

In this issue

We have in this issue (page 289) a delightful essay on the International Mycological Congress (IMC4 1990) at Regensburg written by one of our distinguished scientists C. V. Subramanian, a past president (1977–1983) of IMC. This congress coincided with the 200th anniversary of the death of J. C. Schaeffer, a contemporary of Linnaeus who made Regensburg in central Bavaria 'the cradle of mycology', where they collected, recorded and described mushrooms, toadstools and microfungi.

Our introduction to mycology was through Lewis Carroll when Alice saw a large mushroom, about the same size as herself and on tiptoe peeping over the edges saw the blue caterpillar smoking a hookah who told her that one side of the mushroom would make her grow taller and the other side shorter—and when she nibbled one piece she grew and she grew and her hair entangled amongst the branches of the trees. Lewis Carroll surely must have been inspired by the fact that the long tubes that composed these fungi grow by the elongation of their hyphal tips. There was a very learned lecture by C. E. Bracker on the mechanism of this process at the congress.

There are we are told at least more than a hundred thousand species of fungi as compared to a mere 2000 of bacteria. This is probably the reason why the brotherhood of mycologists is so large and they turned up on a pilgrimage to Regensburg to hear the history of the origins of mycology and botany by Bresinsky. Imagine the common mushroom *Agaricus campestris* forming nearly two billion (2×10^9) spores on a fruiting body; while the not-so-common giant puff ball produces seven trillion (7×10^{12}) spores.

Our familiarity with mushrooms is purely through gastronomical interests. There has been a reluctance on the part of older generations of Indians. One wonders whether it is because of the formidable name in Hindi which is 'Kukur mutra' or because it grows in unhealthy, dirty places with organic refuse. Our first experience was in France—truffles (*Tuber melanosperma*). One had to convince oneself that the taste was 'exquisite' because it is consi-

dered to be the most priced edible fungus of Europe dug up from the subterranean sources by dog (or pig) truffle hunters. The next experience was the glorious picking up (along with the distinguished biologist Guido Pontecorvo in the beautiful alpine forests of southern Switzerland) of crisp and heavy specimens of mushrooms with a delightfully sweet, nutty flavour—(*Cantharellus cibarius*?). The most remarkable experience we had with mushrooms was when driving from Irkutsk to Lake Baikal and stopping at one of the magnificent Siberian forests and seeing fungi six inches tall with fresh, fleshy brown caps a foot or more across (*Boletus edulis*?) and hundreds of families picking these and cooking them and eating them along with the Omul fish which is so famous in the Baikal region, which we vegetarians alas could not eat. Perhaps the most delightful of all was the transparent fungus soup, sweet and pungent, which was served at a vegetarian banquet given to us by the Academia Sinica in Beijing.

C. V. Subramanian in his essay protests that the programme was so crowded that on certain days the participants had a choice between lunch (did it consist of some exotic fungi?) and a lecture (on say nutritional and non-nutritional attributes of three major categories of mycorrhiza!).

At the congress, CVS talks of the wonderful posters, video presentations, the paintings of higher fungi and even of fungi on stamps but relatively no mention is made of the relationship of fungi and culinary problems.

We were taught long ago that fungi were a large group of one-celled or multicelled organisms lacking chlorophyll that is so necessary for photosynthesis, most of them composed of delicate protoplasm-containing hyphae which grow by elongation at the tips but at IMC4 we are told that the fungus is quite clearly a eukaryotic organism with mycelial habit, the ability to produce a long-walled tubular cell by apical growth and the ability to acquire its nutrition by absorption of organic matter.

One vaguely remembers the tradition that the fabulous Vedic drink *soma* may

have been derived from fungi. It is not surprising as the more famous hallucinogen LSD also comes from fungi. Traditionally ergot (*Claviceps purpurea*) is still used in many developing countries for uterine contractions in childbirth. It is the fungi that gave us the miracle drug penicillin and many others that followed and fungi are still a source of a multitude of chemicals, some of the recent ones being strobilurin which inhibits tumour cells, strubilin and oudemansin which are antifungal principles (found in fungi), restrictin which inhibits cholesterol biosynthesis, and so on and so forth.

Fungi can also be dangerous, many are poisonous. Fungi can wipe out forests. We remember long ago *Cryphonectaria parasitica*, an Asian fungus, attacking the mighty chestnut tree and reducing many beautiful American forests into haunting grey spectres and long-dead giant trees. The orchid lovers hate fungi which destroy their favourite plants but many do not know that they are used for propagating them and strengthening them by feeding the proper nutrients.

Recently there is the soil fungus *Entomophaga praxibuli* which literally eats grasshoppers and even forces them to spread its spores after they die—a most effective method to control grasshopper pests.

Fungus research seems to throw much light on the understanding of many scientific problems—for example, *Podospora anserina* is considered a model system for ageing studies.

Yes, as C. V. Subramanian says, much work is to be done by an army of scientists to get the maximum out of these fungi whose very numbers and names frightens us all. One is reminded of a true story of a famous mycologist and president of a university who tended to forget the names of important persons who funded the university. When people persuaded him to attempt to remember their names he said, 'Every time I remember and take pains to remember the name of an important person, I invariably forget the name of at least one fungus and that is disastrous!'

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