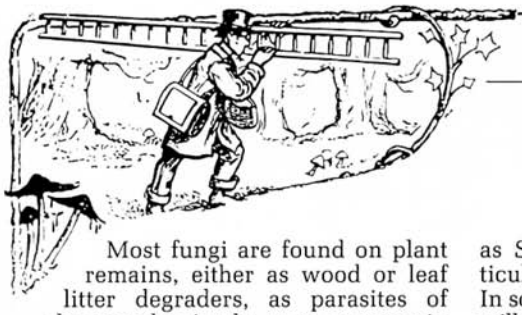

# FIRST STEPS

## WHY NOT LOOK AT DUNG FUNGI?

Most fungi are found on plant remains, either as wood or leaf litter degraders, as parasites of plants and animals, or as partners in a symbiotic relationship, but they have several other important ecological roles, including decomposition of insects and animal waste. The most easily studied of these are the fungi which are to be found abundantly on the dung of vertebrates, especially herbivores. **Dung** consists of the undigested remains of the plant food of animals together with vast quantities of bacterial cells, mostly dead. The nature of the dung depends on the efficiency of the digestive process in the animal and this in turn is determined by the microflora of the gut. Thus **cattle** and other ruminants, when healthy, produce a fine-textured dung with much divided, fibrous plant remains, while **horses**, which have a less efficient system, produce much more coarsely fibrous droppings. **Rabbit** pellets are intermediate in quality but more easily studied, both from the viewpoint of laboratory technique and for social reasons.

A simple exercise allows us to watch the development of the so-called **dung succession**. First we need to know of a convenient rabbit colony. Find a fresh deposit of rabbit pellets, which are always placed in a spot which gives the animal a clear all-round view. Carefully brush these away and come back next day. The pellets now present will be fresh. Collect a sample of ten or twenty in a polythene bag or tube. These should now be laid on damp filter paper in a Petri-dish or a soft margarine tub with a transparent lid. Examine carefully each day, using a hand-lens if a stereomicroscope is not available. The first fungi to appear will be **Zygomycetes**, especially *Mucor* and then *Pilobolus* (Fig. A) (see Fungi in Schools in *The Mycologist* 2, 1 and 2). After a few days **discomycetes**, notably *Lasiobolus* (Fig. C) will show, closely followed by **pyrenomycetes**, such as *Sordaria*. Later small **agarics**, particularly *Coprinus* (Fig. F) will develop. In some cases **dictyostelid slime moulds** will also grow on the dung, and even true **myxomycetes**, but these are infrequent. **Hyphomycetes** are common of which the most striking is *Stilbella erythrocephala* (Fig.B).

The dung of other animals produces different sets of species. For example the commonest grassland agaric in hill country is *Stropharia semiglobata* (Fig. E) associated with **sheep** dung. The ascomycete *Poronia punctata* (Fig. D), now very rare in Britain, is only found on **horse** dung where the animals are allowed to roam and feed on natural vegetation. **Cow** dung is especially rich in discomycetes and ink-caps. Various theories have been put forward to explain the 'succession'. It is suggested that **free sugars** are first utilised by zygomycetes, then **complex carbohydrates** are used by some ascomycetes until the less digestible **cellulose**, and finally **lignin**, remain. It is possible that the time taken for fungi to grow is more important, zygomycetes growing and sporulating more quickly than agarics. Some dung fungi require to pass through the gut in order to complete their life-cycle.

Dung fungi are not easy to identify. Nevertheless they are so interesting that it is worth the effort of making microscope mounts, measuring spores and carefully drawing the essential features. Help in identification can be obtained from the BMS *Keys to Fungi on dung* (Richardson & Watling). Keys are also found in the *British Fungus Flora*, Part 2; *Coprinus*, Part 3, Bolbitiaceae; Part 5, Strophariaceae and Coprinaceae.

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(A) *Pilobolus* (sp)

(B) *Stibella erythrocephala*

(C) *Lasiobolus ciliatus*

(D) *Poronia punctata*

(E) *Stropharia semiglobata*-group

(F) *Coprinus narcoticus*-group