

Parnassia

The Newsletter of the Liverpool Botanical Society



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July 1996

Editorial

Welcome to Issue 4, somewhat later than planned. Issue 5 will also appear slightly late, in October, to allow the inclusion of a complete set of 1996 Society field meeting reports (field meeting leaders please take note). It seems a pattern of contents is emerging. The autumn edition will cover the aforementioned meetings, a new year issue will cover the AGM, new meetings programme and the autumnal indoor talks. The summer edition, i.e. this one, however, is proving more problematical. Apart from coverage of the last two indoor meetings there is no natural source of subject matter but great potential for a series of locally informative articles. While I would stress the need for articles on north-west botanical observations, activities, projects and interest generally to widen the scope and appeal of the newsletter, it is for the summer edition that these are most urgently needed. So please try and come up with ideas for articles. If you can't, you can still help by suggesting people who might or indicate topics you'd like to find out more about. Another really worthwhile way of helping the newsletter is by sending in any local botanical news you may have come across. Newspaper cuttings or photocopies are excellent as long as the source and date are included.

At this year's AGM it was decided to affiliate to the North West Naturalists' Union. This will furnish the Society with the Union's insurance policy cover. However, I feel the main benefit will come from enhanced communication with a host of other north-west natural history groups. This is particularly relevant in the light of the current president's, Dr Martha Newton, proposal to produce a new flora for South Lancashire. It is hoped to be able to provide further details on this in a future issue along with a piece on *The Making of Travis's Flora*.

Vice-county News

After a slow start, the entering of vice-county 59 records came to a shuddering halt on St Patrick's Day. In the middle of the afternoon, and without the aid of Guinness or Jamieson's, whilst admiring all the shiny new data I started to get too clever by half and tried to compile a table of tetrad records. What actually happened is still a mystery to those RECORDER experts who have been consulted but the basic outcome was corruption of all the index files so that it was impossible to retrieve or add any data at all! In the end all the data files had to be erased from the hard disk and a previously stored copy re-loaded with a working index but fewer records. Luckily the data had been backed up fairly recently beforehand, but in case of further accidents data is now backed-up after every entering session. It took a while to find out what had happened and how to get round it, but entering of 1995 data is now eventually back underway again.

Once the 1995 data is on disk, forming the basis of the VC 59 database, all the backlog of hectad (10km square) records will be entered, with priority given to 1987 and post-1987 records, to provide valid data required for Atlas 2000.



It might interest, or frighten, local botanists to learn that the Atlas 2000 committee require submissions of plant records to include "all species and subspecies treated in full by Stace (1991), and all hybrids" and they have published a small booklet on this subject :- *Fieldwork for Atlas 2000, 1. Notes on Identification Works and Some Difficult and Under-Recorded Taxa*. I'm sure that there will be many old botanical dogs up and down the country having to learn new tricks for Atlas 2000! I have always preferred to steer away from hybrids and subspecies, but now they need to be confronted head on. In a way it brings back the excitement/worry of being a beginner again, wondering if one will ever get to grips with the plethora of new plants and new names. A heart-felt *Good Luck* to all those starting out on the learning process.

Liverpool Museum News

Natural History Centre

The NHC will be presenting a *Plants, People, Places* display over the summer holidays using specimens from the collection to illustrate some of the recently collected information for the North-west's first cultural flora.

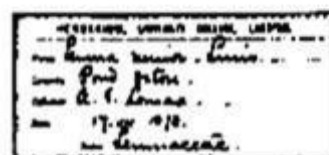
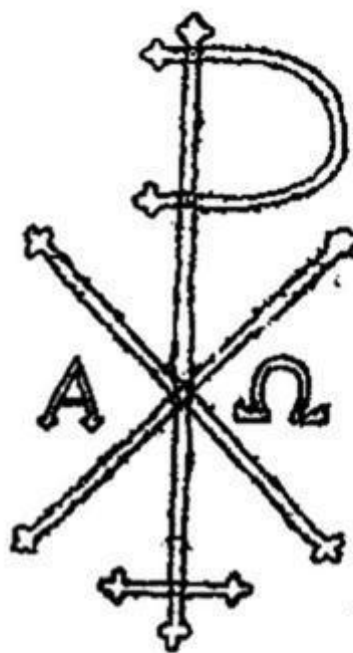
One specimen on display is a herbarium sheet of Common Duckweed, *Lemna minor*, collected by A.E. Lomax from Oxton, Wirral, 1878, in which the plants have been arranged into the religious symbol illustrated at the end of this article.

I would be grateful if any readers could tell me more about the meaning or significance of this symbol. Does this tell us anything about the collector? Alfred Edward Lomax was born in Liverpool, in 1861, where he worked as a pharmaceutical chemist.

Plants, People, Places will also be the topic for the first talk when the Societies indoor meetings programme resumes on 8th October. Why not come along for a chat.



1974-88



Herbarium sheet of Duckweed, *Lemna minor*, from the Herbarium of Liverpool Museum.

North West Fungus Group

The NWFG will be holding their annual open day at Liverpool Museum's lecture theatre on Saturday 31st August. In addition to perusing an assortment of fungi based displays you can also meet members of the Group, find out what the Group is up to and bring along your own finds for identification. Please ring Mike Palmer on 478 - 4281/4291 for further details.

History of the Mersey Basin

By the time this issue is mailed the two day *Ecology and Landscape Development - History of the Mersey Basin* conference, at the Merseyside Maritime Museum, will have taken place. A varied programme of talks on local natural history and ecology is scheduled including: *Vegetational Changes to the Norman Conquest* by Dr J.B. Innes and Dr M.J. Tooley; *Marine Algae: Diversity and Habitat Exploitation* by Dr George Russell; *Lichens: Atmospheric Pollution Effects*, by Professor Brian Fox; *Vascular Plants: A Game of Chance?* by Eric Greenwood and Peter Gateley. The conference will be reviewed in the next issue.

Other News

Garston Gasworks Protected

The former gasworks site at Garston has been included in Liverpool City Council's new list of sites for nature conservation. The absence of rank vegetation has allowed several unusual species of orchids to thrive. It is hoped to bring you further details on this and other sites on the list in a future issue.

Orchid Survey

Plantlife are asking people to keep an eye out for four species of orchid over this summer. The Bee Orchid, Fragrant Orchid, Pyramidal and Greater Butterfly Orchid have been chosen as representative species - "they are not the rarest of our orchids, but where you find them will help indicate how healthy, or otherwise, orchids and their habitats may be as a whole".

The first three species can all be found along the Sefton Coast. Bee Orchids tend to turn up at a number of other sites also with their abundance varying from year to year. 1996 looks like being a good year for this

species with specimens flowering in a range of sites over St Helens and Knowsley as well as on the coast. Fragrant and Pyramidal Orchids tend to be occasional at other South Lancs. sites, while *Travis* provides only two records for the Greater Butterfly Orchid from Stalybridge and Accrington.



Left to right Bee Orchid, *Ophrys apifera* and Fragrant Orchid, *Gymnadenia conopsea*.

For more information on the Plantlife survey please send a 29p SAE to:- Wild Orchids, Plantlife, The natural History Museum, London SW7 5BD. Andrew Turner, of Liverpool Museum's Natural History Centre is writing an article on the Orchids of South Lancashire and would appreciate any interesting observations you could provide.

A Late Holocene Safari at Formby Point

A report of an evening meeting presented to the Society by Mr Gordon Roberts on 10th October 1995.

Gordon Robert's slides showed where the tide had uncovered layers of silt clay to reveal footprints of cranes, deer, aurochs and barefoot humans made when this district was prehistoric mudflats. The prints would have been baked hard by the sun and wind and subsequently covered by sand until now when erosion is exposing them and gradually destroying them. He showed maps illustrating the areas he was describing from Formby Point north to Freshfield.

The history of finding the footprints and of securing help and interest in them was recalled. Eventually they were identified by the Natural History Museum and Liverpool Museum. Some human prints closely associated with nearby animal tracks are presumed to be those of hunters. Using radio-carbon tests on the roots of an alder growing through one of the deer prints pointed to them being made in the Neolithic or early bronze Age.

Vera Gordon

Heathlands, their future and conservation

A report of an evening meeting presented to the Society by Professor Robert Marrs of the University of Liverpool's Botanic Gardens at Ness on 13th February 1996.

Professor Marrs began by recalling various definitions of heathlands, summarising them as 'mainly treeless tracts with ericaceous species'. Slides illustrated different heaths from the Lizard and Dorset to Breckland, pointing out the characteristics of each. In addition to

plants, attention was also drawn to birds, reptiles, amphibians and insects. Slides of these included the Sand Lizard, and Natterjack Toad.

The history of heathland conservation and the various methods used were illustrated and discussed. When heaths were part of the rural economy such measures were not necessary. Heaths produced wood for fuel and building, bracken for bedding and turf lifting for fuel. The grazing flocks were generally small and sustained long-term on the heathland areas.

Two of the main problems facing heaths today is their segmentation and use for other purposes such as building and afforestation. The remaining smaller heaths, as a result, represent isolated communities with the further problems of increased recreation use. The culmination of these factors, therefore, is often a loss of original character and vegetation cover.

Heathlands are man made habitats which were formerly maintained as a result of traditional land practice. With many of these practices now replaced by modern farming techniques the maintenance of heather in a good condition is something that needs to be addressed in their current conservation. Heather generally has a natural life cycle of around 15 years. Controlled burning is used, therefore, to ensure fresh growth. Invasion of Bracken on some heaths, Birch and Scots Pine on others and even grasses, such as *Deschampsia flexuosa*, have to be controlled. Aerial photographs taken over a period of years illustrated these changes and also the effects of management techniques against control areas.

Finally Moor House Reserve, Cumbria was shown as an upland heath with eroding

peat, heather, Crowberry. Cloudberry and Bilberry.

Collection of *Calluna* seeds and the sowing of them on bare patches was illustrated. Techniques of controlled burning of rank growths of heather, employing foam as a temporary fire break was also covered.

Many members and visitors took part in the lively discussion and questions that followed this interesting talk.

Vera Gordon.



Bilberry *Vaccinium myrtillus*

Mushrooms & Magic: Adventures in the Fifth Kingdom

Based on a talk to the Society by Professor Tony Whalley, 12th March 1996.

The talk began with a look at how fungi have been classified in relation to other living organisms. They are certainly more advanced than the most primitive kingdom, the Monera which comprises viruses and bacteria. The more advanced single-celled

organisms have in recent times been grouped into the Protista kingdom into which the slime moulds - a classification conundrum all of their own - are sometimes placed. However it is in the Plant kingdom that fungi were placed for a long time, despite their lack of chlorophyll and consequent inability to manufacture their own food through photosynthesis. In fact, recent research has shown fungi to be more closely related to the Animal kingdom. However, animals they are not. Instead they are now regarded as a separate kingdom all of their own - the fifth kingdom.

For most people fungi are generally regarded as mushrooms and toadstools, however, the fungi kingdom comprises a vast range of shapes, sizes and forms comparable to plants and animals. These include both the familiar and unfamiliar - the moulds, the mildews, smuts, rusts, lichens, puffballs, brackets and so on. Fungi are also often held in a poor light, being associated with rotting, dark and slime - an image backed up by the Ray Briggs character, *Fungus the Bogeyman*. As with many things, however, the reality contrasts with the superficial image. The kingdom contains many colourful and beautiful characters, the Fly Agaric, the Waxcaps and Russulas for example. They comprise some tasty characters. One of the most popular and sought after species is *Boletus edulus*, known in Italy as Porcini, in France as the Cep and in England as the Penny Bun. Specimens with a cap diameter of ten inches are not uncommon. Far from being weedy, the kingdom includes some real tough guys. A celebrated example of mushroom power is the Shaggy Inkcap which can break through tarmac and has even been known to crack concrete.

The Fly Agaric is commonly employed for illustrations in children's books (Enid

Blyton et al). As one of the better known hallucinogenic species perhaps this is not the best choice to start youngsters off on the road to mycology. Its name is derived from its former use as a fly killer whereby macerated fungi would be mixed with milk and kept on the window sill. Unfortunately this mixture tended to develop quite an unpleasant smell within a few days. Its hallucinogenic attributes have led to mystic and magic associations. Vikings are said to have consumed it before going into battle to make themselves *fighting berserk* - an idea vigorously denied by contemporary Scandinavians.

In Kamchatka it was customary for women to collect and chew the raw, unpalatable Fly Agarics before passing it on to the menfolk to enjoy while sitting around the camp fire. It was known, also, that the toxic elements of the fungi were filtered out by the kidneys leaving the hallucinogenic muscarine pass out in the urine. So if you're ever in Kamchatka for a late night drink.....



Fly Agaric *Amanita muscaria*

Reindeer will often eat Fly Agarics. Shaman, from the steppes of central-north Russia would collect the urine from their reindeer herds. Intoxicated from the muscarine in the urine it is not hard to imagine how stories of Santa Claus, dressed in red and white and being pulled through the air by gravity-defying reindeer might have arisen from the resulting hallucinations.

While too much muscarine can be bad for you some of the relatives of the Fly Agaric, e.g. the Death Cap, *Amanita phalloides*, the Destroying Angel, *A. virosa*, and the Panther Cap, *A. pantherina*, can be far worse. Abroad where the collection of wild fungi for food is far more common poisonings are still a problem. In France a belief in *if it looks good you can eat it* has led to many cases of poisonings. In parts of Switzerland you are not allowed to sell wild collected fungi unless you have had them passed by a mushroom controller. Many pharmacists abroad, however are trained in fungi identification. In Britain, Roy Watling, of the Royal Botanic Garden, Edinburgh, has recently written a booklet for the medical profession helping them to recognise the varied symptoms of fungi poisonings. Even fungi long considered to be edible can cause reactions in some people. The bottom line is to make sure you know what it is before you put it in the pan (having said this there are five or six unmistakable edible species which should cause no problems, the Giant Puffball, *Langermannia gigantea*, being a prime example).

Magic mushrooms, or Liberty Caps, *Psilocybe semilanceata*, are well known to the youth of Merseyside who exhibit a tremendous talent for identification. If only this pool of skill could be spread to more species we'd be able to map the fungi flora of the area in no time at all. It is illegal to

collect and dry Liberty Caps as this suggests recreational use of Psilocybin, a classified dangerous drug.

The Yellow Stainer, *Agaricus xanthodermis*, is a poisonous relative of the ubiquitous shop-bought mushroom, *Agaricus bisporus*. This species conveniently, and as the name suggests, bruises bright yellow to the touch. It is, however, not particularly poisonous, usually causing a bad tummy upset.

Shaggy In-cap, or Lawyers Wig, *Coprinus comatus*, is extremely good to eat in the young stage. However, as it matures the gills blacken as the deliquescing process starts, producing a black spore-rich ink. This process assists dispersal of the spores which may be spread by visiting insects or raindrops. In the past this liquid has been used as an ink. Such writings can be detected by use of a microscope under which the spores can be observed. The Common Ink-cap, *C. atramentarius*, is also edible, however, if mixed with alcohol purple blotching of the skin will ensue. This will occur if alcohol is taken even a few days after the fungus was consumed. This property has led to drugs prepared from extracts of this fungus are being used in the treatment of alcoholism.

Black Diamond Truffles sell at Harrods for £95-100 each making them the most expensive food stuff by weight - more than Russian caviar! Truffles grow underground and are usually associated with Oak trees. The truffles are attached to the tree roots by fine mycelium which increases the trees uptake of nutrients, especially phosphates. In return the fungus receives sugars allowing them to grow to a large size. The question was asked *why do truffles grow underground?* Mature truffles are dispersed by burrowing rodents which are attracted by the smell. During the immature stage,

however, the truffles don't smell. Their sub-soil location, thus protects them from premature consumption. The search for truffles by humans employs specially trained dogs or pigs, however, another trick is to look for truffle flies hovering over the ground in the early evening and then dig.

The British public is recognised as holding a very conservative view on which species they will eat. For this reason Mushroom soup in the UK only ever makes reference to mushrooms - full stop - despite being made from *Boletus* species. The common *Agaricus* species make a poor soup due to their habit of blackening on cooking. While on the continent much is made of the *Boletus* content of soup, marketers in the UK know that even to illustrate a *Boletus* on the tin would reduce sales. This conservatism seems to be entrenched with the misconception that mushrooms are edible whilst toadstools (with all their associations with witchcraft) are poisonous - thus writing off a whole host of mycological delights. Having said this, a wider range of species are beginning to appear in supermarkets with Oyster Mushrooms, *Pleurotus ostreatus*, and Shiitake, *Cortinellus berkeleyanus*, now commonplace. *Boletus edulus*, under its Italian name of Porcini can be found sliced and dried while Chanterelles, *Cantharellus cibarius* (imported from Portugal), Horn of Plenty, *Craterellus cornucopioides*, under the name of *Trompette des morts*, and Hedgehog Fungus, *Hydnum repandum*, under the name of *Pied de mouton* are also turning up as speciality mushrooms in selected supermarkets. A trip to China town will reveal even more. Paddy-straw fungus can easily be purchased, albeit tinned. As their name suggests, they are grown on the old straw from paddy fields.

In Thai markets, amongst a varied assortment of fungi, you will find the very

expensive and highly prized *Termitomyces*. These grow in association with recently abandoned termite mounds, their high price reflecting their very short season. Shiitake mushrooms are traditionally grown in Japan and China but are now cultivated all over the world. Current research is looking for strains able to grow in hotter climates such as found in Malaysia. The appearance of the fungi can also be important. It seems that with Shiitake a higher price will be paid for those with a more wrinkled cap.

The Oyster mushroom was a firm favourite with the Romans. Claudius and other emperors wouldn't dream of an orgy with out a plate or two of this fungus.

Chanterelles have both a delicate aroma (of apricots) and flavour. They are quite common in the New Forest where organised picking both from French mycophiles and British opportunists could present a threat. The Forestry Commission has now banned such collections. The British Mycological Society is also concerned about these activities over a wider area, particularly as fungi distribution faces decline due to other factors as well such as acid rain and other pollution.

An alternative to wild collection is to manufacture your own as has been the case with Quorn. It was originally developed as a cheap form of protein to compete with soya around 25 years ago. This is grown in large fermenters and although it is pretty tasteless stuff it does have the ability to take up any flavour given to it. It is also has the benefits of having no cholesterol and is low in fat and so good for dieters.

One of the problems with the public perception of fungi is their association with the devil, magic and fire. The story of Moses and the burning bush (which was

not consumed) arose from another characteristic of certain fungi - that of luminescence. Some tropical species produce so much light that they you can read by them at night. *Pleurotus lampus* produces a green glow. In Indonesia bits of wood infected with luminescent fungi are used to provide night-time markers for forest trails. Strange glows were observed by British soldiers whilst digging trenches in the First World War. This was thought to be the result of some form of secret enemy weapon when in fact it was due to the roots of trees infected with luminescent fungi being revealed.

The Fairy Ring Champignon, *Marasmius oreades*, was once believed to grow where fairies had linked hands and danced in a circle. It was thought good luck to cross into the circle and collect the dew from the grass.



Fairy Ring Champignon, *Marasmius oreades*

Ergot, *Claviceps purpurea*, is a fungus that grows on Rye in place of the grain. Ingestion of this causes the symptoms known as St Anthony's Fire. The name is derived from the coincidental opening of a

new monastery to St Anthony near to Venice and the spread of Ergot to that region. many local villagers went down with a burning sensation (ergotism) and took this to be a sign of punishment. Symptoms include the characteristic burning sensation followed by convulsions (St Vitus Dance) and gangrene. Ergot also has vaso-constricting effects which has been used to bring on child birth. Ergot varies from year to year with bad years often being revealed by the number of cattle and sheep aborting. Roy Watling was once sent a sample of muesli thought to be contaminated with mouse droppings. These were found to be Ergot, which could of have had dire consequences for anybody eating this, especially pregnant women.

A fungus was nearly responsible for the British navy losing a war. The Queen Charlotte sank after firing its first salvo. The ship was so badly infected with Dry Rot, *Serpula lacrymans*, that on firing the canons went straight through the deck. Dry rot grows in wet conditions but reduces wood to a dry powder. The rotting process, however, is an essential in nature. Without it there would be very little recycling of nutrients and soils would soon lose their fertility.

Stinkhorns, *Phallus impudicus*, are very important wood rotting fungi. It is, however, a fungus that is more often smelled than seen. When mature a mass of spore-rich slime develops on the cap which produces a very strong smell of carrion. Flies, attracted by this smell, disperse the spores far and wide. In Hong Kong it is possible to buy *mummified* Stinkhorns in the belief that you will improve your virility.

Bovista nigrescens is one of the Gasteromycetes or *stomach* fungi, so called as the spore mass develops in the centre of

the fungal body. Specimens found in Vinlandra, near Hadrians Wall have been found to date from 75BC. This is an edible species but only in the young stage. The specimens found were mature with developed spore masses and so would not have been collected for food. Another possible reason for their collection might have been as fire carriers. The spore mass, once lit, will smoulder for around an hour and so could be used for carrying fire along the wall from fort to fort. However, this find pre-dates the wall (but not necessarily the need to transport fire). A more likely answer is that they were used for dusting wounds as a styptic.

The importance of fungi in nature and their use as *food for free* have been noted. However, their most important and direct benefit to man is as in the manufacture of drugs to combat disease. Penicillin, derived from the mould *Penicillium notatum*, was the first of these miracle drugs to be manufactured and is still the top selling mycologically derived drug. If we go back 150 years life expectancy was around 40-50 years as a result of disease. The introduction of Penicillin led to a major extension.

Antibiotics now play a major role in combating many of the once life threatening diseases. However, the ability of bacteria to develop resistance to these drugs and the continuing evolution of new strains means that there has to be a constant search for sources of new anti-biotics. Much work is being carried out in the tropics where not only are the fungi-supporting habitats at risk but also the traditional tribal knowledge, which is by and large passed on by word of mouth only and so is literally dying out. It is conjectured that there are around 1.5 million species of fungi on earth of which only 70,000 (less than 5%) have been

described. The potential usage of those 95% of species yet to be discovered is enormous.

As well as curing diseases it is well known that they can also be the cause. Athletes foot being a familiar example. Ringworm is another, which is currently making a come back in recent years. Most people who die of AIDS do so as a result of a fungal infection.

By the way, the oldest and largest living thing on earth is a specimen of Honey Fungus, *Armillaria bulbosa*, growing in Canada.

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