Notes and Records

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I discuss just two topics in this issue, one at the cutting edge of modern taxonomy, followed by one going back more than 150 years to the world of Berkeley & Broome, thus well before the foundation of the BMS. It was merely the BMS 125th anniversary that was celebrated this year at its Spring meeting. One talk given there was a very thoroughly researched account by John Edmondson of the life of Mrs Lloyd Wynne, a name surviving in *Marasmius wynneae* and several other species named in her honour. I add here some notes on the species named after her and their subsequent fate, a topic covered by Edmondson in less detail than his meticulous account of what little is known of the life of this remarkable woman.

Carving up *Cortinarius*

It had to happen one day. It is starting to happen now: a carve-up of the largest genus in the agarics into a set of smaller monophyletic genera. The first steps have been taken in Liimatainen *et al.* (2022), entitled *Taming the beast: a revised classification of Cortinariaceae based on genomic data*. This proposes the treatment of *Cortinarius* as currently understood in ten genera, seven of them new, which reads like something important, so I discuss it here at some length.

In the last 25 years or so dramatic falls in the cost of sequencing have allowed the use of multiple genes to unravel phylogeny. ITS helps to sort out closely related species, but ever larger combinations of genes are now used to clarify the deeper nodes in phylogenetic trees. The abstract at the head of this paper summarises its methodology in terms that unfortunately mean nothing to me: "Targeted capture sequencing is used for the first time in fungal taxonomy in Basidiomycetes. It provides a cost-efficient way to produce -omics data in species-rich groups". Be that as it may, the results are significant. The earliest branches in the tree of *Cortinarius* have now emerged with sufficient clarity for some of these to be safely hived off into separate monophyletic genera.

It needs stressing that this paper takes only the first steps. It is only these early-diverging parts of the genus, broadly corresponding to sg. *Phlegmacium* as currently understood, that are now split into nine of the ten genera advocated. The tenth is of course *Cortinarius* itself, still split only into subgenera, and awaiting further clarification. However the British species are now assigned to ten subgenera, rather than just the three other than *Phlegmacium* now in use. *Dermocybe* for instance becomes a subgenus in this treatment, rather than a section of sg. *Cortinarius* (as in *Funga Nordica*) or a genus (as at times in the past, and possibly again in the future). *Telamonia* remains huge, losing only two small groups to other subgenera.

Nearly all the changes here at generic level, and thus triggering name changes, stem from splitting sg. *Phlegmacium* into three genera, all quite large, these being *Phlegmacium*, a new genus *Calonarius*, and (surprisingly?, see below) the existing genus *Thaxterogaster*. Sadly, morphology fails in general to reflect the clear DNA differences that underlie these genera, though for instance all the large group of 'Calochroi' are now placed in *Calonarius*. Only five other British species receive name changes:

* The only two cystidiate members of sg. *Phlegmacium* (*C. crassus* and *C. rubicundulus*) move to a new small genus *Cystinarius*.
* Three yellow-orange species, all with distinctive odours, *C. limoneus*, *C. callisteus*, and *C. tofaceus*, currently in sg. *Cortinarius*, move to another new small genus *Aureonarius*, sister to *Calonarius*.

The other four new genera are all small, two confined to the southern hemisphere, the other two also unknown in Britain. All the new genera have been given names ending in …narius, as a reminder of their origins and thus also retaining the masculine gender of *Cortinarius*. *Phlegmacium* unfortunately is neuter, so species such as *Cortinarius argutus* and *C. vulpinus* become *P. argutum* and *P. vulpinum*. *C. glaucopus* however doesn't follow suit. Its name is a noun (pus = foot), and not being an adjective it does not follow the gender of its genus. Tricky!

Thaxterogaster is a genus described by Singer in 1951 for a group of American and Australian species, gasteroid and largely hypogeous, and thus for Singer entirely outside the *Agaricales*.

However, it has long been known to be closely related to *Cortinarius*. It here includes around 20 British species, none gasteroid, the majority phlegmacioid (notably the *C. purpurascens* complex), but also the sg. *Myxacium* species with a bitter cap cuticle (sect. *Vibratiles*).

Should we be following these changes?

What follows is a personal view. Whoever 'we' may be, I think we should wait. The relationships described are real enough. They follow comparable recent splits in other large genera such as *Psathyrella* and *Inocybe*. But acceptance now has for me a strong flavour of 'changing horses in mid-stream'. A wave of further changes to the rest of *Cortinarius* are sure to follow in the next few years, inevitably imposing further name changes. Then will be time enough to change.

I am reminded of a comparable earlier dilemma at family level, less crucial in that it didn't affect species names. *Cortinarius* in the 1960 checklist was one of 15 genera in the family *Cortinariaceae*. Today (e.g. in *Funga Nordica*) it is the only one left. In the 2005 checklist (Legon & Henrici) we still assigned 12 genera to this family, following the treatment in the *Dictionary of the Fungi*, 8th Edn. 1995. By then the 9th Edn. 2001 was already available, which had already moved some of these 12 elsewhere. It wasn't followed on the stated grounds that "the molecular position is as yet too fluid with too many gaps to form a satisfactory basis for a detailed classification". The reorganisation of *Cortinarius* is now similarly still fluid.

This paper has received some adverse comments on the grounds that the major new genera described appear to be indistinguishable short of sequencing, and thus a step in the wrong direction. The counter argument is that there are two quite distinct goals to be aimed at when classifying fungi (or indeed any life forms): Goal A: helping species identification, Goal B: understanding the evolutionary tree. Linnaean binomials were designed with Goal A much in mind; this paper reports an important step towards Goal B. Workers towards this goal have to use an uneasy mix of the Linnaean hierarchy plus the rank-independent concept of clades to express their results. Workers towards Goal A have also to compromise at times and offer keys to groups of species that merely look similar but in fact belong in several genera. This is already essential in some areas of the boletes, but is likely to spread as ever more genera get split up into more truly homogeneous units.

Summary

The following details are only likely to be of interest to true *Cortinarius* aficionados. The keys and sections referred to are those of *Funga Nordica*. This order of treatment is also closely followed in Kibby (2021). All the proposed changes relevant to British species are summarised. The further subgenera listed here as destinations are all retained within the genus *Cortinarius*.

sg. ***Cortinarius***

Key A sect. *Cortinarius* to sg. *Cortinarius*
Key B sect. *Veneti* to sg. *Leprocybe*
Key C sect. *Orellani* to sg. *Orellani*
Key C sect. *Limonii* + sect. *Callistei* to the new genus *Aureonarius*
Key D sect. *Dermocybe* to sg. *Dermocybe*.

The three subgenera listed here other than sg. *Cortinarius* could well end up in a future reorganisation as components of a single genus reinstating the name *Dermocybe*.

sg. ***Myxacium***

Key A sect. *Myxacium* retained
Key B sect. *Defibulati* retained
Key C sect. *Delibuti* to sg. *Camphorati*
Key D sect. *Vibratiles* to *Thaxterogaster* p.p.

sg. ***Phlegmacium***

As well as the main 3-way split outlined above, three species move elsewhere:

* *C. caperatus* (the former *Rozites caperatus*) to sg. *Paramyxacium* (a largely southern hemisphere subgenus)
* *C. infractus* to type of a new sg. *Infracti*
* *C. subtortus* to sg. *Camphorati*.

sg. ***Telamonia***

All species in 16 of the 18 keys A to R are retained. The two exceptions are:

* Key C sect. *Anomali* to sg. *Camphorati*, now forming its major part, joined there by other species with broadly globose spores: sect. *Delibuti* from *Myxacium* and *C. subtortus* from *Phlegmacium*.
* Key K sections *Acuti*, *Obtusi*, *Fragrantiores*, all with an iodoform smell, to the new sg. *Iodolentes*.

The species named for Mrs Lloyd Wynne

Around 20 years ago I made some unpublished

notes on the five species named after Mrs Lloyd Wynne by Berkeley & Broome, all described in their long-running series 'Notices of British Fungi', four from the area around her husband's estate at Coed Coch in N.Wales (Denbighshire), and one from a hothouse in Kew. Only one of these is no longer in use (found to have an earlier name). I had assumed, in a markedly sexist way, that she had caught the foraying bug from Berkeley on his many visits to this mycologically productive area. Not so! She was a self-starter in mycology and respected as an equal in the man's world of the Woolhope Club that met in Hereford and preceded the founding of the BMS. Berkeley visited because she was already organising forays there. He listed Coed Coch as a site for some 30 of the 'above a thousand' species of macrofungi treated in his 1860 Outlines of British Fungology. More significantly he dedicated that whole work to her "as a small tribute to the zeal with which she has studied the numerous fungi of her beautiful country".

As something of a pedant, what I had noticed was Berkeley's spelling inconsistencies, having named her first three species 'wynnei' and only the later two with a feminine ending 'wynniae', while some of my books were now spelling some of these as 'wynneae'. It turns out that only the last of these should now be used, there being rules laid down in the code for the formation of commemorative names, any deviations being classed as 'orthographic errors to be corrected'.

I have since investigated two other such commemorations. Derek Reid described *Lepiota marriagei* collected in Somerset by a Mrs Marriage (now a *Leucoagaricus*). This looked wrong until I found that Reid specifically but ungallantly states that he had named it for her husband. I also found that *Mycena belliae* had been named for the plural 'Misses Bell', and should thus have a genitive plural ending and become *M. belliarum* (I'm old enough to have been schooled in Latin grammar). On the strength of this the name got changed in Index Fungorum. However, Aronsen & Læssøe (2016) in their *Mycena* book beg to differ, writing "We prefer to accept that Johnston and Berkeley were aware of Latin rules and preferred to name the fungus after one of the sisters". I'm quite sure there were no formalised rules for multiple dedicatees at the time. But enough of this nit-picking!

Details follow of the subsequent history of the five species described in 'Notices of British Fungi'.

Marasmius wynnei No. 802, 1859
Now a well-known species *M. wynneae*, though in the interim some authors (eg. Carleton Rea, Kühner & Romagnesi) wrongly reduced it to a synonym of the later *M. globularis* Fr. .

Polyporus wynnei No. 807, 1859
Now *Loweomyces wynneae*, well illustrated in B&K Vol.2 and FTE. This has also been combined in *Polystictus*, *Leptoporus*, *Fibuloporia* and *Tyromyces*, this last still used in the deliberately 'conservative' treatment by Ryvarden & Melo (2014).

Agaricus* (*Entoloma*) *wynnei No. 1342, 1873
Now *Entoloma wynneae*, as far as I am aware still known only from the Coed Coch type collection and three others by Alan Outen in 1995, 1996 and 2005, these all from Peter Orton's favourite sawdust heap near the school where he taught at Rannoch, Perthshire. This is ironic since Orton had omitted it from the 1960 checklist as 'doubtful'. Outen's photo of his 1995 collection appears in Noordeloos (2004) attributed to Derek Reid. See Outen (2009) for an explanation of this mishap together with a description and a copy of his photo.

Hiatula wynniae No. 1772, 1879
Now *Leucocoprinus wynneae*. Described from a hothouse in Kew. Not seen there since, but now known in the wild from Queensland and Sri Lanka fide Pegler (1966) in his revision of the list of agarics known from Kew Gardens. *Hiatula* Fr. was a genus for ringless lepiotoid species, now abandoned since no material survives to clarify the identification of its type species.

Hygrophorus wynniae No. 1781, 1879
Now *Chrysomphalina grossula* as in CBIB, illustrated in Kibby Vol.2 and FTE. Also placed in recent literature by Bon in *Cuphophyllus*, by Clemençon in *Camarophyllus*, and earlier by Singer first in *Omphalina* and later in *Gerronema*. Berkeley overlooked that he had himself described it already in 1875, though only as a variety *abiegna* of *Agaricus* (*Omphalina*) *umbelliferus*, now a *Lichenomphalia*. He was evidently unaware that Persoon had already described it in 1828 as *Agaricus grossulus*.

In addition to these five species of agarics, Berkeley and his American co-author Curtis named a new asco genus *Wynnea* (*Sarcosomataceae*) still in current use, which has since spawned a further related genus *Wynnella*. So the name of Mary Lloyd Wynne lives on around the world.

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References

Aronsen, A. & Læssøe, T. (2016). *The genus Mycena s.l.* FNE Vol.5. Svampetryk.
Berkeley, M.J. & Broome, C.E. (1837-1885). *Notices of British Fungi*. Reprint J. Cramer 1967.
Cullington, P. (2020). Coming soon! Changes affecting the genus *Inocybe*. *Field Mycol*. 21(3): 102–107.
Edmondson, J. (2021). Mary Lloyd Wynne of Coed Coch and Alfred Osten of Colwyn Bay: two little known mycologists from North Wales. *Trans Extra: Woolhope Club* 69: 1–39.
Kibby, G. (2021). *Mushrooms & Toadstools,* Vol. 3. Privately printed. fieldmycol@yahoo.co.uk
Legon, N.W. & Henrici, A. (2005). *Checklist of the British & Irish Basidiomycota*. Royal Botanic Gardens, Kew.
Liimatainen, K., Kim, J.T., Pokorny, L., Kirk, P.M., Dentinger, B. & Niskanen, T. (2022). Taming the beast: a revised classification of *Cortinariaceae* based on genomic data. *Fungal Diversity* https://doi.org/10.1007/s13225-022-00499-9
Noordeloos, M.E. (2014). *Entoloma* s.l. *Fungi Europaei* Vol. 5. Outen, A.R. (2009). The rediscovery of *Entoloma wynnei*. *Field Mycol*. 10(2): 63–64.
Pegler, D.N. (1966). A revised list of the Agarics and Boleti of the Royal Botanic Gardens, Kew. *Kew Bulletin* 20(2): 201-231.
Ryvarden, L. & Melo, I. (2014). *Poroid Fungi of Europe*. Fungiflora.

Urocystis on *Ranunculaceae* in Britain

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At one time all leaf blister smuts on *Ranunculaceae* were considered to be *Urocystis anemones*. However, it is now known that the smuts in this genus are highly host specific. Studies by Ainsworth & Sampson (1950) (A&S) and Mordue & Ainsworth (1984) (M&A) indicate that many other host genera, native and cultivated, have been infected in these islands, and thus many further *Urocystis* species are British. Most of these are listed in CBIB (Legon & Henrici, 2005). The list below includes one more added since (see under *Pulsatilla*) and two more added here (see under *Aconitum* and *Aquilegia*). The species are listed under host, in alphabetical order. In addition, British plants that are infected in Europe are listed so that they may be checked, if and when found. The object of this article is to encourage colleagues to search for these smuts and increase our knowledge of their frequency and distribution. Most appear to be rare but may be simply under-recorded.

Aconitum napellus (Monkshood) is infected by *Urocystis irregularis* (G. Winter) Săvul. Although not previously recorded as a British species I have recently collected material from two gardens in Wester Ross. The smut is widespread in Europe.

Anemone coronaria (Garden Anemone) is suggested as a host by A&S, and implicitly by M&A, on cultivated Anemones. In Europe it is infected by *Urocystis antipolitana* Magnus. No material has been confirmed, so it is not listed in CBIB, but the host is commonly grown in our gardens so it is worth looking out for it.

Anemone nemorosa (Wood Anemone) is commonly found carrying *Urocystis anemones* (Pers.) G. Winter *sensu stricto*.

Anemone ranunculoides (Yellow Anemone) is naturalised in southern England and is frequently found with *U. anemones sensu stricto*.

Aquilegia species (Columbines) are host to *Urocystis aquilegiae* (Cif.) Schwarzman. The host is cited by M&A and CBIB as carrying