Herefordshire Fungus Survey Group

News Sheet Nº 14:Autumn 2007

Amanita rubescens (Haye Park Wood – 13/6/07)

Contents

President & Recorder:	Ted Blackwell
Chairman:	Ted Blackwell
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Treasurer:	Ray Bray

Welcome to the Autumn 2007 News Sheet

I am delighted to be able to tell you that, for the first time since we started the News Sheet in its present form in Spring 2002, there have been more contributions submitted than I have actually been able to accommodate in this issue. Unlike with some of our more professional sister publications, however, this does not mean that those omitted will be ignored or forgotten: they will certainly be used in a later issue. In other words, *please keep your contributions coming in!*

Also, once again, if there is anything special that you would like to read about in future issues, please do let me know.

Two new contributors to the News Sheet this time are:

Steve Rolph, who has written on 'The Stinkhorn' in what I hope will be the first of a series on 'Fungus Folklore & Mythology';

and Debbie Evans, from Gwynedd, who has written on '*Gymnosporangium* Rusts from Home and Away': we also look forward to hearing from her on many occasions in the future.

Of course, we also have our usual, regular items, as well as special features on Teratology (the study of deformed fungi), the species *Tarzetta cupularis* and also on a find of *Resinomycena saccharifera* and *Epithele typhae.*

As I am still somewhat of a novice in mycology, at my request Ted has written a piece on 'Fungus Recording in Herefordshire …', which includes some helpful advice as to what is required for a useful fungus record. I would commend it to all – especially, those of us who are new to the Art!

Finally, as you know, I am always beefing on about the lack of any response to articles in the News Sheet. Well, Roger has written a very interesting follow-up to the observation on the different appearance of *Hygrocybe laeta* under different types of lamp (News Sheet No. 13, p7). Hopefully, in future we shall have more of this type of dialogue.

Once again, I wish to thank all who have sent in contributions: without you, there would be no News Sheet.

Happy reading!

Mike Stroud
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VAUGHAN FLEMING

Vaughan receiving a wildlife photography award (photo courtesy of 'The Forester')

It is with great sadness that we have to record the death of Vaughan Fleming who, from time to time, contributed some of his beautiful photographs to this News Sheet. He was also known by many of us as a wonderful friend and companion, as well as having nobly volunteered to judge the photographic entries for the Herefordshire Festival of Fungi in 2005. He will be very greatly missed all who knew him.

Ted Blackwell writes:

For those who were privileged to have Vaughan's friendship his premature death sadly deprives us of his warm companionship in the sharing of pleasure and enjoyment of the natural world. He is fondly remembered for his quiet, engaging personality and whimsical sense of humour and, not least among his many gentle attributes, for his wide knowledge of botany and infectious enthusiasm for exotic plants. We send our deepest sympathy to his wife Irène and to his family.

RECORDER'S REPORT
March - August 2007.

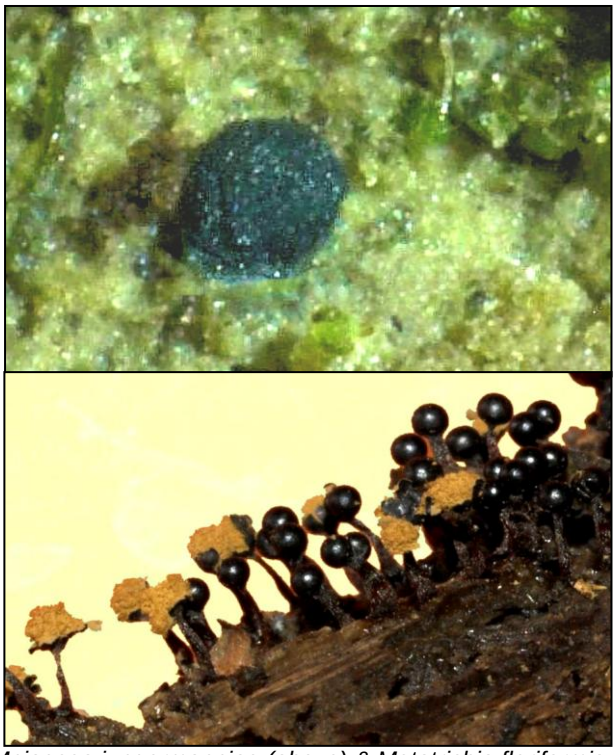
FISHPOOL VALLEY, CROFT (SO 4565)
28th March, 2007
A productive foray to start the season, with a number of interesting finds. Among several first records were fungi collected from a stick submerged in the stream: a common Aquatic Hyphomycete ***Anguillospora crassa*** having huge eel-like conidia up to 350μm in length and ***Chalara*** cf. ***brevicaulis*** which, according to Kew, is apparently new to Britain and closely related to a South American species. It is now retained in the Kew Herbarium. Other new VC36 records, on a spruce cone, were ***Macrophoma strobi*** and ***Siroccocus strobilinus***, neither rare; also the more common small Agaric, ***Strobilurus esculentus.***

Disciotis venosa – Fishpool Valley, 28/3/07

Two of the larger spring Ascomycete fungi were ***Disciotis venosa*** (Bleach Cup - it smells of bleach) and the bright red ***Sarcoscypha austriaca*** (Scarlet Elfcup), both occurring in quantity. Other macrofungi were ***Pleurotus ostreatus*** (Oyster Mushroom) and ***Polyporus brumalis*** (Winter Polypore). A number of microfungi included the seldom recorded ***Appendiculella calostroma***, forming blackish patches on bramble leaves and stems and dubbed a 'dark mildew', and a speciality of the site, the extremely small cup fungus ***Mniaecea jungermanniae*** colonising damp leafy liverworts, here on *Cephalozia bicuspidata*.

Also amongst the microfungi were found the Basidiomycete, but deceptive Asco-simulating ***Flagelloscypha minutissima***, and on the abundant fallen Ash samaras two different microfungi, ***Phoma samararum*** on the wing with ***Phomopsis pterophila*** on the thicker seed part. Finally, amongst the Myxomycetes, the petal-like sporangia of ***Metatrichia floriformis***, a species rare in Britain 50 years ago, now common.

About 60 fungi and 30 lichens.



Mniaecea jungermanniae (above) & Metatrichia floriformis (below) - Fishpool Valley, 28/3/07

THE DOWARD RESERVES of Lords Wood & White Rocks (SO 5515), 25th April 2007
The two sites were tinder-dry as they lie over free-draining carboniferous limestone and there had been no appreciable rain for over three weeks, so the only hint of Agarics were ***Armillaria*** rhizomorphs. ***Massarina eburnea*** was a second VC36 record, having first been recorded in Lords Wood as long ago as 1914. And the only recent record of the rust ***Ochropsora ariae***, on Wood Anemone, was in White Rocks in 2004 and prior to that in the 1880's. Surely neither of these fungi are that rare and only to be found at the Doward! There is only one previous record of ***Scutellinia barlae***, in 2003 at Lea & Pagets Wood. So at least these seldom recorded fungi, together with a few microfungi, rusts, and Myxomycetes, were a worthwhile compensation for the lack of macrofungi.

A total species identified: Lords Wood 21; White Rocks 22; lichens (from both sites) 19.

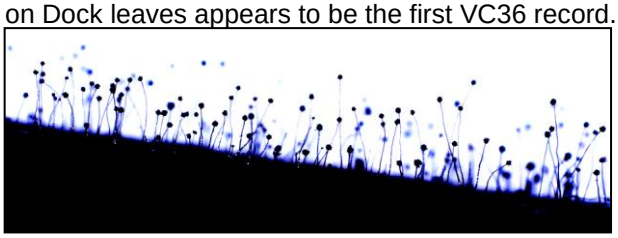
CREDENHILL PARK WOOD (SO 4544), 9th May 2007
The dry spell continued and again Agarics were not represented, apart from ***Armillaria*** rhizomorphs. Macrofungi were mainly confined to the wood-colonisers, with microfungi and lichens making up the balance. The first published description of the

lichen ***Bacidia adastra***, as a new European species, was in 2003 - the type species originating from Gouda, Holland. So it not surprising that it occurs as a first record for VC36 database. I am indebted to Tom Preece for the etymology of '*adastra*': it appears in the motto "*per aspera ad astra*" of the coat-of-arms of the village of Gouda, meaning "through the thorns to the stars" and refers to the vivid colour of the thallus, which is growing in such humble places. The uredinia of one of the five rusts found, those of ***Kuehneola uredinis***, were parasitised by ***Eudarluca caricis***, this being only the second record on this host, the first being recorded at Bringsty Common in 2002.

A total of about 48 fungal and 19 lichen species identified.

QUEEN'S WOOD, DYMOCK (SO 6728), 19th May 2007.

As on previous forays this season, ground conditions were reported to be dry except for some dampness in ditches. The dead stems of many Umbelliferae in damp places are a source of some of the less-often seen micro-fungi and recorded here on Hemlock and Hog-weed were respectively, ***Periconia byssoides*** and ***Dasyscyphus grevillei***. ***Ramularia pratense*** on Dock leaves appears to be the first VC36 record.



Periconia byssoides – Queen's Wood, Dymock (19/5/07)

Dasyscyphus grevillei - Queen's Wood, Dymock (19/5/07)

A total of about 21 fungi and 16 lichen species identified.

HAYEPARK WOOD AND MARY KNOLL VALLEY (SO 4971 & 4972), 13th June 2007

The prolonged dryness restricted the range of fungus species found, although a reasonable list of lichens were recorded. Among the few Agarics were The Blusher, ***Amanita rubescens*** ***(***see front cover), the Pleated Inkcap ***Coprinus plicatilis***, and the Bark Bonnet ***Mycena speirea***. Amongst several

Mycena speirea – Haye Park Wood (13/6/07)

rusts found was the aecial stage of ***Puccinia poarum*** on leaves of Colt's Foot and Dr. Roger Evans added to our interest by recounting how it had been the subject of research, and has kindly supplied the note below.

A total of about 37 fungus and 20 lichen species identified.

***Puccinia poarum* on Coltsfoot**: Fungi cause disease in plants in many ways. Some produce powerful toxins, or enzymes that kill plant cells, then live off these dead cells. The rusts and powdery mildews are more subtle: they "steal food" and this reduces plant growth, but does not cause not rapid plant death.

Puccinia poarum was important in providing evidence to show how rusts achieve this theft. If carbon dioxide containing minute amounts of radioactive carbon is fed to a leaf of Coltsfoot infected with the fungus, then they will take in the carbon dioxide and, by photosynthesis, incorporate it into sucrose. If this leaf is then put onto a photographic plate of the type used in taking X-rays, an image of the leaf will be produced on the plate, but it will be blackest at the sites of rust infection. This shows that the highest concentration of radioactivity and sugar is at the rust spots.

But how does the fungus cause this accumulation? *Puccinia poarum* does not have lots of small scattered pustules, but large discrete spots. So it was possible carefully to cut out the rust lesions and analyse them. This showed that the fungus took sucrose from the leaf and converted it into various sugar alcohols, such as mannitol; more sucrose then moves into the fungus to replace that converted. The process continues and so these sugar alcohols accumulate and are used by the fungus for growth

and spore production.

MOCCAS DEER PARK (SO 3442), 18th July 2007
Today the site is a National Nature Reserve, but it was already parkland with deer by the early seventeenth century and has long been renowned for its old oaks. It was known that the rare Oak Polypore ***Piptoporus quercinus***, a protected species, had been found on certain numbered trees in 1994 and 2001. Armed with the relevant tree numbers, foragers were successful in locating one of the trees on which *P. quercinus* appeared to be growing. As this was estimated to be 30 metres above ground only distant camera shots were possible, but several images were obtained sufficient to confirm the find.

Piptoporus quercinus – Moccas Park (13/7/07)

Perhaps ground conditions at this site were more moist than at previous foray sites, as the Basidiomycetes included ***Hygrocybe conica, Inocybe asterospora, Pluteus luteovirens, Xerula pudens, Marasmiellus vaillantii***, ***Clavaria vermnicularis*** (*C. fragilis*) and ***Clavulina cristata*** and amongst the Ascomyctes, ***Peziza micropus*** and ***Scutellinia umbrorum***.

About 65 species recorded.

NOTES OF UNUSUAL RECORDS 2007.

Some interesting records from Herefordshire and neighbouring counties have been reported in addition to those from programmed forays, of which the following are representative.

+ = First VC36 record;

At Downton Gorge, by Jo Weightman:

Limacella illinita+, SO4437. 6/7/07. Deposited at Kew.
Pluteus luctuosus+, on rotting beech wood. SO4571, 17/8/07. Deposited at Kew.
Chromelosporium ochraceum+ on bare soil, SO4471, 17/8/07.
Cryptodiaporthe hranicensis+ on *Tilia* stick, SO4471, 17/8/07.

OUT OF COUNTY
Agrocybe rivulosa, on hardwood-chippings of poplar and beech. Swan Hill, Ellesmere, Shropshire. SJ402352. 5/7/07. Harvey Morgan. Said to be a species new to science when described from Holland in 2003, but has since spread rapidly in England and Wales. (Not yet recorded in VC36).

Agrocybe rivulosa – photograph by Harvey Morgan

Melanoleuca verrucipes, on wood-chippings/horse-manure heap. Birchwood, Worcester, VC37. SO7450. 27/8/07. Cherry Greenway. (Not yet recorded in VC36). Interestingly, the toadstool smells of over-ripe cheese.

In view of the increasing occurrence of a wide variety of fungi on wood-chips, it may be of interest to mention that an 8-page article by Peter Marren with 13 colour-plates and a list of about 80 woodchip-colonising species was published in **British Wildlife** 18-2 December 2006 pp98-105, entitled "The 'Global Fungal Weeds': the toadstools of wood-chip beds". Single back-copies such as this may be purchased at £3.50 each or three or more at £3.00 each. If there is sufficient interest, perhaps the Group might organise a bulk purchase.

Ted Blackwell, Recorder.

FUNGUS FOLKLORE & MYTHOLOGY: 1. THE STINKHORN

As an interesting distraction from serious business of identifying fungi, I have recently been researching a variety of mushroom Folklore & Mythology that may be of light hearted interest to other Group members. I thought I would start with the “difficult one”, The Stinkhorn

Slang names abound for this fungi some phallic and others satanic: Devil’s Horn , Devil’s Stinkpot , Devil’s Balls , Witches’ Egg’s , Wood Witches and, from Australia, Devil’s Tongue - which is perhaps not so strange coming from an inverted continent!

The phallic shape of the fungus is perhaps its most apparent feature and for reasons that are all too obvious, Stinkhorns were thought to act as aphrodisiacs. Consumption of them offered a cure for all manner of afflictions in the trouser department - full details have been omitted for reasons of taste and sensitivity.

Other medical claims included the treatment of ulcers, epilepsy and gout (when used as a poultice on the affected area) or, if carried as a talisman, a cure for rheumatism.

On the negative side, in letters to the The Times in1865, Stinkhorns were cited as possible causal agents for cholera epidemics.

The effects are not limited just to man. Stinkhorns were at one time fed to bulls for the purpose of improving both their desire and fertility, though I cannot find any details of how the poor animal was persuaded to consume such a smelly morsel - perhaps mixed well with normal feed?

In Germany, hunters had a term for the Stinkhorn *hirschbrunst*, which translates as "deer lust". They believed that the Stinkhorn grew in locations where stags had rutted. In Japan Stinkhorns were believed to be caused by lightening strikes, and the speed of growth to be accelerated by a full moon.

Full moon or not this is a rapidly growing fungus, so maybe this aspect of folklore has at least some elements of truth. Various tales report that one can sit and watch it grow - well, if there is nothing on TV, why not! I have witnessed egg to full growth and mesh cap in only two days.

The Stinkhorn depends entirely on flies as its means of dispersal and many stories speak of the flies “feasting on the slime” as a reward for spreading the spores far and wide. However, more modern accounts cast doubt of this symbiosis and conclude that the flies are simply exploited. One rather interesting account surmises that the flies do benefit, by way of meeting a multitude other flies, and that the Stinkhorn may thereby be assisting in their own repoduction and diversity. The human analogy for this must surely be a teenage disco!

In days of supposed higher morals Stinkhorns where sought after only to be destroyed, as reported in the classic ‘Mushrooms Demystified’, where the author, Gwen Raverat, tells of her Aunt Etty's attempts to eradicate the Stinkhorn: "With a deadly pounce, she would fall upon her victim and poke his putrid carcass into her basket" to be "brought back and burnt with deepest secrecy in the drawing room fire with the door locked – to save the morals of the maids” .

As a point of interest the Aunt Etty referred to was actually the eldest daughter of Charles Darwin. However, no information is available regarding Aunt Etty's success in either department.

The Stinkhorn, when at an egg-shaped stage, sometimes called "Devil's Balls," are edible. However, they are rather gelatinous and considered acceptable, rather than good, when sliced and fried in butter. They are not widely consumed in Europe or North America, but is more prevalent China. The most commonly sold Stinkhorn is the Basket Stinkhorn, which is a tropical variant with a netted veil. Dried packages of Stinkhorn are common in many Asian supermarkets. Steve Rolph

RECENT NOTES FROM MY ACCESSIONS BOOK - 2

Two thin dead pieces of Ash twigs arrived, held firmly at the crossover point as in a crucifix, by a resupinate basidiomycete like brown putty. Ted Blackwell identified this as being a Shropshire record of a *Phellinus* - probably *P. ferruginosus* - and assured me that this fusion of dead twigs by resupinates is common enough! There is a photograph and description of the fungus in B & K, vol. 2, p 258 and also in 'The Encyclopedia of Fungi of Britain and Europe' (Michael Jordan, 2005 Edition) on p 114.

Also in March, specimens of the lovely red Elfcup, *Sarcoscypha*, were left on my doorstep by the Shropshire Wildlife Trust, from their Dolgoch Reserve. On dead moss covered branches they had dramatically curly excipular hairs and was, therefore, *S. austriaca* (see Mycologist 9(1} 21-26 for details of the two species).

A visit to Brecon led to an amazing observation on *Puccinia urticata* (formerly *P. caricina*). 0ver the last 50 years, the usual find is of a single nettle stem or so, bent curiously over, swollen with aecia at the bend. In May, at the Mountain Centre it was hard to find a nettle without this rust.

Puccinia urticata (r.h. photo by Rosemary Winnall)

We then went on to see this at many other sites. Correspondence from Scotland and Carmarthen indicates that this may be a widespread phenomenon this year, possibly due to the weather, which we blame for everything. However, one cannot ignore the chance of genetic change; a new race of the fungus. I have passed this information to Brian Spooner at Kew.

White, more or less circular spots on the leaves of garden Pansy, *Viola x wittrockiana*, have been very common in Oswestry gardens this year. Tufts of hyaline conidiophores with hyaline, septate conidia make this *Ramularia agrestis*. An interesting contrast alongside these pansies were, in several cases, plants of wild violets (*Viola riviniana*) with *R. lutea*, which has similar, but much smaller spores (see Ellis and Ellis for drawings and details).

The most interesting news came from one of my Ph.D. students, Martin Mcpherson. Recently, the roots of red garden beetroot crops in Yorkshire have been turning into grotesque shapes, due to galls. With the help of the Central Science Laboratory at York it has been possible to show that this galling is caused by the Downy Mildew *Peronospora farinosa* f. sp. *betae*, which normally only affects the leaves. Losses of crop in the first year were valued at around £2 to 3 million. Only mycelium was present in the roots, but the production of a DNA probe solved the problem and suitable fungicides have brought the problem under control. We have written a paper about this new gall in 'Cecidology', the journal of the British Plant Gall Society.

Michael Bloxham, illustrator of 'British Plant Galls', by Redfern & Shirley, sent me a specimen of Green Hellebore, *Helleborus viridis*, from Worcestershire, with black leaf galls caused by the smut *Urocystus floccosa,* the "spore balls" of which are curious things made up of smooth, squashed smut spores, surrounded by sterile hyaline cells.

Weeding in the garden of the local Childrens' Hospice, HopeHouse, we found the white blister rust, *Albugo candida,* in quantity on a Bitter Cress, *Cardamine hirsute* - a new Shropshire record. Do not ignore the fungi on your garden weeds!

Tom Preece

LOOK OUT FOR: *RESINOMYCENA SACCHARIFERA & EPITHELE TYPHAE*

Resinomycena saccharifera

Epithele typhae

I was actually looking for something else at the time. It was mid November and my particular obsession that day led me to a boggy location in Kent, where I expected to find large clumps of rushes. Picture me head down in the clumps of compact rush, *Juncus conglomeratus*, gently parting the stems and delving deeply towards the damp rotting heart ….and there they were: very small, very white agarics - very beautiful! Not what I had been hoping for, but excitingly new to me.

The most conspicuous feature of this delicate, mycenoid fungus was the exceedingly granular/pubescent cap and stipe. The gills were distant, broad, adnate to slightly decurrent; the stipe quite short, somewhat swollen at the base and no more than slightly swollen - definitely lacking a disc. The spores were 10 x 5µm and amyloid. These characters led me to what is now called *Resinomycena saccharifera*, the specific epithet nicely suggesting the sugary appearance of the species. Earlier names include *Mycena saccharifera, Mycena quisquiliaris* and *Delicatula quisquiliaris*. There is an old 1964 record for Herefordshire and a number for the Midlands generally. It can occur on a range of marsh plants, all monocotyledons, eg *Molinia pururea*, *Juncus* spp and *Carex* spp.

The following day I headed for another marshy location. A dense bed of sprawling clumps of lesser pond sedge *Carex acutiformis* looked promising. Nothing like a *Mycena* to be seen, but almost every stem base in each clump investigated had a creamy white encrustation. Under the hand lens the surface was decorated with more or less evenly spaced-out white spicules of hyphae. The spores were very large 22-30 x 6-8 µm and fusoid. Ted Blackwell kindly identified this for me: it was *Epithele typhae*, a member of the Corticiaceae (see B&K 2 102), not, so far, recorded in Herefordshire. Like the Resinomyces, this was a first Kent record.

I suspect that in both cases the soggy habitat has been a deterrent. The race is now on in Herefordshire to re-record or find these two water`s edge fungi.

Jo Weightman

Fluorescent Fruit Bodies?

I was very interested in Shelly and Mike's observation in the last issue of the News Letter of fruitbodies of *Hygrocybe laeta* appearing to be different colours under fluorescent and tungsten lamps. This may an example of fluorescence, which in rather non-scientific terms, is light emitted from a substance when it is exposed to particular wavelengths of light - often ultra-violet (UV) light which cannot be seen by the naked eye. The fluorescent lamp would probably have emitted some light in UV wavelengths.

Field mycologists are probably more familiar with luminescence: that is, light which is emitted even in

total darkness. Fruitbodies and hyphae of some species of *Panellus, Pleurotus, Omphalotus and Mycena* and, of course, wood infected by *Armillaria mellea* exhibit this phenomenon. As to fluorescence, I am not aware of reports of this for fruitbodies, although they may exist. However, fluorescence is well reported for hyphae, conidia and the substrates on which these are growing.

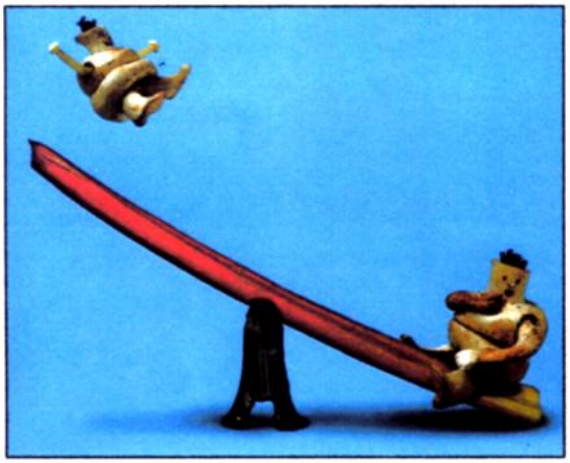
Ringworm lesions on cats and dogs caused by *Microsporum canis* show up as fluorescent blue patches under UV lights and vets often use these to detect symptoms. Another well known example is peanuts, which have not been stored properly. Here blue spots seen under UV light are caused by infection of the nuts by *Aspergillus flavus*. This is of major significance for human health, for this fungus produces aflatoxin, perhaps the most carcinogenic compound known to man other than radioactive compounds. Manufacturers of peanut products scan the nuts under UV prior to use so that those showing fluorescent spots may be discarded.

Shelly and Mike's suggestion that perhaps fruit bodies could be viewed under a range of different wavelengths and the different colours observed then used in identification, is interesting and with modification might work. One problem is that equipment to produce a range of wavelengths is very expensive. However, every biological or biochemical laboratory would have UV lights giving two different wavelengths, since these are used in routine chemical or DNA analysis and are cheap and readily available. Colours of fruitbodies, when exposed to these two different wavelengths, could well provide information which was of use in identification. Of course, many fruit bodies of the same fungus of different ages and growing in different areas or habitats would have to be tested, to establish that differences in fluorescence were indeed stable and reliable characters.

Roger Evans

FUNGAL FRAGMENTS

I was sent this picture of 'Vegetable Art', showing what you can do with an ordinary mushroom! [Ed]



Mycorama: a mycological mecca

Construction of Mycorama, the Centre International de Mycologie, in Neuchatel, Switzerland, is now well underway. This bold US $ 3 million initiative aims to provide a showcase for international mycology, and an inauguration date of 27 October 2007 has now been set. The displays, being designed with the help of mycologists from many countries, including France, Mexico, Spain, and the UK as well as Switzerland, will cover topics such as medical mycology, mushroom growing, the importance of fungi in plant survival, tinder fungi, slime moulds, lichens, and mushrooms in sacred rites. The project is run by the Fondation Suisse du Mycorama, and the future scientific director will be Gilles Faron.

Mycorama's sponsors include: Loterie Romande, Republique et Canton de Neuchatel, Johnson & Johnson Inc., British Mycological Society, Academic Suisse des Sciences Naturelles, Association Suisse des Cultivateurs de Champignons, Chambre Cantonale d'Agriculture et de Viticulture, and Fondation Binding. For further information and pictures of the building under construction, see http://www.mycorama.com.

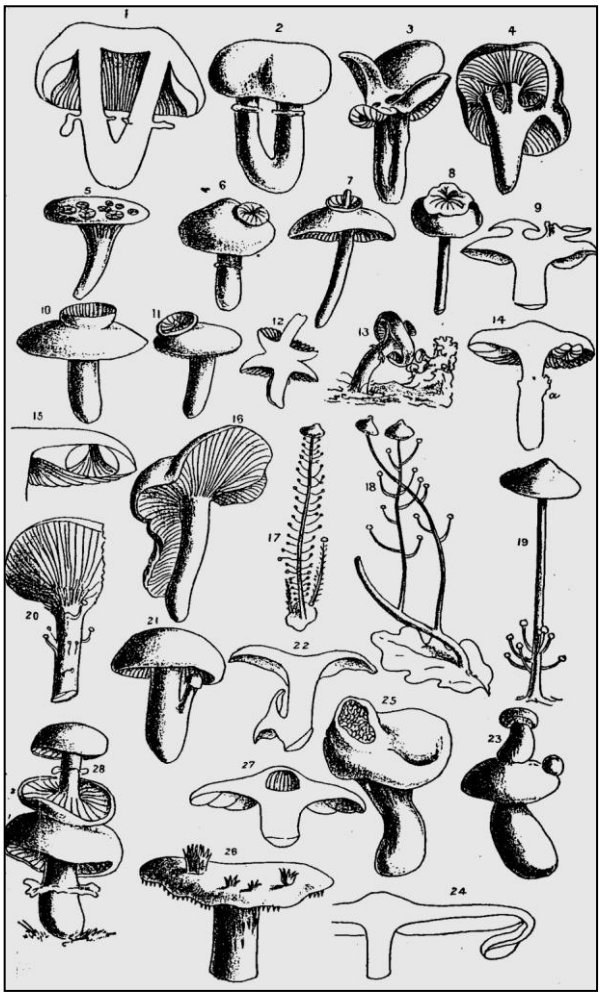
Mycological Research 111 (2007), p 253

Foraying at Haye Park Wood, 13/6/07 (left to right); Shelly Stroud, Ted Blackwell, Dawn Illman, Roger Evans, Joy Ricketts, Stephanie Thomson, Steve Rolph

THE MYCOLOGIST'S HUNCHBACK OF NOTRE DAME - FUNGAL TERATOLOGY

From human, animal and plant deformations clues have often been found which help in an understanding of normal development. Lines of research may be triggered which would not have otherwise been attempted. Studies like these have produced a vast literature and are called 'teratology'.

Illustrations (right) by the Shrewsbury mycologist, William Phillips, published in the 'Transactions of the Woolhope Naturalists Field Club 1881-2', give a good idea of the range of abnormalities seen in agarics. The three photographs below, by Dave Shorten, show more recently collected specimens.



Clitocybe nebularis (top); Cortinarius anomalus (above); Rusula densifolia (right) – photographs by Dave Shorten

Commonly, the cause of such abnormal growths has not yet been elucidated. However, perhaps because the commercial value of the eating mushroom crop is more than the total value of all the soft fruit grown in Britain, a great deal is known about two distortions of the sporophores of *Agaricus bisporus*. One of these, called 'Wet Bubble', is caused by a fungus *Mycogone perniciosa*. Another, called 'Dry Bubble', is caused by infection by *Verticillium fungicola*.

Squamanita paradoxa – painting by Shelley Evans

Galls on some lichens are caused by lichenicolous fungi. Some galls on polypores, on the other hand, are caused by insects: for example, on *Daedalea*, *Trametes, Ganoderma, Fomes*, etc.

Some situations in fungal teratology are quite bizarre. Roy Watling has shown that *Armillaria* rhizomorphs, invading an American agaric, *Entoloma abortivum,* cause the normal cap and stem to assume a shape like a puffball!

The rare fungus, *Squamanita paradoxa,* has been called by Shelley Evans 'the cuckoo of the fungus world' - an agaric parasitising another agaric, so that the cap of the host fungus becomes perched on the granular, rough stem of *Cystoderma amianthium.*
This weird hybrid is very rare, Shelley finding it for only the third time in the British Isles in 1996.

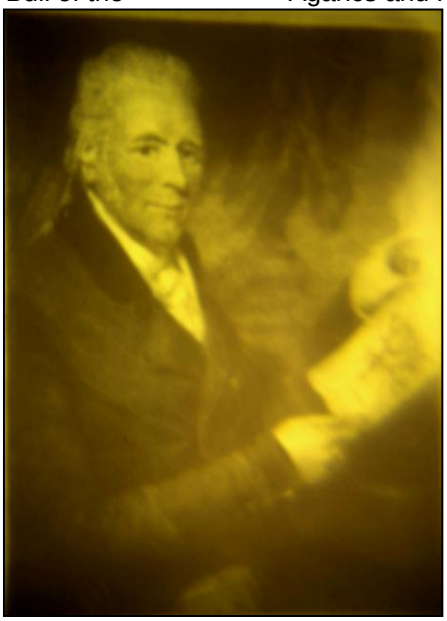
Writing this note began by Ted Blackwell sending me a specimen of most curious *Hydnum rufescens* in January 2007 [see HFSG News Sheet no. 13, p6 – Ed]. As ever, without his stimulus and help, it would not have happened. Perhaps reading it will stimulate you to record examples of fungal teratology as you come across them in the field?

Tom Preece

FUNGUS RECORDING IN HEREFORDSHIRE - THE INS AND OUTS.

Historians of British mycology already know that systematic recording of fungi and, indeed, the word 'foray' itself, emanated from the inauguration of fungus field meetings by Dr. Henry Bull of the Woolhope Naturalists' Field Club of Hereford in 1868.

What is perhaps less well known is that published records of Herefordshire fungi predate even those of the Woolhope Club. These appeared in a third volume of William Withering's *Systematic Arrangement of British Plants* in 1792. In this, descriptions of fungi in English as opposed to the customary Latin broke new ground. But the synoptical arrangement of fungi was made by his friend, John Stackhouse, a Herefordshire landowner and a member of the Linnaean Society. As Lord of the Manor of How Caple, Stackhouse is known to have frequented woods around Woolhope, in particular, Haugh Wood and Caplar Hill. Here he recorded fungi later published in Withering's *Arrangement*, comprising various Agarics and Russulales and such as *Clavariadelphus pistilaris* ("The Great Club of Hercules"), *Coltricia perennis*, and *Cyathus olla*.



John Stackhouse – probably from his work, 'Illustrations Theophrasti', 1811

Recording by the Woolhope Club effectively began in 1868 and continued to 1892, when both recording and forays themselves sadly fell into abeyance due to the death of Dr. Bull. But the momentum gained carried interest forward elsewhere and contributed four years later to the formation of a special society for fungi, the BMS, in 1896. Since the new Society was supported by many who had been mycologically active in the Woolhope Club, links between the two societies continued and the youthful BMS was invited by the Club to hold an autumn foray at Hereford in 1902.

But thereafter, for many years, a dark age of fungus recording descended on Herefordshire. Apart from further celebratory joint forays in 1926 and 1951, there seems to have been little systematic recording in the County and records which survive are a scatter across the years, deriving mainly from sporadic visiting by specialists and enthusiasts. It is reassuring that prominent mycologists of the day visited Herefordshire, if only fleetingly. Amongst others were William Phillips, Carlton Rea, M.C. Cooke, A.A. Pearson, Elsie Wakefield and several more. Later, the names of other well-known specialists begin to appear, such as J.T. Palmer (Gasteromycetes), Peter Orton (Agarics), Dr.

Francis Rose (lichens), together with some locally-based recorders such as Douglas Graddon, (Ascomycetologist, living at Ross and BMS President in 1956), John Price (Chairman of Herefordshire Botanical Society), Fred Fincher (the notable Worcestershire naturalist), and Malcolm

Clark (Chairman of Warwickshire Fungus Survey). But for a period of sixty years, between 1900 and 1960, the number of records are not much in excess of 3,000.

From about 1961 we start to have records of Herefordshire fungi which Stephanie Thomson systematically noted down, thereby dispelling the pervading darkness of the previous half-century. These were of her personal observations and of those listed on forays in Herefordshire by various organisations. This body of records which Stephanie preserved in a series of note-books, together with records from a variety of other sources, formed a substantial basis for the eventual compilation of the Herefordshire VC36 database which exists today, and now stands at over 55,000 records.

In times past, usually only the name of the fungus, where found, and the date were recorded - sometimes even that not comprehensively. Thus, many older records have a vague provenance and date, some as uninformative as "Herefordshire 18xx", as grid references had yet to make their appearance.

When the BMS began to organise its national computer database (BMSFRD) in the mid-1980s to accommodate the ever-increasing stock of records from its regular, organised forays, it was accepted that computerisation would enable the recording of greater detail. Collectors were then encouraged to gather additional information, to enhance the scientific value of these records.

Other advantages of a computerised archive were immediately apparent and today the size of the national dataset, now in excess of twenty million species records, allows useful and meaningful analyses to be made. Recent examples of its use for specific research projects include that led by the journal *Plantlife* in 2001, to identify "important fungus areas", the provenance of certain categories of fungi - such as beech deadwood fungi (Ainsworth, M.) - and indications of climate change and its effects on organisms, in particular, fungi, (Mattock *et al*.). Locally, during the survey phase of the route of the Milford Haven-to-Tewkesbury gas pipe-line, now under construction, the Herefordshire VC36 database was used to good effect in highlighting sites where rare or endangered fungi had been recorded and this provided data on which decisions about the route could be made.

The innovation of a new computerised facility undoubtedly influenced the thinking about many aspects of fungus recording. One singular facet was the conjecture that there were probably large numbers of valuable records being held on paper by societies and groups as well as individuals, up and down the land, and the even starker realisation that paper records may be perishable.

The initiative to create the BMS Recording Groups Network by BMS Council in the early 1990's, successfully launched by the enthusiastic organisation of Dr. Jack Marriott, led to an upsurge in the availability of records. This was due to:

1. the unearthing of past records from the paper-based recording systems of local Groups, or from personal notebooks;

2. the generation of new records, both from the increased activity of existing local Groups and also from new Groups formed under BMS Recording Network sponsorship. From the start, Groups were encouraged to send their records to the national BMS database and, as part of the deal, to furnish certain 'added value' information beyond that of just "name/date/place".

The BMS database, which has recently changed its designation from BMSFRD (BMS Fungal Records Database) to FRDBI (FRD of Britain and Ireland - Holden), asks for considerable detail in the reporting of a record, which the local recorder has to supply. This covers site/habitat-related data such as ecosystem and altitude in metres, Watsonian Vice-county number, etc.

Also required are the names of those confirming unusual finds, and details of any herbarium specimens kept (and where), along with accession numbers. Further, there are computer fields to indicate whether the record is from an official BMS foray, or even to signal some uncertainty by "doubtful record". There is provision for extensive "NOTES", and to insert a "Collector's Number", if

there is one. Each record is given a "Sender's Number" by the recorder, which is later matched by an FRDBI accession number.

Finally, the FRDBI asks for the fungus name used by the collector/reporter, which may not always be the name in current use.

Of course, where records have been made at the same site, on the same day - as in the case of an organised foray - data identical to all records in that batch (eg date, place, grid reference, etc.) are automatically inserted into the database by means of ingenious software tools.

Supplying and sending the gamut of the above detail to FRDBI is solely the recorder's pigeon and hardly the normal concern of the average forayer. But the provision of the basic parameters of a record depends on the courtesy and kind co-operation of those who report it.

Under the system in use today, for a record to be really useful and acceptable to either a local or national database, it is now established routine to supply the following minimum essential data:

- ***Fungus name***.
- ***Associated organism***: that is, the species of organism on which it is growing, or the adjacent tree or plant most likely to have a mycorrhizal, saprobic, or parasitic association; or, in the case of dung, the source animal.
- ***Substrate***: eg dead wood, living leaf, grassy soil, animal dung, dead insect, etc.
- ***Morph***: the morph state, where relevant - teleomorph, anamorph, or holomorph; or the spore stage(s) in the case of rusts.
- ***Place name***: as printed on the National Ordnance Survey map, including the spelling, upper/lower case letters, hyphens and apostrophes.
- ***Grid reference***: usually a Grid-letter, plus a six-figure reference.
- ***Full date***: date, month, year: xx/xx/xxxx.
- **Collector.**
- ***Identifier***.

Anything less falls 'below par': the greater the number of fields left blank, the less the real value of the record.

Of course, this data is only of value if it is correct. Mistakes happen: no-one is infallible. It is, therefore, the recorder's prime and enduring charge to check and recheck his own actions, the incoming data and the data inputted to the database. If, occasionally, the recorder refers back a detail with a query, be consoled that accuracy is the watchword.

There was a hoary old radio programme, in which the oft repeated catch-phrase was "Don't forget the diver", with reference to an out-of-sight, out-of-mind operative bubbling away below, but highly dependent for air on those above. There might be a bizarre parallel here.

Perhaps, when observing in the field and in submitting records, a thought might be spared for those essential parameters required by the out-of-sight (but hopefully unsubmerged!) recorder.

References.

Ainsworth, M. *Identifying important sites for beechwood deadwood fungi*. Field Mycology 6(2) April 2005 pp41-61.

Holden, L. *Putting Fungi on the Map – a new name and outlet for the BMS Fungal Records Database*. Field Mycology 7(4) October 2006. p133.

Mattock, G, et al. *Spring fungi are fruiting earlier*. British Wildlife 18-4 April 2007. pp267-272.

Ted Blackwell

TAZZETTA vs. TARZETTA

Photograph by Cherry Greenway

I had only ever seen one other *Tarzetta* and that was spotted by Mary, 'Hawk-eye' Hunt on Cooper's Hill, Glos. a few years' ago. This specimen is a Worcestershire record, found on 21st June at Nightingale Bower, Old Storridge, about a mile from my cottage. Ted determined it as *Tarzetta cupularis*.

Cherry Greenway

Notes from Ted, re the Yao & Spooner paper on British species of *Tazzetta (Pezizales)*:

1. they state the correct spelling is *Tazzetta*;

2. only four *Tazzetta* spp. are considered to be British: *spurcata, catinus, cupularis*, and *scotica*;

3. *T. rosea* has become *Rhodotazzetta rosea*;

4. *T. gaillardiana* is no longer considered British: "the name should be excluded from the British List";

5. *Pustularia ochracea* was a synonym of *T. catinus*; but the paraphyses of *P. ochracea* are swollen and lobed or branched at the tip, whereas those of *P. catinus* are simple, so by a new combination, *P. ochracea* is renamed *T. spurcata*;

6. the occurrence of *Pustularia patavina* in Britain requires confirmation. *Pustularia* and *Geopyxis* are earlier synonyms of *Tazzetta*. The latter was separated from *Geopyxis* because *Geopyxis* ascospores lack guttules, and the *Tazzetta* spore walls stain deeply in Cotton Blue.

This means that for British species some amendments are needed to certain publications such as the "*Tarzetta*" keys in Ellis & Ellis, *Microfungi on Miscellaneous Substances*, and *Nordic Macromycetes* Vol.1. The drawing of paraphyses in B&K1 No. 83, *Tarzetta catinus,* are more probably illustrative of *T. spurcata*.

They say the spelling "*Tarzetta*" is an orthographic error, i.e. a 'typo' or printer's error: if so, it has now spread worldwide. The spelling ***Tazzetta*** is cognate with Italian for 'little cup' and the English word 'tazza' used in the ceramics and antiques trade for a shallow dish mounted on a stem. It is doubtful if the *Tazzetta* spelling can be found yet in any other literature (except in Dennis), although it may come in time."

Ted Blackwell

GYMNOSPORANGIUM RUSTS FROM HOME AND AWAY

I have been fascinated by the *Gymnosporangium* rusts since finding *G. cornutum* on rowan (lower photo), *Sorbus acuparia*, in Scotland in 2003. The upper surface of the leaf exhibits an orange spot but on turning the leaf over the amazing aecial horns produced by the rust can be seen. I have found examples where they are almost 100mm in length and quite spectacular. The *Gymnosporangium* rusts all alternate with juniper species as the telial host and wild *Juniperus communis* is fairly common in Scotland and in the North Pennines and the Lake District, where I have also recorded the rust regularly on rowan. In spring this year, while walking in the Lake District, I was thrilled to find the striking bright orange telial horns on the juniper and collected some samples.

There are a further 3 *Gymnosporangium* rusts, all alternating with *Juniperus* spp. *G. sabinae* occurs on pear, *Pyrus* and has a mainly southern distribution; *G. clavariiforme* and *G. confusum* both occur on hawthorn, *Crataegus* and the aecia look very similar in both species. (*G. confusum* also occurs on medlar, *Mespilus* and quince, *Cydonia*). (Brand & Shattock, 2006).

In NW Wales, where I live, there is very little wild juniper. This year I went in search of *Gymnosporangium* rusts in Gwynedd and investigated a small area of juniper on limestone at Gloddaeth near Llandudno. I was rewarded in finding the orange telia of a rust on the branches of some of the old trees. There was no rowan in the immediate area, but several hawthorn bushes nearby and microscopic examination of the teliospores proved that the rust was *G. clavariiforme* (top photo). The teliospores of the 2 *Crataegus* rusts are different in length and shape and therefore easy to differentiate, (Wilson & Henderson, 1966).

I decided to compare these spores with my sample from the Lake District and, to my surprise, found it was also this species rather than the *G. cornutum* I had assumed, indicating that both species occur there. There was no evidence of infection on the hawthorn at Gloddaeth, but on a subsequent visit in June I found heavily galled leaves, (particularly on the terminal shoots of branches), plus galled berries, both with the typical aecial horns.

I have also found *Gymnosporangium* infection on hawthorn hedges at 3 further sites nearer to my home, but I have been unable to determine with confidence, microscopically, whether the infections are caused by *G. clavariiforme* or *G. confusum* - due to the similarities of their aecial characteristics. Electron microscopy at Bangor University has been used to clearly demonstrate the differences between the 2 species and *G. confusum,* previously considered to be nationally scarce, has been proven to occur in the Bangor area, (Brand & Shattock, 2006). There are also 2 records of *G. clavariiforme* from Bangor, 1987 (juniper), 1999 (hawthorn), (Aron 2005).

The alternate telial hosts of my records must be *Juniperus* spp. in nearby gardens and next spring I hope to investigate any trees for signs of rust infection ..... and perhaps I may even be privileged, or lucky enough, to find *G. cornutum* on rowan OR juniper somewhere in NW Wales, if I look hard enough! There is only a single record of *G. cornutum* from Swallow Falls, Capel Curig in 1924, (Aron 2005).

Gymnosporangium claviforme (top); G. cornutum (bottom)

References

Aron, C. (2005). *Fungi of Northwest Wales*. Self-published.

Brand, B., Brand, G. & Shattock, R. (2006). Sorting out *Gymnosporangium* species - The aecial stage. *Field Mycology*, 7: 123-127.

Wilson, M. & Henderson, D.M. (1966). *British Rust Fungi*. Cambridge University Press.

Text & photographs by Debbie Evans