

# ***BFG***

*Buckinghamshire  
Fungus Group*

*Newsletter No. 12*

*August 2011*

*£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.

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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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Cover photo: *Amanita crocea* (Orange Grisette) fruiting in profusion in September 2010 at May Hill in the Forest of Dean (DJS).

## WELCOME!

Welcome all to our 2011 newsletter which we hope you will find informative, interesting and stimulating, whatever your level of expertise and enthusiasm for the fascinating world of fungi. Our membership, which was 96 in calendar 2010 (66 mailings), ranges from young to old, the very skilled to the complete beginner, and our aim as usual is to include something here for everyone. So if you consider yourself a beginner and we bore the socks off you with talk of fancy terms and microscopic details in one article, hang on in there! Maybe the next one will be more to your liking.

## FIRST THINGS FIRST

We continue to enjoy free insurance for the group through our affiliation with the British Mycological Society, and are holding subscriptions at the same rate as they've been for many years. My thanks to Joanna and Toni for their invaluable work and contribution to the smooth running of the group's activities, also to Nick for maintaining our recording database, to Peter for running our website (more on this below), and especially to Alison, Brian, Joanna and Justin for contributing articles below which you are about to enjoy. Lastly, none of this would be possible without our cornerstone, Derek, to whom we all owe an enormous debt of gratitude.

## WOW! WHAT AN AUTUMN SEASON

In many past newsletters this is the moment where I've bemoaned the fact that though things started off well the previous autumn, the early promise soon fizzled out and fruiting was again a bit disappointing. Not so this time. I'm delighted to report that it is generally agreed amongst mycologists that – at least in the south of the country – we had a bumper season last year, in fact quite possibly the best for twenty years or more. It wasn't just that we were treated to an astonishing display of fungi, with woodland floors often carpeted and ablaze with colour, but there were also many unusual and interesting things to be found, with an exceptional number of species new to Britain turning up.

What caused this remarkable explosion of fruiting? Despite the incessant march of scientific research and discovery the occurrence of fungi remains something of an enigma and to a larger degree is still considered a law unto itself. We humans have barely scratched the surface of finding out what makes this particular kingdom of natural history tick, but surely a contributory factor to last year's splendid season has to be the sequence of weather patterns leading up to it. Did the severe cold snap with snow in the early spring of 2010 play its part? Who knows, but following some hot dry weather in June and July, August was really quite wet in the south which triggered an early start to the fruiting season. So often when this happens we then experience an Indian summer and the ensuing dry and warm September promptly stops things in its tracks, sometimes with a good recovery in October if it turns wet soon enough, but quite often not, with insufficient rain and dropping temperatures with early frosts resulting in the fungi apparently giving up for the year and biding its time till reawakened next season. Last year, however, September remained suitably moist and cool, and many mushrooms and toadstools, particularly the mycorrhizal genera (those living in symbiosis with trees), appeared to leap into action early and take the opportunity to make the most of the favourable conditions. There seemed to be a veritable frenzy of fruiting until they shot their bolt in mid-October, dying down rather early before the frosts and memorably cold winter ensued.

Our county was no exception to this fruiting phenomenon, and many rarities and species new to Bucks were discovered, either on our forays or reported by individuals; furthermore we made our contribution to the list of new British species. Details of all this to follow, either as part of Derek's report on the 2010 / 2011 season or in other articles.

### OUR NEW WEBSITE

We are pleased to announce the launch of our new website ([www.bucksfungusgroup.org.uk](http://www.bucksfungusgroup.org.uk), or just googling 'Bucks Fun' will bring up the group's name to click on). We have been busy working with Peter Davis, our excellent and enthusiastic webmaster, and the site has now been up and running for a few months. If you've not visited it yet, do take a look. It's dead easy to negotiate, with a wealth of information at your fingertips by clicking on one of the topics listed in green on the left of the Home page. Lost your foray list or want to see the report on the last foray? Can't find a foray site and would like a link to a map? Want to look up an article from a past newsletter? Like to browse through some nice photos? Want to give information about the group to a possible new recruit? Need to find out about groups in other counties? It's all there, and more. For example, to look something up in the Fungal Records Database of Britain and Ireland (FRDBI) just go to "Links". You can also check what's new on the site and when it was last updated. If you'd like to participate and share some of your photos with others, you are most welcome to do so. At the moment only two or three of us have photo pages, but we'd very much like to expand on this as it's such a useful and also enjoyable resource. If you submit photos for the site you can add text to accompany them if you wish. Derek likes to see everything before it is forwarded on to Peter to upload, so just email him with anything you'd like to be considered. If you have any comments or suggestions for further pages we could include to improve the site, we would very much like to hear from you. This is *your* site and there is plenty of room for expansion and other ideas.

### FORAY PROGRAMME – AUTUMN 2011

Our up to date programme is enclosed. Details are of course now on the website, which will be updated if anything changes, so do check before coming to a foray. I would like to flag up a few things here, with one additional foray to bring to your attention also.

We are starting early this year in the hope that like the previous two seasons fungi will be fruiting well by the end of August, and we didn't want to miss out. Thus the prompt circulation of this newsletter hopefully to give you enough notice about our first two forays, on Sun. Aug. 28<sup>th</sup> at Bernwood and on Sun. Sep. 4<sup>th</sup> at Wotton House Estate. The next event on the list is one you should not miss.

Following the very popular and successful Workshop Day at Ashridge last year we are repeating this event at the same venue, joint with the Herts & Beds Fungi Group, and by popular demand Geoffrey Kibby is again joining our team of local leaders. Meeting up at 9.30 (please note), we start with a foray for an hour or so, dividing up into small groups in order to collect carefully and selectively material to study, then it's back to the workroom provide by the National Trust, where Geoffrey will give a talk, and the rest of the day will be spent working on specimens aided by a good supply of books, keys and scopes, and of course lots of tips from Geoffrey with several other experienced members on hand to help as well. This is a day designed with the less experienced in mind, but there is bound to be something for everyone to learn and enjoy, and with Geoffrey's boundless enthusiasm it is sure to be a lively and entertaining day. Coffee /

tea is available in the workroom; you can buy lunch on site or bring your own. Finish time is 3.30-ish. No dogs. Numbers are limited so please phone Steve Kelly for information and to book your place (£5 each) (01923-268689).

Another event which was introduced last year and comes highly recommended is the Residential Foray in the Forest of Dean (Sat. Sep. 17<sup>th</sup> to Sat. Sep. 24<sup>th</sup>), this joint with the Leics Fungi Study Group, Herts & Beds Fungi Group, and possibly others. Though untutored there will be several highly experienced forayers attending, thus providing another ideal opportunity for the less experienced to pick up tips and get to grips with identification using scopes and a good supply of books. Come for the whole week or a minimum of four nights (£22.50 per night); limited to 10 places only, and for this one please contact Derek to book. See Joanna's report (Foray for Beginners) below for a flavour of a similar week which she attended at the same venue earlier in the year.

Moving on, you have a further opportunity to benefit from the expertise of Geoffrey Kibby who this year leads our foray to Mousells Wood on Sun. Oct. 2<sup>nd</sup>. I introduced Geoffrey to this site and the nearby Watlington Hill one September day last year (read about it in 'An Exceptional Day' below). With any luck we should be in for a great foray at this excellent site with some of the large and showy *Cortinarius* species which are often in evidence here.

Our usual Mushroom Display planned for Sat. Oct. 8<sup>th</sup> at the Aylesbury County Museum has unfortunately had to be cancelled this year as the Museum reviews its activities.

Following last year's rather poorly supported but very productive foray at Watlington Hill, we visit again this year on Sat. Oct. 22<sup>nd</sup> joining forces with the Oxfordshire Group and led by their recently appointed chairman Richard Fortey (a knowledgeable and enthusiastic mycologist who you may have seen on TV in his role as world expert on trilobites in company with Richard Attenborough). For more information about this unique and beautiful site and its many unusual fungi see my article in last year's newsletter.

Derek and I are joining forces with Steve Kelly and Kerry Robinson to lead the Margaret Holden Memorial Foray at Ashridge on Sun. Oct 23<sup>rd</sup>. This is a popular National Trust public foray where we shall divide up into groups, though this year only BFG / HBFG members are permitted to collect, so your presence would be much appreciated to help find and collect specimens to show and talk about as we go round. You can attend the am or pm session (or both, of course!), kicking off at 10.00 as normal or at 1.30.

Do join us at Hodgemoor Woods on Sun. Oct. 30<sup>th</sup> where we've not forayed for several years; this is often a very good site with the many mature oaks as well as the good mix of other trees providing host for a long list of mycorrhizal species. In fact this year it was already fruiting well here in July thanks to the cool and damp conditions which seem to be becoming a regular feature of our summers of late.

The extra fixture I mentioned earlier is a foray on Sun. Nov. 6<sup>th</sup> at a new site for the group: West Wycombe Hill. This is a National Trust site, and the public are invited to join us. N.B. the start time is 10.15. See the website/programme for directions.

Finally, fingers crossed for our 'third time lucky' Festive Season Foray at College Wood on Sun. Dec. 18<sup>th</sup>, which we've had to cancel due to the weather for the last two years. Do come along; we are invited to warm up afterwards with a welcome bowl of soup back at Derek and Jenny's house in Whitchurch.

## REPORT ON THE 2010 SEASON

Derek Schafer

The reports below only give a small selection of the species recorded during the year. Thanks to Peter Davis' efforts in sorting out our web site, however, from now on you will be able to see the list of all species for each foray when it is completed. The selection here is a mix of things that are rare and unusual or common things that I felt like mentioning! Our two early season 2010 forays were reported in the last Newsletter but this report just covers calendar 2010 since there is so much to report! Bear in mind that the photographs are taken at different magnifications, some down a stereo microscope, so scale can vary enormously. For example, fig. 1 is 17.5 millimetres across from left to right.



fig. 1 *Gloeoporus taxicola*, new County record, Stoke Common 23 Oct 2010 (DJS)

### Ashridge 4 Apr 2010

This was a joint foray with the Herts/Beds Group and the list of 31 species included mainly common species such as: *Strobilurus tenacellus* (Pinecone Cap); *Junghuhnia nitida*, a resupinate (fungus growing as a thin layer over the surface of wood) but with pores (see Newsletter 8, 2007, page 20); *Reticularia lycoperdon* (well illustrated from Stoke Common on our web site, under "reports and lists"); and *Rhopographus filicinus* (fig. 2), which is so common wherever Bracken occurs that it is hardly ever mentioned and for that reason I have illustrated it here.



fig. 2 *Rhopographus filicinus* (Bracken Map) on dead Bracken stem – this specimen from Arran in 2008 (DJS)

### Ashridge 5 Sep 2010

We returned to Ashridge at the beginning of September for a workshop again jointly with the Herts/Beds Group. This was an amazing day. The combination of earlier rain, a site renowned for fungi in genera such as *Amanita*, *Boletus* and *Russula* and the presence of Geoffrey Kibby, one of Britain's leading experts on these genera, and other mycologists allowed the 30 or so attendees to see a remarkable range of species. The day's list included several new (Hertfordshire) County records including one new to Britain – The Ashridge site is split between Hertfordshire and Buckinghamshire but the area around the Monument and National Trust buildings is in Hertfordshire so the

rarities are attributed to that County. I was setting up my microscope during the foray, so cannot add anything about location but, conceivably, the collecting might have strayed into the other County and might then even have rescued one species from official extinction in Buckinghamshire.

The list of around 100 species included *Amanita betulae* (fig.6) new to Britain and *Amanita battarrae* reported only once before from Hertfordshire by Alan Outen at Ashridge in 1985 and unknown in Buckinghamshire. Other finds included: *Cortinarius cinnabarinus* with one previous record from Hertfordshire in 1981, and one by E.J.H. Corner as long ago as 1925 in Buckinghamshire, making it now officially extinct in that County (conservation experts generally regard a lack of records for 50 years or more as signifying extinction); *Lactarius rubrocinctus* with one Hertfordshire record from Derek Reid in 1965, also at Ashridge, and one Buckinghamshire record of mine from Bradenham (which I noted as doubtful because of my lack of familiarity with the species) in 2005 and *Pluteus aurantiorugosus* with one previous record in each County. A total of 9 Amanitas also included *Amanita crocea* (see front cover), *Amanita submembranacea* both Ashridge regulars and *Amanita ceciliae* (see Newsletter No.8, 2007, page11). 14 Russulas were found, including *Russula aurora* (previously known as *Russula rosea* but that name now seems to have been applied, confusingly, to another species), *Russula graveolens*, and *Russula sardonica*, all known from Buckinghamshire and common generally but apparently not recorded from Hertfordshire. A total of 8 Boletes included *Boletus moravicus*, *Boletus declivitatum* and *Boletus radicans* and there were 9 *Lactarius* species. Not surprisingly, microfungi and resupinates received less attention than usual but included *Hymenoscyphus calyculus* (also known as *Hymenoscyphus conscriptus*) identified by Joanna Dodsworth and *Ceriporiopsis pannocincta* (a beechwood indicator species, also known as *Gloeoporus pannocinctus*) recorded by Kerry Robinson.

#### Annual General Meeting 23 May 2010

In addition to the formal business and the usual sharing of photographic reminders of our previous year's foraying, we were delighted to have a presentation on the new web site, which he has so effectively sorted out for the Group, by member Peter Davis. Do take a look, at [www.bucksfungusgroup.org.uk](http://www.bucksfungusgroup.org.uk).

#### Watlington Hill 9 Sep 2010

This was a joint event with the Oxfordshire Fungus Recording Group and the Friends of Watlington Hill and was led by Richard Fortey and Penny Cullington. Penny's article in the last Newsletter No. 11, 2010, page 26 set expectations high and the foray did not disappoint. A list of just 46 species belies another remarkable set of records. There were 9 species recorded as associated with *Helianthemum*: *Cortinarius epsomiensis* (also known as *Cortinarius anomalus*); *Cortinarius infractus*; *Hebeloma sinapizans*; 7 *Inocybes* (*I. bongardii*; *I. catalaunica*, with only two previous records in England one by Penny from Watlington Hill in 2008 and three from Scotland; *I. duriuscula*, with one previous Oxfordshire record by Richard Fortey at the Warburg reserve of 38 British records; *I. oblectabilis*, recorded previously by Penny at Watlington Hill as the only Oxfordshire site; *I. obsoleta*; *I. rimosa* and *I. umbrinella*) and *Lactarius evosmus* (fig.3). Other records included: *Entoloma longistriatum* var. *microsporium*, with 16 British records, only previously reported from North Somerset, North Lancashire, West Gloucestershire and the Republic of Ireland; *Peziza petersii* (on burnt ground, fig. 4), *Amanita echinocephala* (see Newsletter 6, 2005, page 7); *Coprinellus angulatus*, also on burnt ground; *Chlorophyllum brunneum* (the name now accepted for what was called *Chlorophyllum rhacodes* var. *hortensis* – see *Field Mycology* 12(3), 2011 page 89 and 7(4),

2006, page 136); *Entoloma bloxamii* (Big Blue Pinkgill, see Newsletter 11, 2010, page 27) and *Tubaria dispersa* (also known as *Tubaria autochthona*).



fig. 3 *Lactarius evosmus* growing with *Helianthemum*. This photo from Coombe Hill in 2005 (DJS)



fig. 4 *Peziza petersii* growing on burnt ground Watlington Hill 19 Sep 2011 (PC)

See also the article “An exceptional day” on page 19 of this Newsletter.

#### Forest of Dean residential week 18-25 September 2010

This was a joint meeting with the Leicestershire Fungus Group and the Herts/Beds Fungi Group. The numbers of attendees were limited, which allowed plenty of space in the workrooms and a relaxed approach to our task. The exceptional early autumn season



continued – I called it “Cep-tember” after finding lots of *Boletus edulis*. During the week some 427 fungi records were made from 7 sites and, perhaps more important, there was time to study some of the finds in more detail and to discuss them with others.



fig. 5 *Cystolepiota adulterina* New Fancy View 20 Sep 2010 (DJS)



fig. 6 *Amanita betulae* from May Hill  
24 Sep 2011 (DJS)



Notable finds included: *Amanita betulae* (fig. 6, just after the first British record at Ashridge – see above); *Cystolepiota adulterina* (fig. 5) and *Coprinellus heterothrix* (fig. 7, the third British record, fruiting again in the same spot as the previous year) both at New Fancy View; *Cantharellus amethysteus* (fig. 8); *Pulvinula militina* and *Scutellinia kerguelensis*.



fig. 7 *Coprinellus heterothrix* New Fancy View 20 Sep 2010 (DJS) with wisps of filamentous veil on cap



fig. 8 *Cantharellus amethysteus* Cannop Ponds 20 Sep 2010 (DJS)

### Naphill Common 3 Oct 2010

We were joined by an enthusiastic group from the Friends of Naphill Common and found 51 species to record. These included: *Inocybe glabrodisca*, a new County record with only 11 British records on the national database; *Psathyrella olympiana*, with only 13 British records but known from two other sites in Buckinghamshire; two rather smelly species - *Micromphale brassicolens* (Cabbage Parachute) and *Mutinus caninus* (Dog Stinkhorn) and a rather fine specimen of *Ascocoryne sarcoides* (Purple Jellydisc, fig. 9).



fig. 9 *Ascocoryne sarcoides* (Purple Jellydisc) Naphill Common 3 Oct 2010

### Millfield Wood 9 Oct 2010

This was a public foray with BBOWT and produced a list of 57 records. Notable were *Cortinarius vulpinus* (fig. 21) a red data list species (vulnerable D2) with 7 British records and new to Buckinghamshire a few weeks earlier (see Kings Wood under “other records” below); *Calocybe ionides* (fig. 10) with just one previous record since the 19<sup>th</sup> century (in 2006) in Buckinghamshire; *Cortinarius calochrous*, *Cortinarius saturninus*, *Conocybe vestita* and 6 *Inocybe* species, including *Inocybe muricellata* (see Field Mycology 11(4) p.111) with 10 British records and hardly known outside of Buckinghamshire.



fig. 10 *Calocybe ionides* from Millfield Wood 9 Oct 2010

### Cliveden 10 Oct 2010

Martyn Ainsworth was our guest Mycologist on our revisit to the grounds of this historic house now owned by the National Trust. A list of 121 species for the day covered a varied and rich mixture of species, including: *Epithele typhae*, a resupinate fungus growing on sedge stems; 9 *Inocybe* species including *Inocybe appendiculata* (fig. 11), a new County record with only 14 previous UK records; *Conocybe macrocephala* and *Coprinopsis romagnesianus*, both also new County records; *Peniophora laeta*, a



fig. 11 *Inocybe appendiculata* Cliveden 10 Oct 2010 (PC), flesh in the upper stem reddening with ammonia

resupinate fungus that develops under the bark of Hornbeam branches and *Phleogena faginea*, an unusual jelly fungus that forms rounded blobs on stalks like the (unrelated) slime moulds. Other finds included: *Chroogomphus rutilus*, common elsewhere but with only two previous Buckinghamshire records; *Rhodocybe gemima* (see Newsletter No 7, 2006, page 12); *Pholiota adiposa* and *Didymium nigripes*, a slime mould with no previous Buckinghamshire records on the fungal database.

#### Brush Hill 10 Oct 2010

This was a new site for the Group and our foray produced a list of 60 species. Finds included: *Crepidotus lundellii*; *Hebeloma velutipes*; *Inocybe incarnata*; *Rhodotus palmatus* on Elm, *Hypomyces rosellus* on *Trametes versicolor* (see Newsletter No 11, 2010, page 19); *Peziza micropus* and *Xylaria longipes* (fig. 12, Dead Moll's Fingers).



fig. 12 *Xylaria longipes* (Dead Moll's Fingers)  
Brush Hill 17 Oct 2010 (DJS)



### Stoke Common 23 Oct 2010

This foray was part of a more intensive study of the site by Penny as described in her article on page 25. On this visit, we recorded 76 species, the most outstanding being *Aleuria congrex*, new to Britain collected by Jenny Schafer – but the full story, in Penny’s article, makes interesting reading. Other finds included *Gloeoporus taxicola* (fig. 1), new to Bucks, identified by Martyn Ainsworth after I had suggested it might be *Pseudomerulius aureus*, having looked at a new book on European resupinate fungi by Annarosa Bernicchia. Unfortunately, the *Gloeoporus* had already been included in the earlier book on Polypores by the same author and she had not included it in the more recent one. So the lesson is to be careful you are in the right key before looking for your species! Other finds included: *Cantharellula umbonata* (fig. 48); *Gloeoporus dichrous*; *Gomphideus roseus* with *Suillus bovinus* (the relationship between these fungi is discussed in Newsletter No 10, 2009, page 18); *Macrotyphula fistulosa* var. *contorta* and *Coprinellus xanthothrix*.

### Ashridge 24 Oct 2010

Our third visit of the year to Ashridge was for the Margaret Holden Memorial Foray. This annual meeting of the Herts/Beds Group, jointly with the National Trust, the Herts Natural History Society and ourselves is a popular public event and attracted a large number of visitors again this year. A rich variety of fungi was recorded, 139 species, including: *Agaricus semotus*; *Amanita olivaceogrisea*; *Cortinarius sanguineus*, *Hebeloma mesophaeum*; *Lactarius lacunarum*; *Peniophora lycii*; *Pseudocraterellus undulatus* (also known as *Pseudocraterellus sinuosus*, see Newsletter No 8, 2007, page 15) and *Tarzettia catinus*.

### Langlev Park 30 Oct 2010

This was another public foray and an enthusiastic group found a total of 88 species to record. These included: *Amanita rubescens* var. *annulosulphurea*; *Clitopilus hobsonii*; *Conocybe subovalis*; *Coprinopsis phlictidospora*; *Cortinarius hemitrichus*; *Entoloma sericeum* var. *cinereopacum*; *Lentinellus cochleatus*; *Lepiota felina*; *Postia balsamea* and *Pseudoboletus parasiticus* (see Newsletter 10, 2009, page 17).

### Rushmere Estate 31 Oct 2010

A foray in the Greensand Ridge has become something of a tradition with the Group and this year we chose the Rushmere Estate, adjacent to Stockgrove Park and straddling the Bucks/Beds border. The Estate has been recently purchased jointly by the Greensand Trust and Central Bedfordshire Council and our foray provided an opportunity to add some fungal records to a general effort to survey the site’s wildlife. We recorded 108 species, including: *Typhula setipes* (fig. 15) on a dead Poplar leaf, spotted by Mike Dodd; *Amanita gemmata*; *Pycnostysanus azaleae*; *Auriscalpium vulgare* (fig. 13) and *Mycena amicta* (fig. 14).



fig. 13 *Auriscalpium vulgare* Rushmere 31 Oct 2010 (DJS)



fig. 14 *Mycena amicta* Rushmere 31 Oct 2010 (DJS)



fig. 15 *Typhula setipes* (fruitbodies about 4 mm high) on dead Poplar leaf, Rushmere 31 Oct 2010 (DJS)

#### Penn Waxcap Foray 4 Nov 2010

We recorded 7 Waxcap species during our visit and other finds included: *Russula cessans* (second Buckinghamshire record, the first from the same spot in 2001), *Spathularia flavida* (red data list, near threatened), both under Pine, and *Sowerbyella radiculata* (under *Cypressus*, fig. 16), all three from the churchyard. The *Sowerbyella* was the second recent Buckinghamshire record since Kerry Robinson's find at Stowe in 2007 had rescued it from extinction in the County (Newsletter No 9, 2008, page 15). At first glance, the illustration below looks very different from the Stowe photograph but observe the lower fruit body below – the much whiter outer surface and yellower inner fertile surface of this drier specimen is the same as all the fruit bodies in the earlier illustration. A good example of how much the appearance of fungi can change with the conditions.



fig. 16 *Sowerbyella radiculata* Penn Churchyard 4 Nov 2010 (PC)

### Wotton House Estate 7 Nov 2010

The rich and ancient woodland and lakeside habitats of this Estate continue to provide varied records of fungi. On this late season visit, 66 species were found, including: *Gaestrum pectinatum* (fig. 18), which appears to be another species rescued from extinction in the County, the previous record being from Dropmoor in 1867; *Flammulaster limulatus* var. *litus* (fig. 17), a new County record and the seventh British record – the species, with two varieties, has 42 British records with just one, by Derek Reid from Burnham Beeches in 1964, from Buckinghamshire; *Inonotus dryadeus*; *Phellinus populicola* and *Coprinopsis cortinata*.

### Other interesting finds in the County

Penny's regular visits to Kings Wood at Tylers Green continue to demonstrate how rich a site this is for fungi. Finds this year included: the red-listed (vulnerable D2)



fig. 17 *Flammulaster limulatus* var. *litus*  
Wotton Park Estate 7 Nov 2010 (PC)



fig. 18 *Gaestrum pectinatum* Wotton Park Estate 7 Nov 2010 (PC)

*Cortinarius vulpinus* (fig.21) on 17 and 25 Sep, also found at Millfield Wood the following month (see above); *Cortinarius alkalophilus* (fig. 20) on 17 Sep; *Inocybe obsoleta* (fig. 27) on 9 Sep and also found at Mousells Wood on 12 Sep; the vividly coloured *Peziza saniosa* (fig. 19), the second County record, on 30 Sep and *Russula carpini* (fig. 23), a Hornbeam associate that Penny has been searching for in the County for years. Found on 17 Sep, it was the first Buckinghamshire record with 9 previous UK records. At Hodgemoor, *Cortinarius pholideus* (fig. 24) was found under Birch on 22 Oct and the intensely coloured *Cortinarius violaceus* (fig. 22) on 9 Oct. *Lactarius piperatus*, found at



fig. 19 *Peziza saniosa* Kings Wood Tylers Green 30 Sep 2010 (PC)



fig. 20 *Cortinarius alkaliphilus* Kings Wood Tylers Green 17 Sep 2010 (PC)



fig. 21 *Cortinarius vulpinus* Kings Wood Tylers Green 17 Sep 2010 (PC)



Hodgemoor on 23 July 2011 seems to be new to the County, surprisingly for a species that is fairly common elsewhere, although perhaps less so in the South East. The remarkably white *Russula raoulti* (fig. 25) was found at Ashridge on 22 Aug. At home, I found a species that I had not seen before – *Oxyporus latemarginatus* (fig. 26) on a Sycamore stump. It had been recorded twice before in Buckinghamshire.



fig. 22 *Cortinarius violaceus* a red data list (near threatened) species new to Bucks collected by Paul Cullington Hodgemoor 9 Oct 2010 (PC)



fig. 23 *Russula carpini* Kings Wood Tylers Green 17 Sep 2010 (PC)



fig. 24 *Cortinarius pholideus* Hodgemoor 22 Oct 2010 (PC)



fig. 25 *Russula raoulti* Ashridge  
22 Aug 2010 (PC)



fig. 26 *Oxyporus latemarginatus* on a Sycamore  
stump Duck End Pond, Whitchurch  
28 Sep 2010 (DJS)



fig. 27 *Inocybe obsoleta* Mousells  
Wood 12 Sep 2010 (PC)

## AN EXCEPTIONAL DAY

Penny Cullington

Last September Geoffrey Kibby, Antony Burnham and I were looking for pastures new within easy reach of London for our annual fungal get-together, having been to Epping Forest – one of Geoffrey’s favourite stamping grounds – on previous occasions. At my suggestion we plumped for Mousells Wood in Buckinghamshire followed by Watlington Hill in Oxfordshire, the first good for *Cortinarius*, *Inocybe* and *Russula* and the second a special site for species mycorrhizal with Rock Rose (*Helianthemum nummularium*), a habitat with which neither of the other two were familiar. The two sites being only fifteen minutes apart and conveniently near to High Wycombe Station, this ticked all the boxes, but I was worried as both sites were on my recommendation: would there be anything fruiting on the day?

Things looked promising on arrival at Mousells Wood where the roadside bank immediately opposite the parking spot was packed with various species of *Inocybe* amongst other things under the Hazel and Beech. One little cluster of these which looked unfamiliar turned out to be the second British collection of *I. huijsmanii* (fig. 28), and on



fig. 28 *Inocybe huijsmanii* new to Bucks and 2<sup>nd</sup> British collection Mousells Wood 12 Sep 2010 (PC)

entering the wood – a typical chalky Chiltern hillside predominated by mature Beech – we were soon on our knees in the Beech mast with our knives, cameras and tripods at the ready, arranging stunning collections of various eye-catching *Cortinarius* species, mainly from the *Phlegmacium* group, for photography. (Just what the doctor ordered as this group of fungi is one of Geoffrey’s particular favourites.) There was a crescendo of ‘Oohs’ and ‘Ahs’ as we found what were later identified as *C. catherinae* (fig. 29) and *C. platypus*, both new to Britain; *C. magicus* (fig. 30) was the 6<sup>th</sup> British record and new to the County; *C. rickenianus* (fig. 31) was also the 6<sup>th</sup> British record though a 2<sup>nd</sup> for the County, having been recorded from nearby Adams Wood in 2001; *C. amoenolens* (fig. 32) with quite a few records, the 1<sup>st</sup> of which was from nearby Bradenham Woods in 1945 by the renowned mycologist R.W.G. Dennis; finally *C. bulliardii* (fig. 33) with 17 previous British records and the 2<sup>nd</sup> for the County as I’d found it here in 2005 as well.



fig.29 *Cortinarius catherinae* new to Britain Mousells Wood 12 Sep 2010 (PC)



fig. 30 *Cortinarius magicus* new to Bucks and 6<sup>th</sup> British collection Mousells Wood 12 Sep 2010 (PC)



fig. 31 *Cortinarius rickenianus* 6<sup>th</sup> British collection Mousells Wood 12 Sep 2010 (PC)



fig. 32 *Cortinarius amoenolens* Mousells Wood 12 Sep 2010 (PC)



fig. 33 *Cortinarius bulliardii*  
2<sup>nd</sup> Bucks collection  
Mousells Wood  
12 Sep 2010 (AB)

In the heat of the moment sadly none of us took photos of *C. platypus*, the significance of this find not being realised at the time. What a start to the day, and we'd gone no more than 50 yards into the wood! Over the course of the next hour or so we'd found amongst other things 14 species of *Inocybe* along with several unusual species of *Russula* two of which were new to the County: *R. decipiens* (fig. 34), with only 36 British records, and *R. vinosobrunnea* (fig. 35), with just 8 British records.



fig. 34 *Russula decipiens* new to Bucks Mousells Wood 12 Sep 2010 (PC)



fig. 35 *Russula vinosobrunnea* new to Bucks, at Mousells Wood 12 Sep 2010 (PC)

Slightly shell-shocked, we moved on to Watlington Hill. I was now no longer worried about the success of the trip because we'd found so many exciting things during the morning that just an afternoon walk in this stunning place would finish the day off nicely, regardless of whether the fungi for which it is now becoming well known were fruiting or not. They were! And how! As we emerged onto the escarpment with the red

kites displaying above us, Antony soon discovered *Entoloma bloxamii*, a rare and beautiful species which is often to be found here but one that Geoffrey had never seen before. Out came the cameras again, and as we strolled over the vast areas of Rock Rose I was delighted to be able to show them the quantities of fruitbodies of most of the mycorrhizal species which can be found here using Rock Rose as host in place of trees. (See my detailed article in last year's newsletter for more information and also photos.) In addition, Geoffrey recognised a *Lactarius* which had defeated me on previous visits, this was *L. rubrocinctus* (fig. 36), with only 35 British records and not previously found with Rock Rose, though interestingly enough since our trip this species has now turned up with this host at two other sites. Another *Cortinarius* which Geoffrey was able to identify here was the beautiful *C. cisticola* (fig. 37), recently split off from the *C. calochrous* complex and new to Britain since this split, though similar sites around the country have records of this complex of species growing with Rock Rose which are likely to be this also.



fig. 36 *Lactarius rubrocinctus* a new species growing with Rock Rose Watlington Hill 12 Sep 2010 (PC)



fig. 37 *Cortinarius cisticola* a newly named species growing with Rock Rose Watlington Hill 12 Sep 2010 (PC)

To round off an amazing day I was particularly pleased to be able to show my companions one more intriguing Rock Rose associate. You may recall in last year's article on Watlington Hill discussion about an interesting species of *Amanita*. Though close to *A. vaginata*, and also reported from the Derbyshire Peaks, this had been puzzling several authorities both here and abroad for the last few years (again see previous article for more on this), and I was hopeful that if we were lucky enough to find it again Geoffrey might be able to help. As we approached the area where I knew it grew, we at first found just one or two fruitbodies, then more, then a veritable 'forest' of them as I'd never seen them before! There must have been 60 or more pushing up through the hummocks of Rock Rose, obligingly displaying all stages of development. Shutters clicked once more, and we collected good samples which were then the subject of lengthy discussion between Geoffrey and Rod Tulloss, the respected American *Amanita* authority, with the resulting agreement that this was *A. malleata* (fig. 38), a species in the *vaginata* group. The 2009 update to the Checklist of British and Irish Basidiomycota includes a new British *Amanita*: *A. simulans*, giving *A. malleata* as a synonym. However, since Geoffrey's research it was then reported in *Field Mycology* (Vol. 11 (4)) that *A. malleata* is now accepted as a good species in its own right and the correct name for this *Helianthemum* associate. This then is not really a new species for Britain but a new name for one which has been known about for over 20 years on and off, though recorded under various different names and never satisfactorily sorted out. In fact the first known record of this *Amanita* found with Rock Rose in Britain was made by Derek Reid in 1988 and 89 as *A. lividopallescens*, and from this very site! So now at last I have a name for my photos of this intriguing *Amanita* having first noticed it here five years ago.



fig. 38 *Amanita malleata* Watlington Hill 12 Sep 2010 (PC)



The epithet *malleata* comes from the Latin meaning hammered, and if you look closely at fig. 38 you can see the characteristic indentations on the cap which give rise to its name. These are visible not only on the button (at the bottom of the photo) where the universal veil is still visible but also on the larger cap where the veil has dispersed as it does in many similar members of this genus.

It is difficult to imagine how this day could have been bettered. We all saw an amazing number of species new to us. If proof was needed that last autumn was quite remarkable for fungi in the south of the country, then our day at Mousells Wood and Watlington Hill surely provides it. Where to take them next time .....?!

## SOME INTERESTING FINDS FROM STOKE COMMON

Penny Cullington

Last year was a busy one for me as I had undertaken a survey of the fungi of Stoke Common for its new owner, the City of London. My year-long project formed part of the 10-year management plan to restore this sizeable SSSI area of acid heathland, situated in the south eastern tip of the county, from its present somewhat overgrown state to its former glory. Heathland occurring hardly at all in the County and also a diminishing and threatened habitat throughout the country, I felt privileged to be part of this work though somewhat challenged as surveying was entirely new to me. From my previous experience of the site with its promising mix of habitats but very few fungi records, I hoped to make a good contribution to the site list and possibly to the County list as well.

I made 30 visits spanning from April 2010 to March this year, spread unevenly through the months depending upon various factors, with one BFG foray there as well, of course. Species new to the site turned up every time with numbers predictably peaking in September and October, though with none in December when the site was like much of the country under snow and ice. The list, now standing at just under 400, contains some notable finds, with one species confirmed new to Britain, two further collections of another which I'd found here new to Britain in 2009, together with a dozen or more which for the County are either new or with only 1 or 2 previous records. Furthermore two intriguing finds remain something of a mystery despite expert examination and opinion, and may yet provide further significant records for Britain.

The bulk of the records came from the woodland areas, with only 15% from open heathland though these areas comprise the majority of the site. Nevertheless it was the heathland which produced the species new to Britain, though I'd already reported it in last year's newsletter, but as something different! Under 'Other interesting finds' in Derek's last report you may recall three photos of the common cup fungus *Aleuria aurantia* (Orange Peel Fungus). One was of typical fruitbodies but the other two show macro- and micro-images of much smaller specimens from Stoke Common in May (though the year quoted in the caption for these was incorrect and should be 2010, not 2009!). At that time I had not been able to make this atypical collection fit with any other species of *Aleuria* so had eventually concluded that it had to be just very young material of *A. aurantia*, so I'd (stupidly as it turned out) discarded the material. On looking through the newsletter, Brian Spooner - ascomycete authority and Head of Mycology at Kew - together with colleagues Geoffrey Kibby and Alick Henrici felt sure I'd got it wrong as this just didn't look right for *A. aurantia* and surely was more likely to be a species of *Melastiza*, probably *M. chateri* (Orange Cup).

Feeling mortified but wanting the correct name for my survey, I entered into email dialogue with Brian to see if we could get to the bottom of this puzzle because my initial reaction had been the same as theirs: this did not have the 'jizz' of *A. aurantia*. I knew

that it was not a *Melastiza*, however, because I'd made a careful check at the time: although the spores were suitably ornamented (this being a feature of both the genera involved) their size didn't fit, furthermore it lacked the hairs present on the perimeter of the cup in *Melastiza*, thus my return to the genus *Aleuria* which was correct. However, without any material we were not going to get any further, and I was kicking myself for not having kept and dried it.

Imagine my delight when on our BFG foray at the Common in October Jenny Schaffer collected what looked like the same little orange cups from a different but similar spot of heathland. On examination I was sure they were the same, and as before I just couldn't make this fit with anything precisely though it was nearest to *A. aurantia*. Being no expert on ascos and keen not to make a further fool of myself, I sent it to Kerry Robinson (author of last year's article on ascos growing on other fungi). She, on finding the same as I had, then sent it on to Brian who determined it as *A. congrex* (fig. 39) and not only new to Britain but with only a handful of records from Europe. This species has now been written up in *Field Mycology*, though sadly as no-one on the foray had taken a photo, the one used to illustrate it is of the reconstituted material he examined which unfortunately doesn't really do it justice. He agrees that my first collection must be the same species, but without the material this can't be proved, so my photo of the May collection (Newsletter No 11, 2010, page 13 and below) is clearly not valid. Congratulations to Jenny for finding this new addition to the British mycota.



fig. 39 *Aleuria congrex* first collection of this species new to Britain Stoke Common 11 May 2010 (PC)

In 2009 on one of my first visits to the site I had found an innocuous LBJ ('little brown job') *Inocybe lacera* var. *regularis* which was also new to Britain; I was pleased to make three further collections of this during the survey. In fact this site is clearly a stronghold for *I. lacera*: two further varieties were recorded, the common var. *lacera* appearing every month from May to November often in hundreds in the open areas where stumps of Birch and Willow are plentiful.

One more intriguing find came from the heathland area and involved Brian again. This was another cup fungus (fig. 40), an olive brown *Peziza* growing in the mire – a small boggy area with a stream which virtually dries up in summer but where some

moisture and sphagnum remain year-round. As with the *Aleuria* my attempts to identify this using Brian's key failed, but having learnt my lesson I dried it and sent it to him, and this time had a photo to accompany it. The nearest that he could get to a name was *P. cf. isabellina* (the prefix 'cf.' being an abbreviation of the Latin 'confer' meaning 'compare', and used scientifically to indicate that a specimen is not an exact match but akin to the species). It appears that *P. isabellina* is poorly known, first described from Norfolk in 1873 and with only a few possibly doubtful subsequent collections; mine from the Common bore some similarity to the type description but did not fit with any other known *Peziza*, so is potentially very interesting. Brian is keen to see fresh material so we hope for similar luck in refinding it and clearly need to set Jenny to work again!



fig. 40 *Peziza cf. isabellina* still awaiting definitive identification in mire at Stoke Common 16 Sep 2010 (PC)

Another equally mysterious and as yet unnamed find turned up growing under Oak, Birch and Willow in a sunken area separated from the main site by a road and often totally under water for many of the colder months. I had earmarked this area for particular study as I wanted to find out whether such prolonged wet conditions would deter or encourage the common autumn species to be expected in such woodland. I suspected it would be the former, but not only did this area fruit abundantly but some rare and seldom recorded things turned up. In early September amongst the many *Hebeloma* fruitbodies my attention was drawn to an unfamiliar almost entirely white specimen (fig. 41) for which I really couldn't even guess at a genus, though *Hygrophorus* came to mind at the time due to the colour and the slightly sticky cap surface.

At home the scope revealed a gill edge typical of *Hebeloma* though several other things made this genus extremely unlikely: the white cap, stipe and gills for starters, also the lack of the *Hebeloma* smell and the non-dextrinoid spores (those which turn some degree of brown when viewed in Melzer's reagent). A sporeprint was vital because I doubted that this fully developed fruitbody could produce spores darker than white or cream at most, and certainly not the brown of *Hebeloma*. My *Hygrophorus* theory was now disproved by the characters present on the gill edge, so I was still in the dark as to the genus. I took photos and with fingers crossed that it would drop enough spores to determine their colour, I waited ..... for two days! It now being too late to post the specimen fresh to anyone for help, I dried it before deterioration set in. But at last I had a sporeprint, there being just enough deposit to make out pure white spores.

Taking a brief look at the key in Vesterholt's book on *Hebeloma*, just to make sure I could now eliminate this genus, to my surprise I came very quickly to a couplet which asked for spore deposit either whitish or umber to sepia or dark brown. There was in fact just one species out of the 45 in the book which had white spores. This then had to be



fig. 41 *Hebeloma domardianum*? if confirmed, rare in Europe and new to Britain Stoke Common 7 Sep 2010 (PC)

the answer. The full description fitted well though this was the only species illustrated not with a photo but with the author's watercolour painting. *Hebeloma domardianum* was first described and placed in a newly created genus *Hebelomina* from a collection from N. W. Africa (Maire 1935), though no type material existed with just one European collection since, from Estonia, on which the author had based his description. Following DNA sequencing on the only existing collection the genus *Hebelomina*, of which *H. domardianum* was the type, had been absorbed into *Hebeloma*.

Needing an expert second opinion on this apparently extremely rare find, I sent the dried specimen and sporeprint to Henry Beker in Belgium, his friend Jan Vesterholt being seriously ill at the time and in fact sadly now having died. Six months later it transpired that current thinking is that this is no longer considered a 'good' species; there have now been a few more European collections, though no sporeprint has ever been obtained, and it is thought that such specimens were probably an aberrant form of *Hebeloma* Section *Denudata* or *Velutipes* with white gills and white (probably sterile) spores. I am still hopeful that DNA analysis on the specimen might prove interesting and at least might give it a name. Another species which needs to be refund!

*Hebeloma lutense* (fig.42) is a further species collected from the same area that day which is of interest. At present in FRDBI it is placed under *H. cavipes* as a synonym though 4 of the existing 5 British records under that name were initially recorded as *H. lutense* (one of these determined by Vesterholt who describes it as a valid species in his book, though *H. cavipes* is omitted). Neither species is accepted as British in the new British checklist, though Beker is of the opinion that this situation is in need of

revision as both *H. cavipes* and *H. lutense* are good species and are not even closely related.



fig. 42 *Hebeloma lutense* rare in Britain, the name still in need of clarification Stoke Common 7 Sep 2010 (PC)

Other species new to the County as far as I can tell:-  
*Cortinarius trivialis*, *Dendrodochium citrinum*, *Exidia repanda* (fig.43), *Galerina cephalotricha*, *Gloeoporus taxicola* (fig. 1), *Inocybe albovelutipes*, *Mycena megaspora*, *Naucoria salicis*, *Pholiota mixta*, *Russula aquosa* (fig.44), *R. cremeoavellanea* (fig.45), *R. versicolor* (fig.46) and *Sphaeridium candidum*.



fig. 43 *Exidia repanda* new to Bucks growing on a fallen Oak branch at Stoke Common 7 Oct 2010 (PC)

The genus *Russula*, a particular favourite of mine, was amazingly well represented on the site, with 31 different species recorded, often occurring in good numbers. Besides the three already mentioned and illustrated above, three species rare in the south of England turned up, two having just one previous county record - the Pine associate *R.*

*adusta* (Winecork Brittlepill) and deciduous associate *R. luteotacta* (no common name, but Chrome-staining Brittlepill would fit the bill) – and one, the Birch associate *R. font-queri*, normally considered a Scottish species but which I’ve found locally twice before.

3 *Russulas* new to Buckinghamshire:



fig. 44 *Russula aquosa* growing under Willow Stoke Common 30 Sep 2010 (PC)



fig. 45 *Russula cremeoavellanea* also growing under Willow Stoke Common 30 Sep 2010 (PC)



fig. 46 *Russula versicolor* growing under Birch Stoke Common 16 Oct 2008 (PC)

Another nice find - a second for the County - was a species first discovered in Britain less than 20 years ago growing in greenhouses but now slowly spreading in the south having found a niche for itself on woodchip, usually conifer. (This is in fact one of quite a few species relatively new to Britain which are taking advantage of our increased use of this medium.) A large and handsome, rusty-spored species with a striking combination of wine-red cap and stipe contrasting with orange-rust gills, *Gymnopilus dilepis* (fig.47), seen here clustered on one of the large woodchip piles at the Common, is possibly now thriving here as a result of our changing and warmer climate?

Two further species deserve mention: firstly the phenomenal quantities of *Lactarius*

*helvus*, (Fenugreek Milkcap) which fruit under the plentiful Birch and Pine here, this species only previously recorded from nearby Burnham Beeches in the County, and secondly the unusual *Cantharellula umbonata* (The Humpback) (fig.48), known only from one other site in the County. Note the distinctive strongly forking gills, a characteristic of this species. Incidentally, when I mentioned my survey in passing to colleague Alick Henrici, it turned out that he'd made several visits here back in the 1980s when he was just getting seriously into mycology. On looking out his old lists for me, we compared notes and found that amongst many other species we'd both discovered, two which he'd commented upon in particular were the quantities of *Lactarius helvus* and his first ever encounter with *Cantharellula umbonata* - snap!



fig. 47 (left) *Gymnopilus dilepis* growing on Pine woodchip at Stoke Common 16 Sep 2010 (PC)

fig. 48 (below) *Cantharellula umbonata* 23 Oct 2010 now collected several times at Stoke Common, its only Bucks site (PC)



## SMELLS AND FUNGI – A CHALLENGE

Penny Cullington

In the second ever issue of *Field Mycology* (April 2000) there was an article by Andy Overall called “Comparisons are odorous ...” (a quote from *Much Ado About Nothing*). This took the form of a competition, and I course just couldn’t resist entering. Here was a list of no less than seventy eight different smells met with in fungi, some really bizarre, and formulated from various different literature sources. The challenge was to name the fungus associated with the smell, with a prize for the entry with the most correct names.

With apologies to Andy, I thought I’d share with you just some from his list plus a few additions of my own, limited to species which you might expect to find in this part of the country. Perhaps you will feel like taking on the challenge for yourself, so the answers are given on our website on the newsletter page under ‘Smells and fungi – the answers’. I should warn you that many of the solutions come from Bon’s handbook, sadly out of print for some time now, so unless you have a copy you might struggle with quite a few of them. Just reading through this list is something of an eye-opener, however, and it does illustrate how valuable a field character smell can be though it’s one which is quite often overlooked. As with describing nuances of colour, each person’s individual experience and opinion of smell is subjective, and of course the smell in a fungus may only resemble or suggest one known from other circumstances and often won’t be exactly to same.

Here is the list:

Fruit, flowers and veg: aniseed; coconut; cucumber sandwiches; garlic; lupins; mandarins; overcooked cabbage; pear-drops or over-ripe pears; peas; *Pelargonium* or *Geranium* leaves; potato peelings; radishes; stewed apples.

Other food: bubble gum; burnt sugar; camembert or ripe cheese; cheap coffee; cocoa; cod liver oil; cooked crab or shrimps; curry powder; flour; honey; marzipan or bitter almonds; chip pan (rancid oil; sherry (as in old wine casks).

Chemicals: amyl acetate (nail varnish remover); chlorine (as in bleach or loo cleaner); iodoform; skatole (dung)

Miscellaneous: bed bugs; coal gas; cheap soap (harlots!); goat moth caterpillars; hen houses or wet feathers; ink; mouse droppings; rubber; Russian leather; semen.

There are some fungi with really strong smells which defy useful comparison but are nevertheless very distinctive and instantly recognisable when you get to know them. *Lepiota cristata* (Stinking Dapperling) is one such, but the obvious one to quote is *Phallus impudicus* (Stinkhorn); this doesn’t just smell, its putrid stink can almost make one wretch, though flies clearly find it irresistible. Did you know that if you cut a Stinkhorn egg in half, in the centre is a surprisingly delicious white ‘core’, tasting of fresh hazelnuts? I remember watching member Steve Kelly in disbelief as he demonstrated this, and then being challenged to try it – I did and was amazed: it’s true!

You can probably guess who won the *Field Mycology* competition! After much determined searching I was defeated by seven fungi on Andy Overall’s list: Chanel no.5, disused elevators, nurse’s blouse, plasticine, sow on heat, sweetcorn and otter dung! An extra prize was then offered in the next issue of *FM* for anyone solving these remaining puzzles, but it went unclaimed; in fact Andy then admitted that he couldn’t actually remember the source of several of them, nor the species they were associated with!



## FUNGAL ODOURS - THEIR ORIGINS IN CHEMISTRY

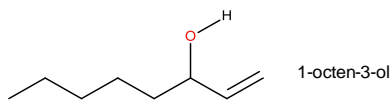
Alison Peace

The characteristic odours that fungi produce provide us with a very useful diagnostic tool for identification. We now know that it is actually a very complex mixture of volatile organic chemicals which produce these smells, though odour chemistry is still poorly understood. Every living thing is made up of an extremely complex mix of chemicals, but despite this complexity they can be divided into two basic categories:-

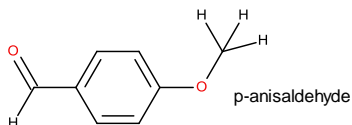
1. Primary metabolites – chemicals essential to life, used in the production of energy, in growth and reproduction.
2. Secondary metabolites – chemicals not essential to life but which play a more complimentary but complex role in survival. Some examples of their uses in the kingdom of fungi: to attract insects, to act as a feeding deterrent to predators, or even to contribute to the relationship of a fungus with its competitors (fungal or otherwise) in the environment. Both the odours and colours (pigments) found in fungi are examples of secondary metabolites.

The effect of the production of odour is of course entirely dependent upon the recipient possessing the necessary olfactory senses. In humans, based upon psychological tests, seven primary classes of olfactory stimulants are found to affect our different olfactory cells. These classes are: 1) ethereal; 2) camphoraceous; 3) musky; 4) floral; 5) minty; 6) pungent; and 7) putrid<sup>1</sup>. Our sense of smell, though known to be relatively weak in comparison with some other members of the animal kingdom, is nevertheless able to detect very low levels of these chemicals, and for the chemist this poses particular problems when analysing the often complex mix of chemicals involved in the constituent elements which exist in fungi. [Not only for the chemist! This must surely explain why field mycologists often detect differing components (maybe only fleeting, maybe developing later or when confined in an airtight container) in the smell of any one specimen, often causing lengthy (and sometimes heated) discussions, and also why we vary in our opinions and descriptions of smells – Ed.] Here are just a very few examples:

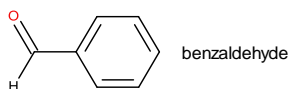
The very distinctive aroma and taste – what we describe as the ‘mushroom’ smell – found in the cultivated mushroom *Agaricus bisporus* (and many other fungi) has been extensively studied<sup>2</sup>. It was found to contain almost 100 different volatile compounds! The major component, making up ~70% of the volatile material, was 1-octen-3-ol, which is also found in many other basidiomycetes<sup>3</sup>.



*Clitocybe odora* (Aniseed Funnel) has probably one of the most instantly recognisable odours met with by the field mycologist: as its common name suggests, that of aniseed. It has been shown that this species produces 19 different volatile compounds<sup>4</sup>, though 81% is made up of p-anisaldehyde, a chemical named in the lab after its characteristic aniseed smell. [It is interesting that the common name for this species should refer to its smell rather than to its equally distinctive and beautiful blue cap colour, surely pointing to the significance of smell in identification – Ed.]



A few species appear to give off the overriding odour of marzipan or bitter almonds, such as *Hebeloma radicosum* (Rooting Poisonpie) and *Inocybe hirtella*. Although my initial thought that the presence of the similar smelling and deadly poisonous hydrogen cyanide is indicated here, the smell can in fact be attributed to benzaldehyde. Used as an artificial flavouring, benzaldehyde is frequently found in basidiomycetes. Benzaldehyde and hydrogen cyanide occur together as parts of a complex natural chemical called amygdalin present, for example, in apricot kernels and which breaks down to release both. So our recognising them as similar smells despite being chemically completely different may have evolved in response to their presence together in this natural substance.



*Phallus impudicus* (Stinkhorn) lives up to its name, and definitely falls into the ‘putrid’ smell category! ‘Bad’ smells in the chemistry lab are often associated with compounds containing sulphur, notably hydrogen sulphide with its volatile smell associated with bad eggs, and also allicin with its distinctive smell of garlic. The Stinkhorn has been found to possess dimethyl disulfide ( $\text{CH}_3\text{SSCH}_3$ ), dimethyl trisulfide ( $\text{CH}_3\text{SSSCH}_3$ ), hydrogen sulphide ( $\text{H}_2\text{S}$ ), and methanethiol ( $\text{CH}_3\text{SH}$ ) – in fact a potent cocktail of these ‘bad’ sulphur chemicals! These compounds act as an attraction to flies by simulating the smell of rotting flesh; the spores contained in the sticky surface of the fungus then adhere to the insects which then oblige by carrying out their dispersal.

Other characteristic chemicals which form constituents of fungal smells are:

1. Esters, a class of organic compounds known for their fruity odours: pear drops, pineapple, oil of wintergreen, pine, coconut, orange and cinnamon are examples of common smells which are also used in artificial flavours and fragrances.
2. Amines, a class of organic compounds known for their ‘fishy’ odour and no doubt responsible for the smell present in all members of the *Russula xerampelina* group.
3. Alkalis, such as ammonia, which have a very pungent odour.
4. Acids, such as acetic acid, which produce penetrating odours such as vinegar.
5. Indoles, such as skatole, present in faeces which produce smells of dung, coal tar and naphthalene in fungi such as *Coprinopsis picacea* and *Tricholoma sulphureum*<sup>5</sup>.

1 [www.extension.iastate.edu/publications/pm1963b.pdf](http://www.extension.iastate.edu/publications/pm1963b.pdf)

2 The Chemistry of Fungi, 2008, J R Hanson, RSC Publishing

3 *Mycoscience* 43, 2006, 317

4 *Mycologia*, 94(3), 2002, pp. 373–376

5 *Cryptogamie mycologie*, 26(4), 2005, 299-364

## THE BIRCH POLYPORE AND AN ANCIENT MURDER

Brian Murray

You could say it was the perfect murder: a body discovered in a remote spot, the attackers, as far as we can tell, evading justice ..... for 5500 years. I am talking of the character we now know as ‘Ötzi’, who died from an arrow wound and whose deep frozen corpse was discovered by walkers in the Tyrolean mountains in 1991. Carbon dating indicates that he lived between 3350 and 3100 BC, placing him on the cusp between the Stone Age and the Bronze Age. In this so-called ‘Copper Age’ people had not yet learnt to add tin to copper to harden it, and Ötzi had with him a copper axe which would have been not only functional but also have served as a status symbol, marking him out as someone of high rank.



fig. 49 Ötzi reconstruction by Kennis © South Tyrol Museum of Archaeology, Foto Ochsenreiter

Ötzi’s body was a major archaeological find, so much so that not only does he have his own Facebook page(!) but also has a museum, the South Tyrol Museum of Archaeology, virtually dedicated to him (the photograph, (fig. 49) comes courtesy of their excellent website). The glacier in which he was found preserved his skin, clothes, body and equipment for study by future generations. He seems to have been equipped for a long trip, his clothing bristling with prehistoric gadgets, including at least two different fungi. One of these needs little explanation: the polypore *Fomes fomentarius* (Hoof Fungus / Tinder Bracket) which he was carrying in his pouch would almost certainly have been used to start fires by catching sparks created by striking pieces of flint (also found on him) against metal or metal ore. [This fungus grows on Birch at altitude and is common in Scotland though only very occasional further south – Ed.]

The more intriguing species found with him, however, was a collection of *Piptoporus betulinus* (Birch Polypore) which hung from his belt strung on leather thongs. This species is, let’s face it, a bit commonplace and boring: it is one of those annoying fungi that looks interesting from a distance but only disappoints on closer inspection, a distraction from the more unusual finds on a foray. Yet it appears that he had knowledge about it that we do not (or that has possibly been lost to us during the mists of time): the Birch Polypore has many uses. If Ötzi loved his gadgets as we do now, then surely this must have been the equivalent of his iPhone. [Both this species and the *Fomes* would have been in good supply considering the location and the many birches which often dominate the alpine landscape today, and presumably did so in those days as well – Ed.]

Possible uses Ötzi might have made of *Piptoporus betulinus*:

1) Sharpening. The other common name for *P. betulinus* is Razorstrop Fungus, and it has long been used to sharpen metal blades. I have tried this myself, by cutting a strip and nailing it to a small plank of wood, and it did a good job of sharpening my foray knife (which I had just blunted cutting the strip!). However, Ötzi’s fungi were strung as

rings, which would surely have made it less useful as a sharpening tool? The copper in his axe would have been relatively soft and there are indications that it was sharpened by hammering, though he was also carrying a flint knife. So we are left wondering why he would have gone to so much trouble to prepare the fruitbodies in this way - no mean task in itself, and also for what purpose they had been cut to this shape. One can only speculate.

2) Styptic. This fungus is still used by backwoodsmen as a primitive form of sticking plaster. Cut into thin strips it can (with a bit of encouragement) stick to a wound, sealing blood vessels and thus reducing bleeding. In fact a medical article I found (from 1913) attributed this property to many other polypores as well, all of which were at some stage apparently used by surgeons in some fairly major operations, including amputations.

3) Antibiotic. Part of the rationale for using *P. betulinus* as a plaster is that it is thought to have antibiotic properties. Miscellaneous feedback from the web suggests that it can also be used as a gargle for sore throats. [The mind boggles as to what form this might take, let alone what it might taste like! – Ed.] However, indications are that its use as an antibiotic may be limited: it may not be the next penicillin, but could possibly still be useful for minor medical ailments when on any woodland excursion.

4) Antihelminth. One of Ötzi's many medical complaints which was discovered was an infection of *Trichuris trichuria* (whipworm). This is a worm-like parasite that infects the gut as a result of poor food hygiene. A letter published in the prestigious medical journal the Lancet in 1998 suggested Ötzi may have used *P. betulinus* as a combined laxative and worming agent, although the chemistry in this assumption has been questioned as there is no known tradition of this use for Birch Polypore in European medicine. This then either calls into question the reliability of the theory that it possesses worming and laxative properties, or alternatively makes it all the more exciting: maybe here is a new discovery, also suggesting that prehistoric man had greater medical acumen than previously thought. I tend towards some scepticism: infections of *T. trichuria* are accompanied by vague or no symptoms, thus it may be asking too much to expect that Ötzi and his Copper Age colleagues could detect this beneficial effect of taking *P. betulinus*. The author of the letter may possibly have confused this fungus with *Laricifomes officinalis*, another polypore apparently used by Greeks and Romans for its laxative and antibiotic properties.

5) Miscellaneous. Other sources have suggested *P. betulinus* has been used in the past for floats and pincushions, also chewed to stave off hunger pangs – although the latter probably has more to do with its disgusting taste! [Definitely not a good idea for a gargle, then! – Ed.]

Just for the record, the chemistry of *P. betulinus* includes fungisterol, ergosta-7, 22-dien-3-ol, ergosterol, tumulosic acid, and a group of triterpenes. No, that does not mean much to me either, but triterpenes have been shown to have antimicrobial and antiphlogistic (i.e. anti-fever) properties, plus activity against certain *Mycobacterium* (of which tuberculosis is an example), although most of the research into it is based upon animal or lab studies. Theoretically, some tripterpenes may also have some anti-cancer properties. Of course, it is highly improbable that Ötzi and his community were aware of these possible benefits. Despite the 'whipworm theory' his society's crude understanding of medicine is illustrated by the many tattoos found on his body, these thought now to have been used as a form of shamanistic medicine.

If you are interested in Ötzi's story and would like to learn more, the South Tyrol Museum's website is well worth a visit. We may not ever find out exactly what happened to Ötzi, but the discovery of his body has served to demonstrated just how far back the relationship between mankind and fungi goes.

## FORAYS FOR BEGINNERS: SPRING FORAY IN THE FOREST OF DEAN

Joanna Dodsworth

This was the second time I had attended the new series of week-long residential forays held in May and organized by Derek, based at Hazeldene, his 'holiday house' in the heart of the Forest of Dean. The course is tutored by member Kerry Robinson, the ascomycete specialist, and this time I booked for just four days out of the six, staying at the Fountain Inn just across the road, where we all met every evening for dinner. Although most of the people attending were old hands, there were two of us who were more-or-less beginners, and the format of the daily routine was well suited to all levels of expertise.

If you are a beginner, one of the most valuable things you learn on a foray tutored by an expert is *where to look* to find fungi, and this is especially important when looking for microfungi – ascomycetes and other tiny fruitbodies which are often around in the spring when other larger fungi are in short supply. We were wading in ditches, ponds, and running streams, turning over waterlogged wood and peering with a magnifying glass at all its surfaces and cracks from every imaginable angle. We were pulling up dead stems of rushes to examine their damp bottoms (not as exciting as it sounds), and looking at the foot of grasses and other plants, at last year's alder catkins lying in boggy areas, and scrabbling beneath Beech trees for sodden beech mast.

Of course the greater the number of experienced mycologists gathered together, the more different species are found, so this is another great plus on a foray of this sort, and many of us were photographing our own and each other's finds in situ, involving a great deal of setting up of tripods and lying prostrate or in other unflattering positions, before collecting the specimens to take back for further study and microscopy.

We took sandwiches and visited a different part of the Forest every day, returning at about three or four o'clock for tea and cake, before settling down to our microscopes. These can be provided if you haven't brought your own, and one of the rooms is set up with two scopes hooked up to a computer and projected onto a big screen. For the first time one could watch someone preparing slides from different parts of a fungus, revealing spores, basidia, cystidia, hairs, etc, and could see these features at different magnification. Looking at a photograph taken through a microscope is quite another matter – useful for comparing and identifying, but it doesn't prepare you for what you see when you first look down a microscope yourself.

When I first started using a scope two years ago I found that it takes quite a while and a lot of practice to actually be able to see anything at all, let alone something recognizable, and then there is the problem of knowing what you might possibly be looking at. The first time I tried to see a hair from the edge of a *Scutellinia* (in fact the 'eyelash' of the Eyelash Fungus) I had to get someone to look down my scope to tell me if what I was seeing was in fact a hair or some other kind of cell or part.

Spores are relatively easy: at least if you use spores taken from a sporeprint you know that spores are the only things you will see. But taking, for example, a tiny piece from the edge of a gill and distinguishing basidia from a muddled mass of blobby bits and then trying to decide if a single basidium is two-spored or four-spored, is not at all as easy as it sounds. However, being able to watch how the slide should be prepared in the first place, and then to have the image projected onto a large screen in live action, so that one can experience all the focussing up and down, then have the different features pointed out, see how to move around the image, then move up from one magnification to the next: this surely is the way to learn.

It's also a great comfort at such events to see others, even those much more experienced, sometimes struggling in much the same way as oneself, and furthermore to have the unique opportunity to pick the brains of all the other attendees – everyone, whatever their level of expertise, is keen to hand on information and learn from each other, and this creates a real feeling of camaraderie with no suggestion of competition, rivalry or superiority. It was a really stimulating and enjoyable experience.

On my last day we found four perfect morels (fig. 50) amongst the wild garlic at the top of the woods. These did not need microscopy to identify, although everyone photographed them (and that was when I learned that sometimes a collection is artfully re-arranged to make a better photograph!). We celebrated by serving them up to the eleven forayers with scrambled eggs before going across the road for dinner.



fig. 50 *Morchella esculenta* Coalpit Hill 13 Apr 2011 (JD)

## ONE OF THOSE MEMORABLE MYCOLOGICAL MOMENTS

Justin Long

Every now and then, on a weekend (when nothing too hangover-inducing has happened the night before), I love to get up early with my camera and go for a mooch about. Sometimes, if I'm lucky, one of my three boys will join me, and on this particular morning back in early May this year, it was 10-year-old Elliot who was my mooching buddy. Having the kids join me is great. Naturally, I am very keen for them to enjoy wildlife of any sort, they love to ask all sorts of questions and are fascinated by things that I would otherwise pass by. They also have much sharper eyes than mine, which comes in useful - as we will see.

Anyway, as any fungophile would have noticed, the period leading up to this particular wander had been record-breakingly dry and the woods, of course, were no exception. So we grabbed a drink and our usual pack of biscuits (just for emergencies, you understand) and with a curious mix of optimism and naivety, drove up to Danesborough Woods on the Greensand Ridge to look, just maybe, for *Volvariella bombycina*. I have seen this species before in very dry conditions this early in the year, and it was found at this site by Jenny Schafer during the BFG foray there in 2007 so there was just half a chance...

Needless to say, the *Volvariella* was nowhere to be seen, nor in fact was anything else fungal, save the ubiquitous *Ganoderma*, and the incongruous *Fuligo septica*, dotted about here and there among the dry leaves. Despite the paucity of fungi, we had both enjoyed a pleasant walk in the early morning sunshine and it had just about got to that time when we ought to start thinking about heading home, when I spotted a small stream, seeping from a spring in the otherwise bone-dry woodland. Thinking that this shallow stream

may just harbour *something* of interest, we wandered over to find some lush grass standing out brightly against last year's dry bracken, and plenty of sphagnum moss, suggesting that this stream may be a semi-permanent feature at this spot. The stagnant water was perhaps two or three inches deep at most, and the stream contained many dead leaves, mostly just under the surface.

As we wandered downstream it wasn't at all long before Elliot spotted strange yellow blobs hiding amongst the grass in the water which, although never having seen it in the flesh before, I recognised instantly as *Mitrula paludosa* – the Bog Beacon! (figs. 51 & 52).



fig. 51 *Mitrula paludosa* Danesborough 5 May 2010 (JL)

It was at this point that Elliot would have happily disowned me, as I began to demonstrate the kind of jubilation that only a mycologist would understand and I tried, perhaps a little too enthusiastically, to explain the significance of what we had found. Luckily his embarrassment at my excitement was short-lived as there was no-one else around for probably a good half mile, and besides which, I had quickly turned my attention to getting some photos whilst there was still time.

I was delighted to be able to use a number of items that I had been given for my recent 40<sup>th</sup> birthday – my new Hunter wellies, Gorrilapod, Raynox 250 macro lens and, the clincher in this case, my new polarising filter. The latter allowing me to capture the reflection without too much glare from the surface of the water. I grabbed a few shots and we headed back, happy to have a half-decent photo in the bag, a new species under my belt, and pleased to have found something of some significance. When we got home however I did a quick search on the FRDBI and was surprised to discover that *Mitrula paludosa* had only been recorded once before in Bucks – at Burnham Beeches back in 1996, so this, of course, made the find even more special.

So I hope you enjoyed reading this short account and I shall leave you with one final observation: taking a young companion on your early morning walk also serves to ensure that you don't end up scoffing all the biscuits yourself...



fig. 52 *Mitrula paludosa* (Bog Beacon) 5 May 2010 (JL)  
(see the article by Justin Long on page 38)

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