DISCOVERING DISCOS AND OTHER ASCOMYCETES

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This article is addressed to those who currently limit their field mycology to autumn forays in search of the larger fleshy fungi. There is so much else…

Searching habitats and collecting

One of the delights of studying Ascomycetes in Britain is their ubiquitousness in the field and availability for collection at all times of the year, except perhaps for extended periods of extreme cold. Even so, a number of species are characteristic of the winter and early spring, such as *Ciboria viridifusca* on *Alnus* cones, *Encoelia furfuracea* on *Corylus* twigs, *Arachnopeziza obtusipila* on *Pinus* and *Larix* cones, and the bright scarlet cups of *Sarcoscypha coccinea* and *S. austriaca* on fallen branches, often conspicuous in snow. Many smaller species are either host-specific or at least restricted to a small range of substrates. Getting to know what to expect on any particular substrate at the appropriate time of year, fairly quickly leads to recognising a number of species. Although dry spells of summer weather will reduce the range of species found on a particular occasion (especially Discomycetes), there will still be many Pyrenomycetes on fallen branches, and depending on the month, Powdery Mildews and *Taphrina* on vascular plants and tree species.

The larger Ascomycetes in Britain number perhaps less than one hundred species within such genera as *Bulgaria*, *Disciotis*, *Gyromitra*, *Helvella*, *Morchella*, *Otidea*, *Peziza*, etc., and the preponderance are relatively much smaller. Field mycologists who have hitherto concentrated their foraying on Agarics or Polypores will need to adjust their sights to the lower end of the visible range. Mostly they will be dealing with an order of magnitude lower, and macro-measurements are more likely to be in the millimetre rather than the centimetre range.

It is reasonable to assume that people tend to focus attention on species in a size range that they can comfortably see, and certainly acute eyesight will help to spot in the field species which are pin-head sized or less. But acute observation comes into it rather than just keen eyesight alone, and 'getting your eye in' and knowing what you are looking for is all part of the fun. This together with magnifying aid from the hand-lens and the stereo-microscope will reveal a vast storehouse of species to be investigated. If you have not closely observed Ascomycetes previously, try examining accumulations of damp fallen leaves, dead herbaceous stems, or bits of damp dead wood and scrutinise them carefully with a lens or low power microscope; you may be pleasantly surprised at what there is to find.

The standard British reference work is British Ascomycetes by Dr. R. G. W. Dennis (revised edition 1978, reprint by J. Cramer with Supplement 1981, earlier editions 1956 and 1968). In this about 2000 species are described, most illustrated either by colour plates or line drawings. Dennis gives in his 'Introduction' a comprehensive overview of the general characteristics of the Ascomycetes which is recommended reading.

Fungi of Switzerland Volume 1 Ascomycetes, by J. Breitenbach and F. Kränzlin (1984) Verlag Mycologia, Lucern, although with a more limited coverage of 390 species, is nevertheless an excellent production with fine colour photographs and detailed line drawings of microscopic characters. The book is arranged so that descriptions, colour photographs and microscopic details are grouped together for ease of reference. As an attractive, easily assimilated and relatively painless introduction to Ascomycetes, it cannot be more highly recommended. Additionally, a large number of Ascomycete species are described and illustrated (along with other groups) in

what the authors describe as 'identification handbooks', namely Microfungi on Land Plants (1997) and Microfungi on Miscellaneous Substrates (1998) by Dr. Martin and Pamela Ellis, in which species are listed and indexed under host or substrate, both books being invaluable finding aids in the identification process.

Another useful work is *Nordic Macromycetes* Vol. 1 Ascomycetes (2000), edited by Hansen & Knudsen, Nordsvamp, Copenhagen. It describes and keys around 1000 species, mainly Pezizales and Leotiales plus some pyrenomycetes, and includes 15 pages of line drawings, mainly illustrating spores.Other general books on fungi which include coloured plates and short descriptions of a small selection of Ascomycetes are *Encyclopaedia of Fungi* (1997) by C J Keizer, *Encyclopaedia of Fungi of Britain & Europe* (2nd Edn., 2004) by Michael Jordan, and *Mushrooms and other Fungi of Great Britain & Europe* by Roger Phillips.

Systematic searching amongst fallen leaves and dead herbaceous stems necessitates getting close to the subject and is more conveniently undertaken kneeling, methodically combing the litter of one spot before moving to another. Other plant debris such as straw, dead wood, cones, seeds, catkins, acorns, sweet- and horse-chestnut husks, dead reed and sedge stems, etc. should also be closely scrutinised as fruitful sources. This type of foraging activity in woodland can also fortuitously expose specimens of Truffles (*Tuber* and related genera) and False Truffles (*Elaphomyces*), of which more below.

Because many smaller species are either host specific or at least restricted to a small range of substrates, correct recognition of the identity of the living host or the dead substrate is often essential for their accurate determination. It follows that some knowledge of botany must go hand-in-hand with that of 'Ascomycetology'. It is particularly important to note the identity of the host or substrate in addition to making field notes of habitat, site name, grid reference, date, and other details. Also, where ascocarps occur directly on or in soil, (most but not all Pezizales grow on soil, fire-sites, or dung) it can often be helpful to have noted the associated tree and plant species.

In general the Truffles appear to be mycorrhizal and, depending on species, may occur under broadleaved and/or coniferous trees. A number of other Ascomycetes have an association with trees: this may be either mycorrhizal or due to habitat preferences perhaps arising from the humic content of a soil beneath certain tree species, for example, *Geopora sumneriana*, one of the larger fleshy Ascomycetes, is usually associated with Cedar (or according to the literature occasionally with Yew) in the early months of the year.

In the plant parasite orders, the Taphrinales (leaf curl and witches' broom fungi) and Erysiphales (Powdery Mildews), host-specificity is almost the rule, and correct identification of the host in many cases leads immediately to naming the fungus. Ellis & Ellis 'Microfungi on Land Plants' give an extensive coverage of both these groups. Additionally, for Taphrinales, Dennis 'British Ascomycetes' gives fourteen full, and seven brief descriptions of species. Three of these, *T. amentorum*, *T. johansonii*, and *T. pruni* are also illustrated in 'Fungi of Switzerland' Vol. 1. Keys by Ing to Erysiphales are listed below (p.20).

Equipment required for collection

The equipment required for field collecting is essentially similar to that for collecting Agarics, as described in the *BMS Guides for the amateur mycologist: 1. Guide for the beginner* p.3 (1994) particularly as regards the larger fleshy terricolous Ascomycetes such as *Helvella*, *Otidea*, *Peziza*, etc., which are collected and protectively packed much as one would treat the larger Basidiomycetes. The principal items are a basket, some lidded plastic containers, a knife, hand-lens and note book.

Plastic pill boxes or similar as suggested in the Guide as containers for collected Agarics are equally serviceable for Ascomycetes. However, individual Ascomycete specimens are generally of much smaller volume than the average Basidiomycete toadstool and considerable saving of space can be achieved by the use of anglers' fly boxes of the plastic hinged-lid type. These come subdivided into variously sized compartments, which for systematic collecting need to be numbered. While there may be some objection that a theoretical risk