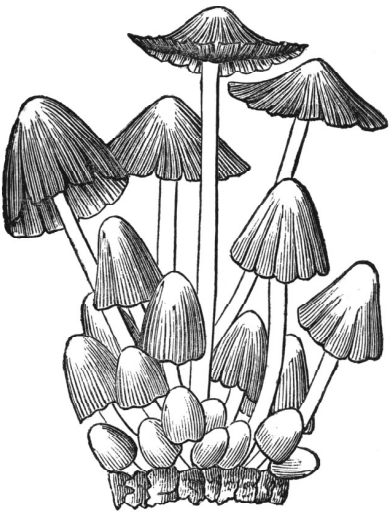

BFG

Buckinghamshire Fungus Group

Newsletter No. 10

September 2009

£3.75 to non-members

The BFG Newsletter is published annually in August or September by the Buckinghamshire Fungus Group. The group was established in 1998 with the aim of: encouraging and carrying out the recording of fungi in Buckinghamshire and elsewhere; encouraging those with an interest in fungi and assisting in expanding their knowledge; generally promoting the study and conservation of fungi and their habitats.

Secretary and Joint Recorder	**Derek Schafer**
Newsletter Editor and Joint Recorder	**Penny Cullington**
Membership Secretary	**Toni Standing**
Programme Secretary	**Joanna Dodsworth**

The Group can be contacted at fungi@bucksfungusgroup.org.uk or at Derek's address on the back page of the Newsletter. The web site, kindly provided by Buckinghamshire and Milton Keynes Environmental Records Centre, is www.bucksmkerc.org.uk/local_groups/fungusgroup.htm

Membership costs £4.50 a year for a single member, £6 a year for families, and members receive a free copy of this Newsletter. No special expertise is required for membership, all are welcome, particularly beginners.

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Photo credits: AB = Antony Burnham; PC = Penny Cullington ; JD = Joanna Dodsworth ; NJJ = Nick Jarvis; JL = Justin Long ; ARO = Alan Outen ; DJS = Derek Schafer; NS = Nick Standing.

Cover photo: *Lepista nuda* (Wood Blewitt) at Penn Wood, 6 Nov 2008. Photo NS

A NEW SEASON BECKONS

It's that time of year again, when you need to be shaking the spiders out of your basket and recovering your x10 lens from some dusty corner in readiness for the fast approaching foray season. As I write (at the end of July) it's tipping with rain and summer seems to be over already and following much the same trend as last year, i.e. hopeless for sun-worshippers but actually not bad and quite promising for fungus-fanatics. Maybe our early start to the foray programme this year will prove fruitful; as ever, only time will tell. I for one am really looking forward to it because the weather pattern last year produced a bumper crop of my favourite genus in the Chilterns from August through to October; so a repeat performance would be most welcome! Now to business:

Firstly I'm really pleased to be including several contributions from members. So a big thank you to them for responding so positively to my appeal earlier in the year, and I know you're going to enjoy their articles as much as Derek and I did on receiving them. Hopefully this will also inspire more of you to offer contributions next year!

We held our AGM–cum-slide show in May, which was as usual an enjoyable occasion for the rather few members who attended. Even less time than usual was spent on business as this year our foray programme had been arranged earlier on, with much help and patience from Joanna Dodsworth – thank you very much for all your work on this, Joanna. The main points of interest discussed were:

Subscriptions for BFG remain at £4.50 (or £6 per family) for the year, and reminders for renewal will be sent out in the New Year. Toni Standing has kindly volunteered to become our new Membership Secretary, which will relieve Derek from this onerous task. The group continues to benefit from free insurance cover through our affiliation to the British Mycological Society.

We have decided to discontinue the circulation of a membership list for security reasons. However, Toni will retain members' details so if you wish to get in touch with another member she is the person to contact. Her details together with Derek's and mine are at the end of this newsletter.

BLOG!

In March our neighbours, the Herts Fungi Group, started up an internet newsgroup through Yahoo, giving members the facility to share any fungi news of interest with others, also reminders of forays, species lists, photos, etc. Several of us are members of both BFG and HFG, and having sampled the first few months of the Herts Blog we felt it would be really beneficial to BFG members if we could join in as well. This is all now signed and sealed, and as HFG has now changed its name to incorporate Beds as well, the newsgroup now goes under the name of "Fungi in Herts, Bucks and Beds". If this sort of thing is new to you (as it was to me), basically what happens is that you enrol through Yahoo, giving your email address. Any member can write a message or add a photo (each county has its own separate photo album), and all messages are then sent direct to all participants' email address – you don't have to go into the site to retrieve them. Interested? If so, contact me for further details about joining. I

personally think it's a great idea, if only as a way of sharing with others what's around and what to look out for locally.

BFG DATABASE

For several years now Derek and I have been keeping all our records of fungi on a Bucks. Fungus Group database, painstakingly and very skilfully designed by member Nick Jarvis. During this time Nick has gradually been expanding this facility, and it has now become an extremely sophisticated and useful tool, to which we both refer frequently for all sorts of added information. It provides much more than just a home for all fungus records for Bucks; to mention just a few: one can search for any records by site and/or by date; one can check on names by entering just a part of a name if you can't remember it (really useful this!) and find out what the most recent name or the common English name is; there is also a quick and easy link to CBIB (the Checklist for British and Irish Basidiomycetes 2007) to give you up-to-date information on the National status of any species. Reports in a range of formats can be generated and, if required, exported to a Microsoft Word document (we use this, for example, to produce the foray lists for individual forays).

We have been adding in old records and sorting out some recording issues, a process that is still ongoing. Nevertheless, although we would like to keep the recording facility limited to Derek, Nick and myself, we feel it would now be a very useful tool as a source of reference and information to members; therefore it will be available to all from the end of October. So if you would like to have a copy of the database on your own computer, please contact Derek. There will be a charge of £5 to cover P&P and the cost of the disk. Bear in mind, however, that the database runs on Microsoft Access, so you will need to have this programme installed on your computer first (this is part of the 'Professional' version of the 'Office' suite of programmes - if you haven't got it installed, it will cost quite a bit to buy unfortunately).

The Buckinghamshire records are passed on to the Fungal Records Database of Britain and Ireland ('FRDBI') managed by the British Mycological Society and hosted by CABI through the efforts of Paul Kirk and Jerry Cooper. This data is available on the internet (at www.frdbi.info) and can be searched by individual species. This is an alternative way of accessing most of the information without cost if you have access to the internet, although the search options are more limited.

FORAY PROGRAMME

A printed copy of our autumn foray programme comes with this issue; please note that the foray at Naphill Common on Wed Oct 28th is a recent addition, therefore this latest programme superceeds the version sent out in March. We have twelve forays, incorporating a mix of new sites and old favourites, one public foray and two which are joint with our newly-named neighbours, the Herts and Beds Fungi Group. We also have our 8th annual display at the County Museum in Aylesbury, where as usual we are counting on members' support to provide specimens and hopefully give some time on the day to chat with the many visitors, often youngsters. Please make a note of the date, Sat Oct 3rd, and aim to arrive soon after 10.00 ready for kick-off at 11.00, or failing that arrange to deliver any specimens to Derek or me beforehand.

If you were not able to make it to our Wotton House Estate foray in July led by

Martyn Ainsworth, I recommend coming to Hog and Hollowhills Wood on Sept. 13th where we will again be benefitting from his expertise. This typical Chiltern beech woodland, a new site for the group, has already proved its worth with some notable finds there last year.

We are hoping that our public foray at Burnham Beeches on Oct 11th will run on much the same lines as the Roadshow format used previously at Stowe. We will therefore be needing members to take small groups of forayers out to collect for identification and display afterwards. Note the start time of 10.30 here.

REPORT OF THE 2008/2009 SEASON

Derek Schafer

As in previous years, these reports give only a small selection of illustrative finds for each venue visited by the Group. Lists of the records for each site visit are easily produced from the database (see above) and can be sent by e-mail to members or organisations that would like them.

I grow increasingly wary of characterising each year as 'good', 'bad' or whatever. Each year brings its own diversity of finds. If there are fewer large boletes or agarics around, we look harder for the smaller, less well known species and every year has its surprises. This one was no exception.

As I said in last year's Newsletter, it would be really helpful if members could choose an area in which to specialise and then help out with those species. Please contact me or Penny if you want to embark on such a course!

Bernwood Forest 31 Aug 2008

Despite a rather short list of 38 species, there was plenty of material about. As expected early in the season, Amanitas were around, including the deadly poisonous *Amanita phalloides* (Death Cap), *Amanita rubescens* (Blusher) and *Amanita excelsa var. spissa* (Grey Spotted Amanita, fig.1). Other finds included *Agaricus dulcidulus* (fig.2), *Ramaria flaccida* (a yellowish coral fungus in the spruce litter with small spiky spores) and *Russula acetolens*.

fig.1 *Amanita excelsa* var. *spissa* Bernwood Forest 31 Aug 2008 (NS)

fig.2 *Agaricus dulcidulus*
Bernwood Forest
31 Aug 2008 (DJS)

Burnham Beeches 28 Sep 2008

The Corporation of London, who have excellent facilities for lectures and using microscopes at their Burnham Beeches offices, very kindly allowed Penny and I to do a morning talk, followed by a walk through the Beeches then back to the microscopes to look at our finds. Things we looked at included *Agaricus augustus* (The Prince), *Cortinarius bolaris* (Dappled Webcap), *Cystolepiota hetieri*, *Russula aurora* (Dawn Brittlegill), *Russula graveolens* and the fiery-orange *Lacrymaria pyrotricha* (fig.3)

fig.3 Lacrymaria pyrotricha
Burnham Beeches 28 Sep 2008 (DJS)

Rushbeds Wood 5 Oct 2008

A list of 56 species included *Mycena flavescens*, *Pluteus ephebeus* (in the sense of the British Checklist), *Tricholoma scalpturatum* (Yellowing Knight), *Inocybe pusio* and *Ascocoryne sarcoides* (fig.4).

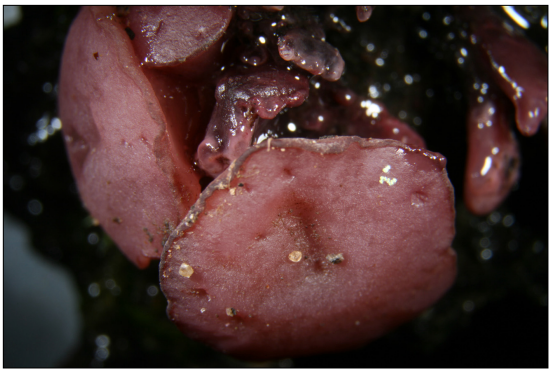

fig.4 *Ascocoryne sarcoides* (DJS)
Rushbeds Wood 5 Oct 2008
The disks are just under 1cm across

Mousells Wood 12 Oct 2008

This was one of our regular forays jointly with the Frieth Natural History Society, to a site which is turning out to be one of the best in the County. Some tiny pleurotoid fungi (meaning a gilled fungus without a stipe or with a stipe attached to the side) on a dead standing Wych Elm proved interesting (figs.5a,b). The spores were white and the gills, under the microscope, were covered in thick-walled cystidia (metuloids) and their edges with thin-walled dumb-bell shaped cystidia - fig.7. This meant it was in the genus *Hohenbuehelia*. The British Fungus Flora key (vol.6, p.39) keyed it out to *H. reniformis* very (rather too?) easily - step one less than 10mm, step two metuloids present. Anyway, since there were only about a dozen records in the British Fungal Records database, many of them old, our hosts Alan & Juliet Gudge revisited the site and collected more material. A few days later my copy of the magnificent 'Funga Nordica' arrived (there is a review of this in *Field Mycology* Vol.10(3), p.108). I turned immediately to the section on *Hohenbuehelia*, only to find the comment

fig.5 a (above) b (left)
scale in 1mm intervals
Hohenbuehelia on Wych Elm
Mousells Wood 12 Oct 2008

under *H. reniformis* 'All material examined said to be this taxon have been shown to fall within other well-known species'. I duly followed the Funga Nordica key but ran into problems at the step which said 'gills turning grey to black with age or on drying'. The gills of a specimen that had been left to drop spores turned grey (fig.6) but others that had been dried remained white or cream coloured. I contacted the author of the key and have sent him material and photographs. At this stage, *Hohenbuehelia unguicularis* (an equally rare species in Britain, with only four records) looks like the leading contender for the name, but I await a final view.

fig.6 specimen of *Hohenbuehelia* with grey gills after drying in air while dropping spores

fig.7 *Hohenbuehelia* metuloids and thin-walled gill edge cystidia

Another rare species was found in the wood by Alan Gudge. It had a beautiful violet colour and very decurrent gills (i.e. running down the stem) - fig.8. Jenny Schafer suggested it was a *Hygrocybe*, but since most *Hygrocybe* species occur in grassland - in Britain, at least - I failed to accept this wise suggestion. This got me carelessly to a

fig.8 *Hygrocybe viola* in mossy soil in deciduous woodland Mousells Wood 12 Oct 2008 (DJS)

possible (non-British) *Omphalina* but on contacting Thomas Laessoe (Editor of Funga Nordica, who had described finds of the *Omphalina* from Russia) he put me straight by suggesting it was the rare Waxcap *Hygrocybe viola*. Material has now been examined and confirmed by the Waxcap expert, David Boertmann. This species is a vulnerable red data list species in Britain, where there were two previous records. In David Boertmann's book on *Hygrocybe* species, the habitat is given as 'among mosses on a clayey slope in a *Fagus* forest' - much like the location of the Mousells collection. A list of 87 species for the morning also included *Coprinopsis phlyctidospora*, *Hygrophorus hedrychii* and 7 *Inocybe* species.

Moorend Common 12 Oct 2008

Our day at Frieth was concluded with a visit to Moorend Common, which is being restored to acid grassland and woodland pasture with support from Natural England. We recorded 66 species including *Cortinarius uliginosus* (fig.9) identified by Penny, a striking rusty-orange species with yellow gills generally found among bogs and moorland. This was the second Buckinghamshire record, the previous one being from Burnham Beeches in 1925, although Penny found it again at Stoke Common later in the year.

fig.9 *Cortinarius uliginosus* Stoke Common 18 Oct 2008 (PC) also found at Moorend Common 12 Oct 2008

Langley Park 19 Oct 2008

We were fortunate to have Martyn Ainsworth lead this walk-around introduction to the fungi of Langley Park. Martyn has been conducting surveys of the Park, which has proved remarkable for the rare and unusual fungi that it supports. We saw *Phellinus wahlbergii* (illustrated on the back cover of Field Mycology Vol.9(4)) on an oak log at its only known site outside of the Canary Islands; *Phellinus populicola* on Grey Poplar trunks at one of two British sites where it was known to occur (Wotton Park Estate has emerged as a third site following our meeting there led by Martyn in

July 2009); *Gloeoporus dichrous*, a red data list near threatened species in Britain, was found on an Oak stick. Other wood inhabiting species included *Ganoderma pfeifferi* (see last year's Newsletter, p.12), *Ganoderma resinaceum*, the rare red data list species *Coriolopsis gallica* on a fallen Beech trunk, *Hericium coralloides* (see last year's Newsletter, p.36), *Perenniporia fraxinea* at the base of a Beech trunk and *Rigidoporus ulmarius* on a Horse Chestnut trunk.

The lawns at Langley Park are also rich in species associated with unimproved grassland. On our visit, we found 9 species (and one variety) of Waxcap, including *Hygrocybe virginea* that was infected with *Paecilomyces marquandii* (see Field Mycology 2002, Vol.3(1), p.28). We also found three species of *Clavulinopsis* and *Clavaria acuta* and *Conocybe plicatella*, a new County record.

On our visit to the grey Poplars, Anthony Burnham found and identified *Cortinarius argutus*, likely to be the second authenticated British record following its discovery in Herts. in 2005 (see Burnham & Kibby, Field Mycology 7(2), 39-40, 2006). Anthony

fig.10 *Coprinus bellulus* Langley Park 19 Oct 2008 The cap is covered in veil consisting of. (sub)globose /rounded cells; basidia are two-spored and cystidia are absent from the gills (DJS)

also found a *Coprinopsis* species (fig.10) that, when I examined it under the microscope, turned out to be *Coprinus bellulus* (the combination into *Coprinopsis* will be published shortly). This is its second British record, the first in 1993 was from Kew. It is close to *C. cortinatus*, with which it shares the lack of cystidia on its gills, but has spores of a different shape and two-spored basidia.

Wotton Park Estate 26 Oct 2008

The site is a special place for fungi, the list of 57 species reflecting the limited identification resource available. In particular, the polypores and other wood inhabiting species could clearly benefit from a visit by an expert like Martyn Ainsworth, which we were able to arrange for our 2009 programme. Finds on this visit included *Psathyrella pygmaea*, which superficially resembles *Coprinellus disseminatus*; the *Psathyrella* is in a section of the genus that has distinct gill cystidia with crystals at the tip (fig.11). Other finds included *Conocybe pygmaeoaffinis* (a new County record), *Rigidoporus ulmarius*, *Hebeloma fragilipes*, *Coprinopsis erythrocephala* and *Rhodotus palmatus* on its usual substrate of Elm. The *Rhodotus* seems to have been more common in the last two or so years, perhaps reflecting the cycle of growth and death of the trees from Dutch Elm disease. Strangely, *Hohenbuehelia 'reniformis'* (see Mousells Wood, above) was also found here.

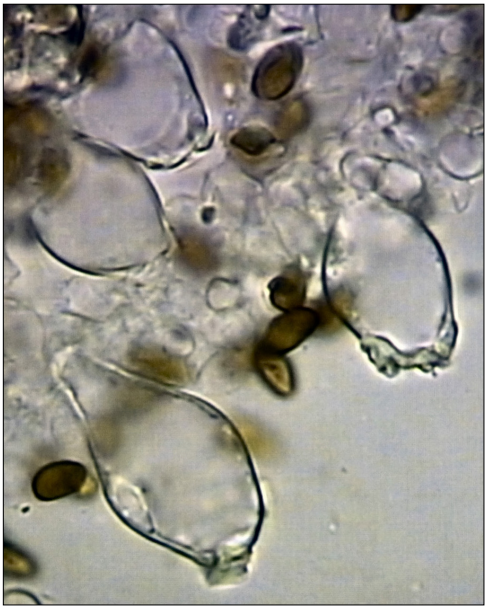

fig.11 Gill cystidia of *Psathyrella pygmaea*
Wotton Park Estate 26 Oct 2008 (DJS)

Cliveden Estate 1 Nov 2008

We visited the area around the house first, recording 60 species, then the woodland area to the south of the estate, recording another 36 species (a total of 89 for the day). In the area around the house, finds included 6 *Hygrocybe* species, *Clavulinopsis helvola*, *luteoalba* and *corniculata*, *Geoglossum glutinosum*, *Trichoglossum hirsutum* (Hairy Earthtongue) and *Cordiceps militaris* (Scarlet Caterpillarclub, fig.12) in the grassland. *Conocybe percincta* (see our 2008 Newsletter, p.21) was found in wood chip mulch. Other finds included *Hebeloma helodes*, *Tephrocybe tylicolor*, *Inocybe pusio* and

fig.12 *Cordyceps militaris*
Cliveden Estate 1 Nov 2008 (NS)

***Lactarius subumbonatus*. In the woodland area, we found *Crepidotus luteolus* (Yellow Oysterling), *Ossicaulis lignatilis* on Sycamore and *Trichoglossum hirsutum* again.**

Ashridge 2 Nov 2008

This was the Margaret Holden Memorial Foray joint with the Herts. Fungi Group. A full report will be produced by the Herts. Group.

Penn Waxcap Foray 6 Nov 2008

fig.13 *Hygrocybe cantharellus* Penn Cricket Pitch 6 Nov 2008 (DJS)

Our visit extended over five areas, all separately noted on this occasion. From the Car Park, we visited the Vicarage Lawn, The Cricket Pitch, Penn Wood itself and finally the Churchyard. No fewer than 11 Waxcap species were found, *Hygrocybe cantharellus* (Goblet Waxcap, fig.13) on the Cricket Pitch being new to Penn and taking the total number of Penn Waxcap species to 20. Other finds included *Otidea onotica* (Hare's Ear, fig.14) in grass under an Oak tree, *Stropharia inuncta* (Smoky Roundhead) in the Churchyard, *Hemimycena delectabilis* (fig.16) and *Leotia lubrica* (Jellybaby, fig.15) on the Vicarage Lawn, *Clavaria acuta* (Pointed Club), *Lecoagaricus badhamii* (Blushing Dapperling) and *Lepista nuda* (see front cover) in the Churchyard. *Macrotyphula fistulosa* (Pipe Club) was found in the Wood and *Hygrocybe punicea* (fig.17) on the Cricket Pitch.

fig.14 *Otidia onotica* Penn Wood 6 Nov 2008 (NS)

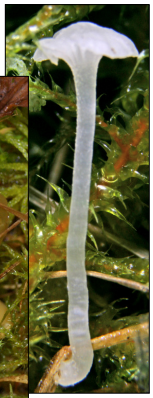

fig.15 *Leotia lubrica* Penn Vicarage Lawn 6 Nov 2008 (NS)

fig.16 (2nd right) *Hemimycena delectabilis* Penn Vicarage Lawn 6 Nov 2008 (DJS)

fig.17 *Hygrocybe punicea* Penn Cricket Pitch 6 Nov 2008 (NS)

Finemere Wood 21 Dec 2008

An enjoyable winter walk produced a surprisingly long list of 50 species including *Crepidotus cesatii* var. *subsphaerosporus* on a Pine log (new to the County), *Gloeocystidiellum porosum*, 9 *Mycena* species and *Rutstroemia firma* (Brown Cup). Thanks are due to Jenny, who provided forayers with a welcome bowl of soup after the foray.

Carpenters Wood 4 Jan 2009

Another winter foray and the first of 2009, this was joint with the Herts. Fungi Group. The list of 44 species included slime moulds *Mucilago crustacea*, *Trichia affinis*, *Trichia persimilis* and *Diderma hemisphaericum*, the latter new to VC24 (Carpenters Wood is in VC 24, although administratively now in Hertfordshire), with the qualification necessary for slime moulds that there may be records not on the Fungal database. Other finds included *Pleurotus cornucopiae*, *Hapalopilus nidulans* and *Basidioradulum radula*.

Whitecross Green Wood 22 Mar 2009

This BBOWT site, divided between Buckinghamshire and Oxfordshire, is also claimed as VC24. Finds included *Sarcoscypha austriaca* (Scarlet Elfcup, BFG Newsletter 7 p.4), *Diatrype bullata* (Willow Barkspot, BFG Newsletter 8, p.5), *Psathyrella spadiceogrisea* f. *vernalis* and two *Lasiosphaeria* species. The *Lasiosphaeria spermoides* fruit body (fig.18) consists of black spheres close together on wood. The

***Lasiosphaeria canescens* fruit body also consists of spheres but these are covered in spikes (figs.19, 20).**

fig.18 *Lasiosphaeria spermoides*
Whitecross Green
22 Mar 2009 (DJS)
Scale on the upper photo is in mm

fig.19 *Lasiosphaeria canescens*
Whitecross Green Wood
22 Mar 2009 (DJS)

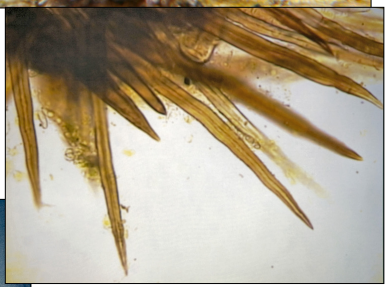

fig.20 *Lasiosphaeria canescens*
Whitecross Green Wood
22 Mar 2009 (DJS)
Above spines, left ascospores

Ragpits & Wendover Woods 10 May 2009

A lovely day, with the orchids just appearing at Ragpits, just a small number of fungi reported - 8 at Ragpits, including *Coprinellus impatiens*, 17 at Wendover, including *Lasiosphaeria canescens* again and *Hypocrea rufa*.

Wotton Park Estate 26 Jul 2009

Led by Martyn Ainsworth, this was an opportunity for Martyn to help our group of more than 20 enthusiasts look at the special fungi associated with veteran trees.

As soon as we set off, rarities began to appear! In the car park and as we started along the lakeside, on Ash fallen branches, was the *Hadrotrichum* state of *Hypoxylon cerdicola* - the third British record and the first for Buckinghamshire. Then along the lake side under Oaks (confirming my theory that the fungi fruit in response to the presence of mycologists, our bolete expert Alan Hills being in the party) a collection of boletes including *Boletus radicans* (Rooting Bolete) and the BAP and Red Data List species *Boletus satanas* (Devil's Bolete, fig.21) - the white patch on the stipe of the nearest fruit body is another member of the Fungal kingdom busily consuming it .

fig.21 *Boletus satanas* under Oaks Wotton Park Estate 26 Jul 2009 (DJS)

Our quest for the endangered conservation species, *Piptoporus quercinus* (Oak Polypore) failed to find any material (see fig. 23) but later on Jacqui Darby drew our attention to a polypore high up the trunk of a Grey Poplar tree. Typically, Jacqui was dismissive of her discovery (''It's out of reach, so not worth the detour'') but a second fruit body was within reach when we got there and Martyn immediately identified it (and confirmed it later) as *Phellinus populicola* (fig.22) this now its third British site, the second in Buckinghamshire.

fig.22 *Phellinus populicola* in a necrotic depression of a live trunk of *Populus canescens* Wotton 26 Jul 2009 (DJS)

There were lots of Ink Caps on the ground, many in the *Coprinellus micaceus* group. Jacqui handed me one collection with rather more earth attached than I would normally like but, on this occasion, with some very young fruit bodies (primordia) embedded in it. Checking at home, this allowed me to confirm *Coprinellus saccharinus* as a good species in Britain (it is currently in CBIB as "a dubious species, not readily distinguished from *C. truncorum*"). The day was full of new and unusual revelations, one of which is worth noting just for the name. It was an even smaller dot on a small dot on a leaf (picking up the fungus on a fungus theme in anticipation of the next article) and gloried in Martyn's designation: *Eudarluca caricis* (as its *Darluca* anamorph) on *Puccinia caricina* var. *ribesii-pendulae uredosorus*, hypophyllous on living leaf of *Carex pendula*. Another special find identified by Martyn was *Hypoxylon cercidicola* in its asexual (*Hadotrichum*) state. I don't have a photograph, but it was on Ash fallen branches with stromata erumpent through the bark, creating petalloid edges around each one. There are very few previous British records.

fig.23 Wotton Park Estate 26 Jul 2009 Martyn Ainsworth, with Roger Wilding in attendance, peering into a veteran Oak in search of the Oak Polypore, *Piptoporus quercinus* (JD)

FUNGI GROWING ON OTHER FUNGI

All over the planet the myriads of different fungi have over time gradually evolved to perform an essential function in the life cycle of many organisms: that of decomposition and regeneration. In fact they invented recycling long before we thought of it, and without their incredible ability to establish themselves on or in an amazing range of substrates, weeding out weaklings, accelerating decay and making available nutrients for other life forms to absorb, our world would be a very different place – in fact life as we know it could not exist. Very few life forms have escaped their attentions, but there are some species of fungus which have ventured no further than their own kind to find a suitable host to supply their needs, sometimes to that host's benefit (forming a symbiotic or mutualistic relationship), sometimes not (forming an antagonistic or parasitic relationship). Mycological cannibalism? Well, not really; it's not very different from, say, one mammal species existing by killing and eating another (certainly antagonistic).

There are quite a few fairly conspicuous gilled and pored species (members of the Class Basidiomycetes) which use other fungi as host, but a staggering one hundred and ten microfungi (ascomycetes, hyphomycetes and the like) are described by Ellis and Ellis in the "Fungi on fungi" section in their book "*Microfungi on miscellaneous substrates*" (yes, I actually counted!). Obviously many of these microfungi are not going to catch the eye of the average forayer, being miniscule and in need of rather specialised microscopic work to appreciate, but I thought it might be of interest to put together here coverage of some of the Basidiomycetes which are well worth looking out for. (Ascomycetes not being my strong suit, I'm hoping that someone with more knowledge of this field might take on the commoner microfungi growing on fungi for a future newsletter.)

The first basidiomycete which springs to mind is *Pseudoboletus* (= *Boletus or Xerocomus*) *parasiticus* (Parasite Bolete, fig.24), a smallish pored species which grows exclusively on *Scleroderma citrinum* (Common Earthball). The fruitbodies emerge

fig.24 *Pseudoboletus parasiticus* on *Scleroderma citrinum* Marlow Common 5 Oct 2007 (PC)

from the base of the earthball, sometimes clustered around it, and stipe, cap and pores are a very similar dirty yellow colour to its familiar host. If you are lucky enough to come across it identification is delightfully easy as there is nothing else similar to be found growing on this host. Occurrence is described as occasional as like many fungi it has its good and poor seasons, but it does seem to have favoured sites where it turns up fairly regularly. One such site in the county is Marlow Common where my photo was taken. I've also come across it in Burnham Beeches and there are recent records from Langley Park, older ones from Ashridge as well. So any deciduous woodland where the *Scleroderma* grows in abundance is well worth an extra careful look. Incidentally, this species is now thought by some not to be parasitic but merely "mutualistic" – certainly both mushroom and earthball look equally healthy when one encounters them.

fig.25 *Gomphideus roseus* with *Suillus bovinus* Burnham Beeches 10 Sep 2004 (PC)

All branches of the bolete order are thought to be mycorrhizal in habit (growing in symbiosis with tree roots), and some members of the genus *Gomphidius* have developed a crafty way of taking advantage of this. It is now thought that by tagging along underground and joining with the mycelium of certain boletes, when suitable tree roots are located by the bolete the *Gomphidius* is able to capitalise and join in the feast. Whether they give anything back in return to benefit the tree - as does the mycorrhizal bolete – seems unlikely but is as yet unproven, but this explains why one can often find *Gomphidius roseus* (Rosy Spike) growing alongside *Suillus bovinus* (Bovine Bolete, fig.25), and also the closely related *Chroogomphus rutilus* (Copper Spike) (fig.26) growing alongside *Suillus granulatus* (Weeping Bolete). It is also suspected that *Gomphidius glutinosus* (Slimy Spike) has a similar relationship with

both a *Suillus* species and also apparently with *Rhizopogon* (a type of truffle surprisingly related to *Suillus*). Both *S. bovinus* and *granulatus* grow with *Pinus*, and *Gomphidius glutinosus* with *Picea*, so if you come across one of these species it's well worth looking out for its associate as well. As far as occurrence in Bucks goes, I've found *Suillus bovinus* together with its partner in Burnham Beeches and Stoke Common, *Chroogomphus rutilus* has records from Bradenham in 2000, but we have only one county record back in 1985 for *G. glutinosus* from Hockeridge Wood, where incidentally BFG is foraying early next year for the very first time.

fig.26 *Chroogomphus rutilus* Rothiemurchus Estate 25 Aug 2005 (PC)

Continuing the bolete theme, it is suspected that the rare *Buchwaldoboletus* (= *Pulveroboletus*) *lignicola* has a mutualistic relationship with the fairly common bracket fungus *Phaeolus schweinitzii* (Dyers Mazegill) found at the base of conifers. I've found the bolete once only, in Penn Wood (fig.27), but failed to find the *Phaeolus* with it, although I was unaware of the association at that time. Finally a bolete with suspected parasitic / mutualistic tendencies: when you find *Amanita muscaria* (Fly Agaric), almost invariably associated with *Betula*, look around for *Chalciporus piperatus* (Peppery Bolete), which is quite commonly found alongside it, this being another smallish bolete with distinctive cinnamon colours and even more distinctive yellow flesh in the stipe. This species also grows independently, often under *Fagus* and *Pinus*, being widespread but not that common around the county.

fig.27 *Buchwaldoboletus* (=*Pulveroboletus*) *lignicola* Penn Wood 13 Aug 2004 (PC)

Now for three truly parasitic species known affectionately as "Piggyback" mushrooms, being as the name implies gilled mushrooms which grow out of the cap of their host. The first two, *Asterophora*(=*Nyctalis*) *lycoperdoides* (Powdery Piggyback, fig.28) and *A. parasitica* (Silky Piggyback, fig.29), are both to be found upon rotting

fig.28 *Asterophora (=Nyctalis) lycoperdoides* on *Russula nigricans* Common Wood 27 Sep 2006 (PC)

***Russulas*, most commonly *R. nigricans* (Blackening Brittlegill). The third species, *Volvariella surrecta* (Piggyback Rosegill, fig.31 overleaf) grows exclusively on *Clitocybe nebularis* (Clouded Funnel). You will observe that in all three cases the host species is very common and also very slow to decay compared to most other agarics; could this be the reason why these piggyback species have evolved in order to hasten this relatively slow decomposition? Despite their host species being so common the three parasites are not, although there are now Bucks records for both *Asterophora* species. As it ages *Russula nigricans* becomes not only entirely black (thus its common name) but also almost mummified, often remaining recognisable as a gilled mushroom for many months. It is when approaching this stage, well past its sell-by date, that the two *Asterophora* species are most likely to be encountered emerging from its cap. Both are quite small and pale with caps up to 1.5cm wide, but they are quite easy to separate in the field because in *A. parasitica* the cap is smooth and the gills well formed, whereas in *A. lycoperdoides* the cap is covered in an orange-brown dust and the gills are merely rudimentary (figs.28 & 29). Incidentally, the epithet**

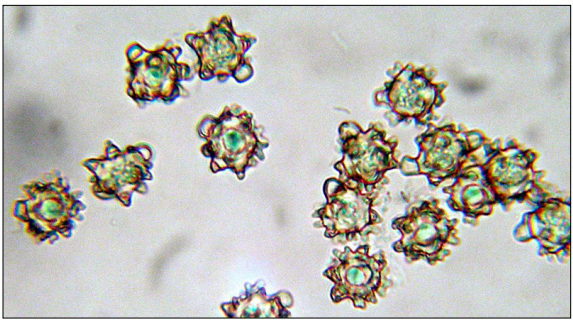

fig.30 Chlamydospores of *Asterophora lycoperdoides* (PC)

lycoperdoides **refers to the similarity of its dusty cap coating to a *Lycoperdon* (puffball) and, if examined under a microscope, this dust reveals itself as a mass of stellate spore-like structures (fig.30), which look very similar to knobbly *Inocybe* spores; they are in fact chlamydospores (thick-walled asexual or inactive spores) which are a characteristic feature of this genus. In *A. parasitica* these chlamidospores are smooth and much less in evidence, merely forming a thin granular coating on the gill edge. So the presence or absence of this dust on the cap, together with the presence or virtual absence of gills is sufficient to split the two species. We have very few county records, but 2006 produced *A. lycoperdoides* in Common Wood near Tylers Green, and in 2008 Martyn Ainsworth and I came across *A. parasitica* in Hollowhill Wood, not far from Marlow. Interestingly the only other county record for this species is from Hockeridge Wood (1982), already mentioned in connection with *Gomphidius glutinosus* above. I suspect it may be too early in the season to re-find it in Hollowhill Wood on our foray there in September.**

fig.29 *Asterophora (=Nyctalis) parasitica* on *Russula nigricans* Hollowhill Wood 16 Sep 2008 (PC)

Volvariella surrecta **(fig.31) is by far the rarest of the piggyback species and requires its *Clitocybe* host to be well on the way to decomposition. It is larger than the other two with caps up to 5cm, and there are several other give-away characters to look out for: besides the fact that it grows on palish rotting mushrooms rather than blackening ones and has pink free gills like a *Pluteus*, it sports a conspicuous volva (sacklike structure) at the stipe base, this being a distinctive character unique to just two genera: the lesser known *Volvariella* and the much more familiar *Amanita*. This is a Red Data List species with only 58 British records, and under 20 since 2000. Although most records are from the south and as near to us as Northants, Beds and**

Oxfordshire, we have none as yet from Bucks, so keep you eyes peeled for rotting *C. nebularis* later in the season and please let me know if you find it as I'd love to see it. I should perhaps just mention in passing *Entoloma parasiticum*, a rare species occasionally found growing on old chanterelles and other fungi in this country, as it might possibly be mistaken for *Volvariella surrecta*: both have whitish caps and pinkish gills, but the free gills and volva of the *Volvariella* are lacking in the *Entoloma,* and a glance at the spore shape with a microscope would also leave one in no doubt which genus one was dealing with. Either species would be an exciting find for the county.

fig.31 *Volvariella surrecta* on *Clitocybe nebularis* (ARO)

There are three inconspicuous species of *Collybia* which grow on the well-rotted or mummified remains of various agarics and brackets (*Armillaria, Ganoderma, Inonotus, Hypholoma, Lactarius, Meripilus, Pholiota, Russula*), in fact when found it is all too easy to mistake even the genus on casual inspection because (a) the presence of the decomposed host may be barely recognisable as such and therefore missed, and (b) all three look very like a small white *Hemimycena* and not at all like the larger and more familiar species of *Collybia*. (However, it is worth warning readers here that there is an imminent genus name change approaching which will leave only these three small species within *Collybia*, with the others being distributed between *Gymnopus* and *Rhodocollybia*.) Careful examination at the time of collection is needed, and it is essential to know what to look out for: the stipe in all three tends to have a pale orange tinge (not seen in other similar genera), and although they are virtually identical in appearance, two of them have a sclerotium (a small hard tuber-like structure) attached to the mycelium at the stipe base, thus separating them from any look-alike species, although this character is easily missed. *C. tuberosa* (Lentil Shanklet) tends to grow in groups and resembles a small white flat-capped *Mycena* (usually less than 1 cm across) but with a darker sunken centre; it has white mycelial strands at the base which lead to a reddish-brown apple-pip sized sclerotium normally submerged in the fungal substrate. The very similar but usually smaller *C. cookei* (Split-pea Shanklet, fig.32) also grows clustered, sometimes densely so, but has a tiny ochre-yellow sclerotium, only 2-3 mm long (and visible to the right of the LH fruitbody in fig.32). The English names lentil and split-pea refer to the likeness of the sclerotia to those vegetables. The third species, *C. cirrhata* (Piggyback Shanklet, fig.33), is almost indistinguishable from the other two but lacks a sclerotium. All-in-all these little parasitic *Collybias*, often overlooked, are far harder to recognise and identify than all the previous species so far discussed, although they are probably not particularly unusual. We have only 1 county record for *C. tuberosa* from the Bernwood area in 1999, 9 for *C. cookei* although none since 1990, and 15 for *C. cirrhata* although none since 1998. This ratio of records is reflected over the country

as a whole, and whether *C. cirrhata* is genuinely the most common is open to debate as it seems quite probable that in some cases a collector might be unaware they had a *Collybia* at all until working on it at home, when it would be too late to search for the presence/absence of a sclerotium. I can't help speculating, therefore, that some

fig.32 *Collybia cookei* (ARO)

fig.33 *Collybia cirrhata* (AB)

records of *C. cirrhata* could quite possibly be incorrect but so named purely because of the failure of the finder to uncover the sclerotium rather than because of its definite absence!

There remains just one further genus of basidiomycete growing on fungi to mention, and this is perhaps the most intriguing of them all: the quite extraordinary *Squamanita*. All three species in this genus recognised as British are rare; two are only known from Scotland (with one record from Wales) and are not reviewed here but *Squamanita paradox*a (Powdercap Strangler) has been found about 20 times in Britain and as its host fungus occurs fairly commonly in Bucks it deserves its place here. Moreover, there is very scanty coverage of it in fungi books so if one were lucky enough to come across it recognition would be very tricky without some prior knowledge. The host is the grassland species *Cystoderma amianthinum* (Earthy Powdercap), not dissimilar to a small *Lepiota* but with a flattish orange-ochre cap, the margin often hung with veil remnants, white crowded free gills, and an orange-ochre stipe with a ring-zone and covered in granules which rub off. The bizarre and rare parasite firstly infects the young *Cystoderma*, then develops its own entirely different cap and gills in place of its unsuspecting host's whilst maintaining the stipe of the original up as far as its ring-zone – a real wolf in sheep's clothing! Man has developed a similar process in the plant kingdom where we graft a cultivated fruit tree or rose onto the stock of its wild ancestor. Here, however, we apparently have a fungus which has successfully evolved this same skill, and certainly the poor *Cystoderma* comes off second best as in place of its own development it is now tricked into providing the invading *Squamanita* with all the necessary nutrients to allow it to mature and sporulate. In the world of birds a similar parallel would perhaps be the clever but brutal manipulation of nature used by the female cuckoo, who turfs out all the eggs in a dunnock's nest and replaces them with just one of her own for the poor unsuspecting parents to nurture to maturity, despite the fact that the imposter fledgling is soon about three times their size!

***Squamanita paradoxa* has a rounded grey-brown scaly cap with a slightly pinkish tinge, pale cream gills which are adnate and fairly widely spaced, the top third of the stipe is concolorous with the cap and similarly scaly, but below this it remains granular and contrastingly orange-ochre brown with a slightly swollen ring zone and a distinct demarcation line where the two sections merge. The end result looks extremely odd and I am reminded here of the classic childrens' game where one puts cards with the top half of one animal together with the bottom half of an another to produce a bizarre and amusing new creature – hours of simple fun! As far as recent records go, there are a few from Shropshire in 2004, a couple in '05 from Wales and Hampshire, one in '06 from Wales and one in '08 from Leicestershire. Needless to say: none from Bucks! There is a good illustration (and discussion of the genus) in *Field Mycology* Vol.6(1), p.11, 2005; several 2008 records were discussed and illustrated in the editorial to Vol.10(1) this year.**

The table below provides a succinct summary. Most but by no means all of these parasitic species are covered by standard fungi handbooks, although Latin names may differ. For further reading I would recommend Spooner & Roberts' "*Fungi*" which contains an informative chapter on this topic, also an excellent photo of the *Volvariella.* All but the *Squamanita* are in Cortecuisse & Duhem, and the * symbol indicates species to be found in Phillips. B&K = Fungi of Switzerland; LB =Libri Botanici vol 17, Antonin & Noordeloos, a monograph on *Marasmius*, *Collybia* etc.; last but certainly not least: FM = *Field Mycology*. If you are a subscriber to this great little magazine it is well worth looking up the relevant back issues, particularly for the

excellent and unique coverage of *Squamanita paradoxa*. If you still don't subscribe you are definitely missing out!

Parasitic species	Host species	Information / photos
Asterophora lycoperdoides	*Russula nigricans*	* B&K3 (as *Nyctalis*)
A. parasitica	" "	* B&K3
Buchwaldoboletus lignicola	*Phaeolus schweinitzii*	* B&K3 (as *Pulveroboletus*)
Chalciporus piperatus	*Amanita muscaria*	* B&K3
Chroogomphus rutilus	*Suillus granulatus*	* FM 3(2), B&K3
Collybia cirrhata *C. cookei*	A wide variety of hosts (usually in unrecognisable state of decay)	B&K3 (as *Microcollybia*), LB 17 FM 7(1), B&K3 (as *Microcollybia*), LB17
C. tuberosa		* B&K3 (as *Microcollybia*), LB17
Gomphidius glutinosus	*Suillus* sp. and *Rhizopogon*	* B&K3
Gomphidius roseus	*Suillus bovinus*	* FM 3(2), B&K3
Pseudoboletus parasiticus	*Scleroderma citrinum*	* B&K3 (as Xerocomus), (FM 6(2))
Squamanita paradoxa	*Cystoderma amianthinum*	FM 6(1), 6(2), 10(1)
Volvariella surrecta	*Clitocybe nebularis*	FM 6(3), 8(1), B&K4, Fungi (Sp & R)

FOUND A FUNGUS YOU CAN'T NAME?

We all regularly collect fungi we can't identify, and experience varying degrees of frustration as a result, depending on how much effort and time we've put into the attempt to name it. This is equally true of the more experienced as well as the beginner, in fact the frustration might get worse as you become more skilled because there's that nagging feeling that you ought to be able to sort it out for yourself! What to do about it?

Well, there's always someone higher up the mycologists' tree who can help, or if not "they'll know a man who can". It's just a matter of (a) taking down some vital statistics while your material is fresh (yes, this really is vital, and without it you may never get to a satisfactory determination), and (b) knowing who to contact. There follow some tips on procedure.

IN THE FIELD:-

1 If you have a camera to hand a photo in situ will be really useful. So before you even touch it have a quick look around to see if there are more specimens nearby – it's always better to have more than one, and better still to have specimens at different stages of development. Now take a snap or two, aiming to show all the salient features - gills /pores /stipe /etc can be just as important as the cap.

2 Carefully collect it. A word of caution here: if it's an LBJ try to keep your fingers off the stipe – you can easily obliterate important micro clues. Hold the cap with thumb and forefinger and loosen the base with a knife (/stick /pencil /finger) with your other hand, making sure you keep it complete, right down to any strands that may be attached below.

3 Note the cap colour and shininess - some species, small ones in particular, fade quite quickly even when put straight into a covered pot, especially in dry conditions.

4(a) Note any immediate colour change on handling /bruising on any or all parts. Reddening, blueing, blackening, yellowing all occur quite commonly, even turquoise and orange!

4(b) Note if any part exudes droplets on handling /bruising; maybe white /orange /red /colourless.

5a) Note if any part is sticky; in dry weather evidence of this may only be from the debris which adhered to the cap when younger and damper (so don't pick it all off before you photo it, or you could have lost another vital clue!). If in doubt a good way to judge stickiness is with the "kiss" test – just touching the cap gently against your lip. Even the most poisonous ones are harmless unless actually swallowed.

5(b) optional! Taste it! The first thing top mycologist Geoffrey Kibby does when he collects a *Russula* is to take a bite, chew a little, then spit it out! In certain genera (families) it's very helpful to know if the taste is bitter /mild / hot /farinaceous (like rancid butter) /mealy (like musty flour), but most amateurs would consider this well beyond the call of duty!

6 Note if it has a smell, strong or weak, and if so what does it remind you of? Some can be quite remarkable: overripe pears / bleach /marzipan /honey /sulphur /curry /garlic /drains ….. the list is endless, even bed bugs or mouse droppings if you'd recognise them! You'll get the smell best from the underside rather than the top.

7 Note the substrate (what it's growing on) association (what it's growing with or on), and habitat (what kind of place is it growing in) also whether it was attached by a "root" (extension of the stipe into the substrate). Many fungi are host specific (grow with one particular plant species), so if on wood note the type and whether it's on bark or bare or rotting wood, if on soil or litter note the tree type of all trees within, say, 3 or 4 yds, especially the most mature ones. I try to pop a leaf /needle from each tree in with the collection as a reminder.

Now, and only now, can you put your fungus in a pot and walk on! Any of the above macro- characters might well be the vital clue which leads to a determination, and once back home it could be too late to provide that particular piece of evidence.

AT HOME:-

1 If you have several specimens choose a mature one to set up straight away to drop a spore print. (If you still have our 2007 Newsletter, the last before our booklet form, on page15 Derek tells you everything you need to know for this; if you'd like a

copy just email one of us.) If you have only one specimen this will have to wait until after 2 below.

2 Write a description. The conventional way is with the cap measurement and characters first, then gills /pores, then stipe, then smell / taste(!), then substrate and habitat. (This assumes you have a mushroom and obviously needs adapting if not.) Make sure you cover within these catagories all the field tips1-7. As an aid I've designed a tickbox-type form where you can just highlight / ring as appropriate or maybe use as a prompt for your own description. (If you would like a copy just let me know.)

3 Now have a go at identifying it, although if you're in doubt over the genus you're limited until you have the vital sporeprint colour. However, with a mature specimen you can often get an idea of this from ripe spores which may well be visible adhering to either the gill edge, the very top of the stipe or the ring if present. Spores tend to darken as they mature and don't drop until they are (this is also why gills often change colour with age: the darker the spores, the darker the gills become).

4 Depending on the speed at which your collection is likely to deteriorate, you need to (a) dry it or (b) put it in the fridge, but not until after you have a sporeprint. (You don't need fancy equipment for drying, I use the airing cupboard very successfully by placing specimens just over the boiler on a wire rack to give good air circulation.) If you have several specimens you could ideally do both (a) and (b).

5 Contact someone who can help a.s.a.p. If in doubt over this, Derek or I might be your first port of call; we might well then suggest a better contact, depending on what type of fungus you've found.

The following two articles by members underline the message above, and also show how obstinate and determined some fungi can be to foil our attempts to identify them:

A MYSTERY *MYCENA*

Joanna Dodsworth

It started in January. One damp day I came across an old mossy stump with a great crop of tiny trooping agarics, nearly black, and with campanulate caps. Not having my camera I collected a small clump, and at home took a spore print, jotted down some measurements and notes, then dried them (this is important later). Next day I attempted an identification, although at the time I didn't have a microscope and for reference books had only Phillips, Jordan and Courtecuisse & Duhem; this last does have basic keys, however, and my notes show that I had made tentative suggestions of *Mycena pseudocorticola* (firmly crossed out), *alcalina*, or *silvae-nigrae*.

Passing that way three weeks later I noticed the stump was fruiting again. We were in the middle of a period of extreme cold, frost and snow (again, this is important later), and this time the clump looked dry silvery-greyish brown rather than wet and nearly black as earlier. I took a photo (fig.34) and again collected specimens, this time hoping to make a better job of identification since Derek had just lent me a microscope and I had now also acquired *Funga Nordica* – a recently published book of keys to agarics, with line drawings of spores and cystidia (often really weirdly shaped in *Mycena*) but no pictures. With the scope I found what I thought were 2-spored basidia and some

long club-shaped cystidia, but as this didn't seem to help much I sent off some fresh material together with the photo to Penny. She emailed me back agreeing that it was a *Mycena*, and from the appearance and photo probably *inclinata* or *galericulata*, and continued:-

"… I found the basidia were 4-sp. (with only maybe the odd 2-sp.). With these two species this is very important because *galericulata* is normally 2-sp. whereas *inclinata* is 4-sp., so that really cuts out galeric. from the equation. But I met with a problem here: try as I might I could not find the cystidia on the gill edge! I then started wondering whether this was in fact neither of them and maybe something more interesting. *M. maculata* keys out in *Funga Nordica* with conifer, but it also says "Fasciculate on *Quercus* trunks and stumps"! Not only that, it continues "the cheilocystidia are discontinuous with tracts of basidia scattered along the gill edge (this character helps to separate this species from dark *M. galericulata*". Hmmm: interesting! Was this why I couldn't find them? The rest of the description fits well also ….."

The story goes on: Penny contacted Ernest Emmett (co-author of the *Mycena* keys in *Funga Nordica*) to ask if he could help; and along came his reply:

fig.34 Mystery *Mycena* (JD)

"…. The reason for the delay is that I have not yet been able to name it. Like Penny, I have not been able to find cheilocystidia! I tried the fresh material and several of the dried fb's. When I first received it I was excited by the prospect that it might be *tintinnabulum*, so far unrecorded from Britain. Unfortunately the spores are too large. The collection has the appearance of *inclinata* and I might have to [DNA] sequence it to find out more. It would be easy to blame it on the low temperatures affecting development. It is quite baffling"

And so the matter rested until Derek entered the scene. I'd also sent him a specimen of the second collection but he'd been away and by the time he got back the material was useless. I now remembered that I'd dried some of the first collection, although all subsequent work (Penny and Ernest) had been done on the later material collected in the frosty weather. Derek now agreed to take a look at this earlier collection.

And Bingo! He found the cheilocystidia:

"Dear Joanna, I looked at your dried Mycena. It has gill edge cystidia that seem to resemble those of *Mycena inclinata* and the spores are the right size and shape. They are difficult to find but there are a reasonable number, also 4-sp. basidia with clamps. I don't know the keys to *Mycena* well enough to eliminate everything else, but brown cap, clustered on oak makes me think *M. inclinata* is quite likely ….."

What Derek thinks quite likely is certainly good enough for me, and although it was perhaps disappointing that my find turned out to be a common species in the end, I had gained much from the experience and there are perhaps lessons for us all to learn here. Firstly, it is clear how important it is to make full notes on the fungus at the time of collection; secondly, it pays to label dried material carefully and cross reference this with your notes and photos; thirdly, use several books to give you a balanced and unbiased view: there is no one "bible" for identification, and there are many keys; but above all, be grateful that there are experienced mycologists around who are ready to help.

[A few further observations here: both macro- and microscopic characters of fungi are often adversely affected by frost, sometimes rendering attempts at identification a fruitless exercise. Many organisms with a high water content are damaged by freezing because water expands when frozen and the cells are irrevocably affected. In fact, it's never worth spending time on material unless it is in reasonable condition, so discard old or badly damaged collections, they will only frustrate you! – Ed.]

A PUZZLING *AGROCYBE*

Nick Jarvis

My story starts in early May this year, when a small cluster of rather strange-looking fungi appeared on the edge of my lawn (fig.35). Although the weather had not been especially dry, the caps were all cracked in what seemed to me to be a very distinctive pattern; also the cortina was clearly persistent and distinctive. However, my hopes that these apparently obvious features would lead to a quick identification were soon to be dashed, as a quick scan through Phillips revealed nothing remotely like it; it seemed that a more formal approach was called for. The first question: "Which genus?" The mid-brown spore print and smooth elliptical spores suggested *Inocybe*, but the overall appearance, especially the tough leathery cap, suggested anything but this.

fig.35 Puzzling *Agrocybe* (NJJ)

An email to fellow BFG members soon came up with *Agrocybe* as more likely, and looking through the literature the choice of species was soon narrowed down to two, *A. molesta* and *A. praecox*,

both springtime grassland species. To complicate things a little, I found that the recently published *Funga Nordica,* also FAN and B&K, use the synonym *A. dura* for *A. molesta,* but here I shall stick with the name *A. molesta* as recognized by CBIB.

The next bit was supposed to be easy because the two species are easily separated by spore size, the exact range of which varies a little between publications, but all agree that *A. praecox* has significantly smaller spores. The ranges given by FAN are 8-11µm for *A. praecox* and 10.5-14µm for *A. molesta*, but unfortunately my spores were around 10.5-11µm, right in the middle. So now I had to look more closely at other characters. Would the distinctive cracking be of any help? Penny sent me a photo of *A. praecox* (fig.36) that clearly showed a similar cracking pattern. Then Derek sent me a photo of *A. molesta* (see concluding comments opposite and fig.39) whilst the cracking was less obvious in this case, the larger specimen clearly showed the beginnings of a similar pattern. Penny also pointed me in the direction of FM2(1) p6, showing a photo of *A. praecox* with marked cracking and persistent cortina.

fig.36 *Agrocybe praecox* Harcourt 19 May 2005 (PC)

Some of the literature suggests that these two species might be separated by the position of the ring, this being significantly higher up the stipe in *A. molesta* than in *A. praecox*, and in all my specimens the ring was set very high. However, looking closely at the specimens in the FM photo one can see some specimens with a high ring but also some much lower. Perhaps this was not such a reliable character either. I also discovered that they might be separated by taste, but sadly taste and smell are not my strong points points as virtually all fungi are just "mushroomy" to me. Furthermore, a week had now passed and the specimens in my fridge were no longer in any state to be tasted anyway.

At this point the fungi themselves came to my rescue by producing a second crop. I decided to provide them with some light shade and also kept them well watered, just in case the cracking of the cap was an anomaly caused by an excess of sun and deficit of water. By mid to late May God was also doing his bit to prevent any possibility of dehydration. Despite these precautions, the new specimens developed the very same cracking pattern (fig.37), and from quite an early age, and luckily for me this time they also had slightly smaller spores: 10µm long, placing them firmly within the range for *A. praecox*. I also looked more closely this time at the shape of the cystidia (fig.38), finding that some of those in the new collection were quite markedly pointed at the top, thus being closer to those of *A. praecox* according to the FAN illustrations. I now felt confident to record both collections as such.

In conclusion, if I were to be confronted again with this problem of marginal spore

fig.37 *Agrocybe praecox* fruiting in May 2009 (NJJ)

fig.38 *Agrocybe praecox* gill cystidia (NJJ)

size, then I would suggest that the next most reliable character for separating these two species is probably the cystidia shape. Also, whilst the cracking pattern on the cap can clearly occur in both species, I would tentatively suggest that it occurs only in older specimens of *A. molesta*, whilst in the case of *A. praecox* it can be seen in quite young specimens also.

[Join the club, Nick! You can almost guarantee that if a key splits two species on spore size, your collection will fall right in the overlap between the two! Taking the cystidia shape and size into consideration is always good practice and well worth the few minutes' extra time needed to prepare a slide: it will often confirm a determination, as you found in this case – Ed.]

Comments by Derek: A fine piece of detective work! Species distinctions are often finely drawn (nature is under no obligation to make it easy to distinguish different species, however we define them, and biology is disturbingly variable for someone trained in the physical sciences). Once the genus is pinned down, finding the best comprehensive and detailed treatment is a must. The *Agrocybe* chapter in Vol.6 of the *Flora Agaricina Neerlandica* by European expert Marijke Nauta is the best current work to turn to. Once you are down to a small number of alternatives, the keys (FAN6 provides two alternative keys) and the detailed descriptions have to be studied carefully and all characters considered. My *Agrocybe molesta* fruits regularly in 'Duck End Pasture' next to my house (fig.39). Spore length usually averages

fig.39 *Agrocybe molesta* Whitchurch 9 Jun 2003 (DJS)

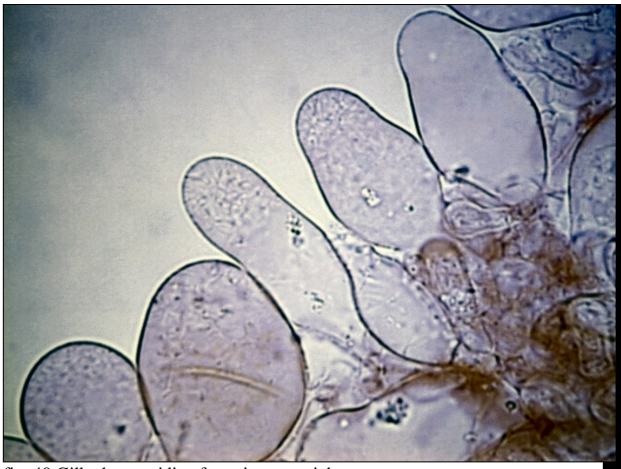

fig. 40 Gill edge cystidia of specimen on right

fig.41 *Agrocybe molesta* collected in Whitchurch 11 Jul 2008 (DJS)

more than 12µ, but occasionally less, giving me doubts as well. I have usually photographed rather young material, so cracking may not be as distinct as it can be. The ring zone is usually small and indistinct once the cap has opened (fig.41). Agrocybe praecox should have a distinct ring attached to the stem (visible in fig.37, left hand specimen). The gill cystidia are more broadly utriform (fig.40), again the most reassuring character. I must taste them next time they fruit (this year I seem to have missed them).

FLY AGARIC – FACTS VERSUS MYTHOLOGY

Brian Murray

The Fly agaric (*Amanita muscaria*, fig.42) is easily recognised, with its bright red cap and distinctive white flecks. Many of us will have seen it in fairy tale illustrations before we ever picked our first mushroom. Its fame stems in part from its easy recognition but also from its notoriety as a cause of psychedelic poisoning. In fact, this fungus gets its name from the toxins which made it a useful fly killer before modern alternatives were invented. Whilst the sensible approach is to avoid any such fungus, some cultures have allegedly utilised its psychedelic properties, and the study of this and of its impact on human society is known as ethnomycology. However, whilst the many stories and theories regarding fungi are fascinating, ethnomycology remains something of a fringe science, followed by enthusiastic amateurs and parties with agendas of their own.

The Fly agaric's toxins are numerous, the most important being muscimol, ibotenic acid and muscarine. Studying the toxicology of fungi is fraught with difficulty: it would be unethical to subject large numbers of volunteers to the effects of a poisonous mushroom, moreover administering one of the active chemicals in isolation in the laboratory tells us little about the effects of the whole fungus 'in the real world'. Nonetheless, a grasp of the effects of this species is necessary to understand its

fig.42 *Amanita muscaria* Common Wood 16 Oct 2004 (PC)

historical significance. (I must emphasize at this point that my aim is in no way to encourage readers to experiment). *Muscimol* will probably cause the first noticeable effects after ingestion; this molecule stimulates inhibitory nerves in the brain, causing drowsiness, dysphoria and possibly hallucinations, although illusions are more commonly noted. *Ibotenic acid* has a very different effect; it stimulates excitatory nerves causing hyperactivity, varying conscious levels, and possibly seizures. The body converts a small amount of this into muscimol. *Muscarine* does not enter the brain but stimulates some of the nerves and muscles elsewhere; this can cause salivation, lacrimation (tear production), urination, diarrhoea and possibly vomiting, also pupil dilation, irritation of the airways, and in some cases muscular twitching (this last reported by non-medical sources).

The contradictory effects of these toxins probably explain the variable symptoms of poisoning, and also why intoxication seems to go through different phases over a period of hours. Symptoms are rendered more unpredictable by variations in condition and habitat of the specimen and even by the victim's age (most poisoning cases being of children). Although not addictive or deadly poisonous its effects can be unpleasant, requiring hospital treatment. [see Derek's email comment on this at the end – Ed.]

***Amanita muscaria* and cultural use.**

The cultural use of this species has been most commonly associated with the Koryaks, a shamanic tribe from Kamchatka (Eastern Siberia). Amongst the many possibly fanciful tales which started to return with travellers in the 18th century there are at least two reputable accounts of this tribe using it for entheogenic (spiritual) purposes: one from a Swedish soldier, von Strahlenburg, sent to Kamchatka as a prisoner, and the other from a Russian explorer, Krasheninnikov. A large part of the shaman's power lay in his alleged ability to travel to the gods or spirits to intercede on his patients' behalf; it may be no coincidence that intoxication with *A. muscaria* can give the illusion of travel. Krasheninnikov and others claimed that to achieve its intoxicating effects the wider population drank the urine of others who had consumed the mushroom. I have little inclination to test this hypothesis(!), but it is theoretically feasible as ibotenic acid is excreted in urine, and also this would have been a way of making one fruitbody go further or even minimising side effects: several participants could benefit from just one having to suffer the effects of eating it. However, claims that this practice was widely popular seem dubious: even if we ignore the distasteful method of dispensing, there is such a long list of our mushroom's unpleasant effects, and furthermore I can find no reliable modern account of the Koryak tribe using it.

fig. 43 Sinterklaas depicted in a 1907 illustration

Von Strahlenburg's story may be responsible for the alleged connections between the Fly agaric and the Christmas folklore we now associate with Lapland. It has been suggested that 'flying reindeer' originated from the illusions of people who had eaten it (here a possible link back to the shamanic power of travel?), and even that it was the origin of Santa Claus's red and white livery. In fact it has never been widely used for psycho-active purposes in Scandinavia, and the origin of the modern Santa's clothing although

obscure probably owes more to the red and white ecclesiastical robes of St. Nicholas, known to the Dutch as Sinterklaas (fig.43). This name then emigrated with them to America where it evolved into Santa Claus, becoming firmly established by an iconic Santa figure in a Coca Cola advert in the 1930s.

Nonetheless Von Strahlenburg's story influenced one Samuel Odman, an academic who wrote a book suggesting that *A. muscaria* was used by Viking Beserkers. The Beserkers were figures every bit as shadowy as the mushroom itself. It was said that these warriors whipped themselves into a frenzy before battle, then threw themselves into the fray often with little or no armour and in a state of such excitement that they would lash out at both friend and foe. Odman researched ancient reports and concluded that they must have imbibed some psycho-active substance, suggesting our *Amanita* as the most likely candidate. His theory is still much debated: the Beserkers were first described in mythological epics and there is little hard fact supporting their existence. It does seem hard to accept their effectiveness in battle if they really were as delirious and undiscriminating as accounts suggest, but perhaps they had some propaganda value. The best evidence for their existence, ironically, comes from decrees banning them in 1015 and 1123, the latter also stating that if someone went beserk in a community more than once, those around him would be punished. Schubeler, a later commentator, inferred from this that going beserk must have been preventable, thus providing indirect evidence that some external agent must be involved. Even if Beserkers existed (the decree referred to someone behaving in a 'beserk' manner, not to a 'Beserker' sect itself), there is no direct evidence to support their use of the mushroom, and it is hard to see how effects such as drowsiness and diarrhoea could benefit a soldier in battle; furthermore I can find no medical evidence to support claims that consuming *A. muscaria* can suppress fear. Any battle rage could be as easily, if not better, explained by alcohol, and there are numerous culture-bound psychogenic states such as *amok* where irrational behaviour is induced purely by suggestion.

Another twist in the story comes from Gordon Wasson's book (1967) claiming that Soma, a sacred plant referred to in Hindu scriptures, was in fact Fly agaric. Wasson, a banker with no scientific background but an amateur mycologist, wrote a series of books exploring the connection between mushrooms, psychedelia and ancient religions. Based on personal experience, he was sceptical of Odman's claims, but his own theories had all of Odman's failings: he gives no physical evidence, just a hypothesis to explain a semi-fictional mystery. Given this mushroom's characteristic appearance it should be easily recognisable from Vedic scriptures, but Soma is so vaguely described that it seems quite plausible that it is simply fictitious, like the nectar of the Greek gods. Wasson's theory also leant heavily on von Strahlenburg's and others' stories of the Koryaks, so yet again historical accounts from far eastern Siberia found themselves recycled to a different place and time. Although he insisted that use of natural psycho-active substances was not for pleasure but had serious cultural purposes, this only served to popularise such use, first in the psychedelic generation and later in the 'New Age' spiritual community, all purporting to follow Wasson's belief that somehow the delirium produced by *A. muscaria* carried some kind of objective validity.

In conclusion, although psychedelic mushrooms have been used in various cultures, I suspect that the use of the Fly agaric has been exaggerated. The biggest flaw in its

anthropological study is the heavy reliance on accounts from one tribe in Siberia. Being aboriginal, the Koryak with their animistic / shamanic religion could surely not have had much influence on other cultures thousands of miles away, nor is it plausible that they alone perpetuated a more widespread tradition. The ethnomycology of the Fly agaric, like the fungus itself, needs to be approached with caution.

Excerpt from an email from Derek to Brian:

"… I am aware of one case of death following *Amanita muscaria* ingestion in the US - an anecdotal account from the US *Amanita* expert, Rod Tulloss, who was leading a foray the day afterwards. The victim was a Polish-American, 80 years old, and his last words were allegedly "we always ate it in the old country". It was probably the yellow variety (var. *formosa*), which is more common on the east coast of the US and would explain his not recognising it. Also, I vaguely remember reading about the early US commercial origins of Father Christmas but can't remember where the Mummers fit in. I have seen people dressed as Mummers wearing a similar red and white coat …"

Brian's reply:

"…Deaths from *A. muscaria* should be rare, but there's no accounting for taste... . I understand that some people, perhaps disappointed with the 'high' from *A. muscaria*, move on to Panther caps, which have roughly the same effect but the chemicals are more concentrated and it is therefore a much riskier affair. I also came across accounts of people eating it as a meal rather than a drug, in areas of France, the theory being that *Amanita* is less potent depending on geography, climate or preparation, but I cannot be specific. Some say if you cook it you reduce the potency so presumably sufficient cooking might render it harmless. As you say, it could be a case of mistaken identity …. I have a book on Christmas traditions from Gutenberg press which talks of people wearing red at Xmas but does not specify if this is for a particular reason. I wonder if red, white and green being the only colours around at that time of year (think holly and ivy etc), these colours have simply become subliminally associated with Xmas. I have since I wrote the article found this critically analysed on Wikipedia, at least the author's conclusion is pretty close to my own ….."

PHOTO QUIZ

Justin Long

In response to my request for Newsletter contributions from members earlier in the year, Justin Long came up with this set of six excerpts from his photos which certainly set Derek and I guessing! I managed to solve only two, Derek five; see if you fare any better! Turn the page for the complete photos and names, but don't peek till you've had a good think about it! If you enjoy photoing fungi as many of us do, why not have a go at compiling a similar quiz for us for next year?

(All photos © JL)

Mystery no.1

Mystery no.2

Mystery no.3

Mystery no.4

Mystery no.5

Mystery no.6

Mystery no.7

Mystery no.1 ***Polyporus squamosus*** **in its early stages of development**

Mystery no.2 ***Lactarius pubescens*** **(with possibe** ***Hypomyces lateritius*** **infection)**

Mystery no. 3
Auriscalpium vulgare

Mystery no.5 ***Fistulina hepatica***

Mystery no.4
Mitrophora semilibera

Mystery no.6
Phallus impudicus

Mystery no.7
Gyromitra esculenta

BOOKS FOR SALE

'The Complete Encyclopaedia of Mushrooms' by Gerrit J Keizer. Contact Nick Standing for further information about this unused copy. Nick says "It's quite a nice new book with 750 colour photos published in 1998". He's asking £5 for it.

Moser (translated Phillips) "Keys to Agarics and Boleti" (hardback, as new)
Ingold "The Biology of Fungi" (1979 issue)
P.H.B.Talbot "Principles of Fungal Taxonomy" (1976)
Lilian E. Hawker "Fungi" (1966 –hardback ex library copy)
Harry J. Hudson "Fungal Biology" (1986)
British Fungus Flora Volumes 1 Boletaceae, 4 Plutaceae, 5 Strophariaceae, 6 Crepidotaceae, and 7 Cortinariaceae (all these in almost as new condition).

For more information on any from this list contact Richard Iliffe who is disposing of them for a Leicestershire Group member who died last year. They are all almost unused, and are available purely for the cost of p&p and maybe a donation to charity.

Contact details for Nick or Richard can be obtained through Derek, Penny or Toni.

At the Aylesbury Museum 4 Oct 2008 (JD)

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