuals that comprise a species and there will be variation amongst these and their descendants.

Water mills - Part III - Hampshire

Botley Mills

Botley (east of Botley Square)

Tel: 01489 782202

This ancient watermill on the River Hamble is being restored as a museum of flour milling, and is actually mentioned in the Domesday Book. Unfortunately there is no wheelchair access.

Fri 1pm-4pm, Sat/Sun 10am-5pm, Mon 11am-3pm

Longparish Upper Mill

Longparish, Andover

Tel: 01264 720344

This three-storey, brick built flourmill stands on the River Test. See inside this fascinating building and its restored machinery. Wheelchair access to ground floor only.

Sun 10am-6pm

Waltham Chase Mill and Moors Nature Reserve

Winchester Road, Bishop's Waltham

Tel: 023 8045 6484

Take a look round this Victorian watermill on the River Hamble, before having a guided walk around the adjacent wetland nature reserve. A donation of £1 per head is asked for the guided tour. Ground floor access only to the mill for wheelchairs.

Sun 10am-4pm (tour starts at 2pm)

REFRACTIVE INDEX - A NOTE FOR THE BEGINNER

by Roy Winsby

I thought a note on Refractive Index (often stated as R.I.) would not be out of place here for the newcomer to microscopy who might not understand the meaning of the term, which is a measurement of the deflection of light leaving one medium, say air, and entering another medium of a different density, say water, at an angle.

The simple example usually given in books is that of a stick put into clear water, the stick appearing to have entered the water at a different angle to the part still held in the air. It is the light illuminating the stick which has been bent and this always happens to light when it enters or leaves a different medium at an oblique angle.

The textbook explanation is that the R.I. figure is the measurement of the bending of light in a particular substance as against that in a vacuum which is designated as unity (= 1). All substances are denser than a vacuum, so all R.Is are greater than 1. Lens manufacturers have to take account of R.Is in selecting glass for their lenses. We microscopists have to take account as regards the mounting medium for different types of specimens because the greater the difference between the respective R.Is of the specimen and the mountant used to affix it to the slide, the greater will be the contrast and thus the better the image when that slide is examined under the microscope.

The simplest example of this is that cover glasses have a R.I. of around 1.518 and Canada Balsam in Xylene a R.I. of around 1.524. These are quite close and if you mount some pieces of broken cover glass in Balsam and observe it under the microscope you will hardly see the broken bits of cover glass, because the light is not refracted or bent. If, however, the broken bits of cover glass were mounted in a medium of low refractive index such as Glycerine Jelly, R.I. 1.44, then they would be clearly visible.

Conversely diatoms, have a R.I. of 1.434, and would not be visible mounted in Glycerine Jelly and are best seen under a high refractive index mountant such as Hyrax, R.I. 1.71 to 1.82. Northern Biological Supplies Ltd and the stockists of their supplies sell two high resolution mountants for mounting diatoms, Dirax which does not contain an inflammable solvent, and Naphrax, solvent toluene, R.I. at least 1.74.

Refraction is the bending of a wave when it enters a medium where it's speed is different. The refraction of light when it passes from a fast medium to a slow medium bends the light ray toward the normal to the boundary between the two media. The amount of bending depends on the indices of refraction of the two media and is described quantitatively by Snell's Law. Refraction is responsible for image formation by lenses and the eye.

As the speed of light is reduced in the slower medium, the wavelength is shortened proportionately. The frequency is unchanged; it is a characteristic of the source of the light and unaffected by medium changes.

The refractive index (n) of a substance is defined as:

$$n = V_v / V$$

Where V_v is the velocity of light in a vacuum, and V is the velocity of light in the substance.

For our purposes we will assume that the refractive index of light in air is essentially the same as a vacuum, = 1.

Light slows down when it enters a substance, so the refractive index will always be greater than 1.

Definition: Symbol n. The absolute refractive index of a medium is the ratio of the speed of electromagnetic radiation in free space to the speed of that radiation in that medium. As the refractive index varies with wavelength, the wavelength should be specified. It is usually given for yellow light (sodium D-lines; wavelength 589.3 nm). The relative refractive index is the ratio of the speed of light in one medium to that in an adjacent medium.

Colour of Light

Color	Representative Wavelength (microns)	Wavelength Range (microns)
Violet	0.41	0.4000-0.4240
Indigo	0.44	0.4400-0.4500
Blue	0.47	0.4240-0.4912
Green	0.52	0.4912-0.5750
Yellow	0.58	0.5750-0.5850
Orange	0.60	0.5850-0.6470
Red	0.65	0.6470-0.7000

Policy Statement - Names, Synonyms and Taxonomy

The editors of this publication will not presume to alter names to 'conform to the current taxonomy'. Taxonomists maintain a state of flux and what might be correct today will be wrong tomorrow. Where a species name is given we (and authors) should where possible state the authority they are using when naming. This simply means that if someone else has subsequently renamed the species or re-categorised it in some fashion the basis for the identification will be clear.

Sales, Wants and Exchanges

Exchanges should be described accurately and fully. They should be FAIR.

Diatomaceous Earth - from Oamaru. Small samples exchanged for fossil earths from other locations. Mike Samworth Tel. 07801 819954 with details before sending.

Peragallo et Peragallo etc. - Little Imp CDs exchanged for well mounted diatoms, literature and cleaned samples. See publications list for offerings. Contact the publishers to discuss exchange.

Material from exotic locations - wanted. Contact Klaus Kemp (see advertisement). Exchange for slides of material supplied.

Old diatom mountants wanted. - Particularly Hyrax. Any condition. Contact Steve Gill. Tel. 024 76 641823. Diatom strew slides in exchange.

Filter material - Does anyone know of a supply of brass wire material suitable for diatom filters? If so contact the publishers, or contact the supplier and get them to contact the publishers.

Postcards - The publishers have printed a set of six colour postcards, 4 depicting diatoms and two polarising objects

These are available direct from the printers (see back cover).

"Sulphur Bottom"

SCIENTIFIC NAME: *Balaenoptera musculus*

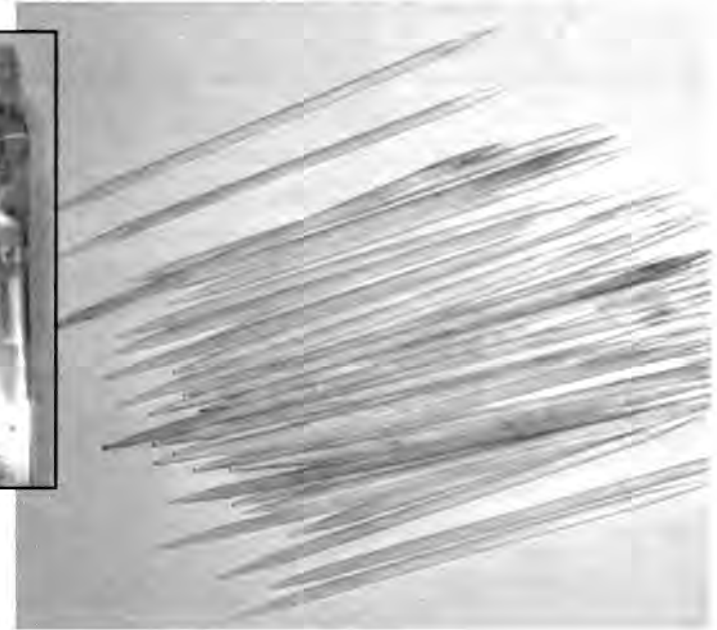
COMMON NAME: Blue Whale; also known as "sulphur bottom", for the yellow-brown appearance of diatoms flourishing on the skin after the whales have been in polar waters for long periods of time.

DISCOVERED: Linnaeus, 1758

Mounting techniques Part VI - The humble cocktail stick

The cocktail stick, I propose, should be in every diatomists mounting kit. It has multiple uses.

Firstly it is cheap, as I have mentioned before this is a pre-requisite for any piece of equipment for a Yorkshire born diatomist.



Secondly it is disposable.

I have always had problems with the little dropping rods of glass so commonly used with mountants. They get all gummed up and the drop size is never quite what you want as you switch between coverslip sizes.

These cocktail sticks don't appear to leave any flotsam and jetsam in the mountant. You don't get contamination because once you've used it you throw it away. They aren't affected by indirect heat from the slide so you can use them to move the coverslip, to tease out those little bubbles with the fine point, tap the coverslip down. You can spread a particularly clumpy strew by adding a little extra water and swirling around on the slide. My wife tells me that you can impale all sorts of delicacies on them for cocktail parties but I think that's taking things a little far.

I take them along with me when collecting. They are bio-degradable so you can tease out a likely looking sample and then dispose of the stick so that you don't get cross contamination of samples. They are also very good for getting a fire going, as the first dry wood on some tinder. They are even more combustible if you use the ones you've just been dipping in mountant. And if you get caught out in a storm and have to shelter then you and your colleagues can have a game of 'pick up sticks'!

Lakeland MICROSCOPES

Holly Bank, Windermere Road, Lindale, Grange-over-Sands, Cumbria, LA11 6LB

Fax: 01539 535026

email: lakeland@uk-scientific.co.uk

web: www.uk-scientific.co.uk/lakeland

Mail order supplies of Microscopes, Video Microscopy Equipment and other Scientific Apparatus to Schools, Colleges, Universities, Industrial and Medical Users, and also to the Amateur Microscopist.

DIATOM SIEVES.....

for grading samples of Diatoms and other water borne micro-organisms.

Available in the following mesh sizes (lines/inch):

100 200 400

Sieves are constructed with nylon mesh material as standard and incorporate a unique design feature to ensure no mess or loss of sample in use.

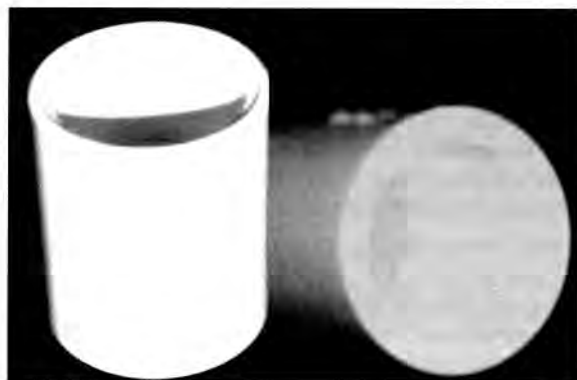
Hand made to order price £7.50 each plus £1.50 p&p from:

Douglas Downer-Smith

Mill Bay House, 19 The Copse, Hemel Hempstead, Herts HP1 2TA

Phone: 01442 244589

Email: douglas@downersmith.fsnet.co.uk



The next issue of

The Amateur Diatomist



In the next Issue:-

Halcyon Days

Deformations

Christmas Barber

Cleaning Diatoms

Waterfalls

Synedra robusta

Flatters and Garnett List

Field Microscopes III

Insulation

Sales, Wants and Exchanges

Springs

Correspondence

Notes for contributors.

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We hope that by adopting this relaxed approach to the submission of copy you will all break out the notepads and begin writing. What you have to say concerning Diatoms, mounting and Microscopy is of interest to us all.

"No one of us know all there is to know, and yet we do not know what we do not know." - Anon.