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**A Curious Little Book by an Interesting Father-Daughter Team:
"Sketch of a Fauna Infusoria for East Norfolk" By Thomas
Brightwell, F.L.S. (1787-1868), with illustrations by Lucy
Brightwell (1811-1875)**

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I am always on the lookout for early illustrations of my favorite organisms, tintinnid ciliates of the marine plankton. Periodically, I search listings of used books for titles containing variants of the old-fashioned term 'infusoria', referring to organisms found in 'infusions' by Leeuwenhoek and his followers. Recently, I came across an offer of an unfamiliar title from 1848, "*Sketch of a Fauna Infusoria for East Norfolk*" (Brightwell 1848a). A quick Internet search yielded a digitized version of the book of poor quality but a tintinnid was apparently shown so the purchase was made. An 1848 illustration of a tintinnid would be remarkable, to me at least.

A couple of weeks later the book arrived. Brightwell's book turned out to be a curious, small (14 x 20 cm), volume. As the title suggests, it is an account of microorganisms found in the region of Norfolk. The preface states that a member of his family, who we now know to be his daughter, Cecilia Lucy Brightwell, commonly known as Lucy Brightwell, did the figures (see Fig. 1, overleaf):

*Figures are given of every species noticed in the work. The drawings were carefully executed by a member of my own family, and the whole transferred to stone and colored by the same hand.**

* 100 copies only have been printed for private distribution

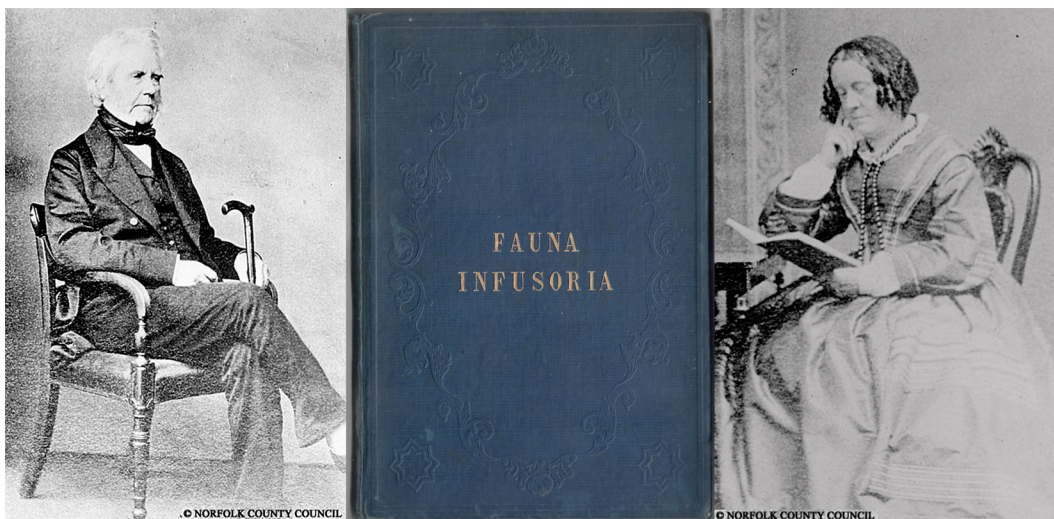


Figure 1. Father and daughter: Thomas Brightwell FLS, author of *Sketch of a Fauna Infusoria for East Norfolk*, and Lucy Brightwell, the illustrator and lithographer. Left & right panels: courtesy of the Norfolk County Council.

Given the small press run and a 'private distribution', it is perhaps not surprising that the work is not well known. It appears to have been cited only 6 times in the last 120 years. However, it is available. The "World Catalogue" lists 15 libraries holding the book, not including the copy in the library of the Linnean Society. A digitized version, albeit of poor quality, is freely available through the British Library and Google Books.

How reliable were the observations recorded? What did Thomas Brightwell know of infusoria? The preface lists "the only works consulted", quite valuably then it defines Thomas Brightwell's knowledge base and the illustrations at his disposal. These works were the 1) '*Infusoires*', Brugiere's 1791 contribution to the "*Encyclopédie Méthodique*", rightfully noted by Brightwell as chiefly a copy of Müller's (1779) compendium, 2) Baker's "*Employment for the Microscope*" (1764) which contains a fair amount on rotifers but little on infusoria, 3) Pritchard's "*History of Infusoria*" 2nd ed. (1841), rightfully noted by Brightwell as principally a compilation of Ehrenberg's 1838 illustrated catalogue of all known infusorian species, and finally Dujardin's "*Zoophytes...*" (1841). The works used by Brightwell were the best available at the time. Knowing exactly which authorities were used allows easy assessment of the originality of the illustrations in his book; as alluded to in the descriptions above, copying of earlier works was not at all uncommon at the time.

The text descriptions are brief and the illustrations (all appear to be original creations) are rudimentary, but sufficient to allow identification to the genus level for most of the forms described. The book would not easily serve as a guide to the aquatic microorganisms of Norfolk as the organization is idiosyncratic. The text lists descriptions of taxa by genus and plates (without legends) shows taxa of very different groups from distinct environments pictured together (see Fig. 2.). It is rather a record of Thomas Brightwell's microscopical findings in his

home territory. One of his findings was significant for me. The tintinnid ciliate shown in PL XIX 19, fig. 7, said to have been "Found in brackish water, near the Railway Station, Yarmouth", does indeed constitute the fourth historical record of a tintinnid. It is preceded only by Müller's (1779) and Ehrenberg's (1838) observations from the Baltic Sea near Copenhagen, and Dujardin's (1841) observations from the Mediterranean Sea near Sète.



Figure 2. Fig. 2 How reliable is Sketch of a Fauna Infusoria...? Organisation of the plates is idiosyncratic, with taxa from different groups and environments pictured together. However, plate XIX, fig. 7, shows a tintinnid ciliate—the fourth historical record of the organism, after Müller, Ehrenberg and Dujardin.

Who were the Brightwells? All that we know of Thomas Brightwell is based on Lucy Brightwell's 1869 book, *Memorials of the Life of Thomas Brightwell by his Daughter* and an obituary notice in the Proceedings of the Linnean Society (Anon 1869). The obituary notice consists of some of the same text as in a chapter in Lucy Brightwell's *Memorials...*, a chapter on him as a naturalist, said to have been dictated and corrected by her father. Thus, it appears that Thomas Brightwell largely penned his own obituary notice.

What we learn from Lucy Brightwell's text is that her father was a solicitor and a deeply religious man, a scholar of Latin, German, Greek, and Hebrew texts. He published a weighty tome, *Notes on the Pentateuch* in 1840. Brightwell served a term as Mayor of Norfolk in 1837 and as Mayor, attended the ascension to the throne of Queen Victoria, ushering in the Victorian era.

He was an enthusiast of natural history in general, and in his later years in particular, of diatoms, the microscopic algae shown in Fig. 2, PL IX. According to

Lucy Brightwell's text, he began his naturalist pursuits by collecting insects. His collection came to the attention of his next door neighbour in Norfolk, Sir James Smith, who found it better than that of Linnaeus, housed in his residence at the time. This perhaps motivated Sir James Smith's nomination of Brightwell to the Linnean Society in 1821, describing Brightwell as one of Britain's premiere entomologists. There are two beetles in the Linnean insect collection catalogued as from Brightwell via Smith. Oddly enough, Brightwell never published on insects nor in the *Proceedings*. Although he always published as FLS, he published mostly in *Quarterly Journal of Microscopical Science* and in the *Annals and Magazine of Natural History*. As did many Victorian naturalists, he published on a wide variety of organisms. He wrote about lobsters (Brightwell 1835), leeches (Brightwell 1842; 1846a) on a dolphin (Brightwell 1846b), a rotifer (Brightwell 1848b), diatoms (Brightwell 1853; 1856a,b; 1858a,b; 1860) and on a dinoflagellate (Brightwell 1857). In his later years, he suffered from cataracts and his last scientific efforts were to give his slides containing new diatoms to Tuffen West for him to publish (West 1860). Brightwell's daughter did not do the illustrations for his articles, except for a dolphin illustration (Brightwell 1846b), they were mostly done by Tuffen West, well known at the time for his own work on diatoms and his illustrations (Dolan 2021).

Lucy Brightwell never married and survived her father by only 7 years. She is today known as a writer and an artist. Her first, and best-known, book was the biography of the romantic era novelist, Amelia Opie (Brightwell 1854) another Norwich resident and abolitionist followed by "*A Life of Linnaeus*" (Brightwell 1858). She published many inspirational titles such as "*Heroes of the Laboratory and the Workshop*" (1859) and "*Above Rubies; or, Memorials of Christian Women*" (1865), for the young. All told, she published 20 books. She is also known for her artwork. She was renowned for her etching after masters such as Rembrandt and Dürer. The British Museum holds 79 of her prints. Lucy Brightwell is likely better known than her father. Unlike her father, she has entries in the Oxford Dictionary of National Biography. The first was by Alexander Gordon (1885), it includes a complete list of her books, and in the recent edition, a new entry by Norma Watt (2004).

Sketch of a Fauna Infusoria turned out to be a book of interest not only because of its rare illustrations, but also as a reminder of a bygone era in which a solicitor could be both a biblical scholar as well as an accomplished naturalist and a writer of inspirational books could be also a lithographer and a master copyist of Rembrandt. Hopefully when you are reading this it will again be possible to drop by the Linnean and have a look at the curious little book yourself.

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