LICHENS IN HYDE PARK
A survey by Mark Powell, 29th April 2018

It may seem surprising that the British Lichen Society's database contained records of only 13 species of lichen as at April 2018. Philip Budd recorded two species in 2004 while Linda Davies and William Purvis recorded 12 lichen species on eight individual *Quercus* trees between 2003 and 2006.

On 29th April 2018, the author visited Hyde Park to take part in the City Nature Challenge Bioblitz and recorded 75 taxa (of which six are lichenicolous fungi). The difference between 13 species of lichen in the early years of the century and 69 species in 2018 does not imply that such a dramatic increase in species has occurred. The previous surveys were evidently very limited in scope whereas the recent survey covered many habitats over a large part of Hyde Park. Nevertheless, we can assume that some species at least are recent colonists. *Strigula taylorii* was unknown in the Midlands, East Anglia and most of the Home Counties until the current decade when it has shown a remarkable spread and is now widespread in these areas.

The parapets of the Serpentine Bridge boosted the list with records of common saxicolous lichens. The coping of the parapets is of sandstone while the balusters are of limestone. The lichen thalli on the sandstone coping are clearly seen as separate and relatively small individuals giving a different appearance from the closed mosaics of mature lichen communities. It is possible that the parapets have been cleaned but it is more likely that we are witnessing a colonisation of stone surfaces that were previously poorly covered due to atmospheric sulphur dioxide pollution in the last century. One of the dominant species on the parapets is *Myriospora rufescens* which, rather surprisingly, has not previously been recorded for VC 21. When well developed as in Fig. 1. *M. rufescens* is a rather beautiful lichen (the fruiting bodies glow orange when wet) but on the parapets of the Serpentine Bridge this lichen forms rather thin, drab dark brown crusts.

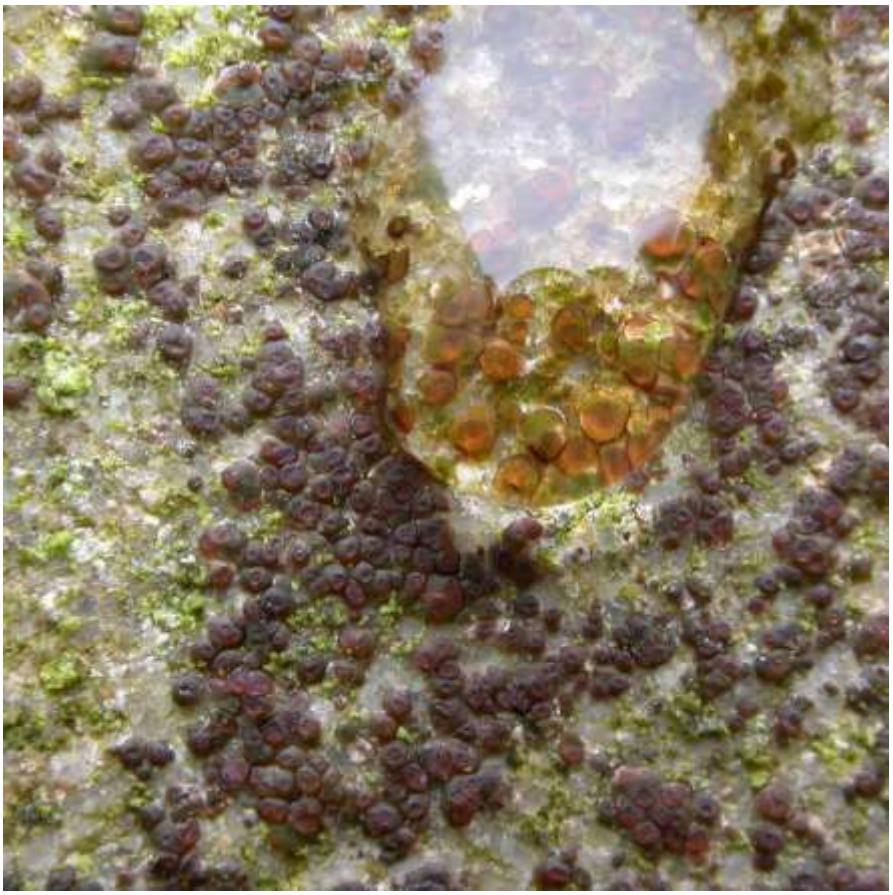

Fig. 1. *Myriospora rufescens*, a fortuitous rain drop showing the orange 'glow' when wet.

It is unfortunate that we do not have records of lichens in Hyde Park from the 1970s as they would undoubtedly have shown a dramatic paucity of species. Nevertheless, the changes continue, and now we have a reasonably thorough survey against which future changes can be compared.

The habitat which (to the author's surprise) proved particularly interesting was the flushed rain tracks of old *Platanus* trees, especially those in somewhat shaded situations. On veteran trees in unpolluted parts of Britain such rain tracks often contain specialist lichens of conservation importance. In urban sites such as Hyde Park the assumption is that rain tracks will contain just a few common species. The presence of *Bacidia phacodes* in this habitat was a surprise since most occurrences in the Home Counties are associated with sites of considerable ecological continuity. The record of *B. phacodes* at Hyde Park is the first recorded occurrence in VC 21 (Middlesex). *Strigula taylorii*, mentioned above, was also a feature of shaded *Platanus* bark, especially on bark plates which are somewhat softened by flushing or shading. When a minutely squamulose lichen was found in one of the rain tracks, fanciful thoughts turned to the slim possibility of *Agonimia flabelliformis* turning up in an urban setting. The specimen collected proved that this was a colony of *Bacidia neosquamulosa* with particularly well-developed micro-squamules.

The flushed bark of several *Platanus* trees have colonies of a sterile sorediate crust which is unfamiliar to the author. When studying it in the field, speculations of possible identities were *Bacidia caligans* or *Psoroglaena stigonemoides* but it didn't seem quite right for either of those. Microscopic examination showed that the photobiont is distinctive, dividing by binary fission, and probably *Chlorella*-type, ruling out *Bacidia* or *Psoroglaena*. A genus that has algal cells often occurring in pairs is *Micarea* but in that genus the hyphae tend to align distinctively along the plane of algal cell division. The three most common genera containing *Chlorella*-type algal cells are *Fuscidea, Trapelia* and *Trapeliopsis*. *Fuscidea lightfootii* sometimes forms sorediate patches on tree trunks but that species is UV+ white and the thallus contains crystals and does not have the yellowish tinge of the Hyde Park material. Most of the members of *Trapelia* and *Trapeliopsis* have a thallus which is C+ red, which the Hyde Park material does not. The C- members of those two genera are not a good fit for the Hyde Park material. An attempt was made to identify this lichen using the Sterile key in LGBI2, but no likely candidate was revealed, hence a short description is provided in Appendix A.

Lichenicolous fungi are fungi which grow in or on lichens. Many are host-specific and pathogenic, forming fungal infections of the host lichen. They represent a wealth of under-recorded diversity. *Arthonia parietinaria*, infecting *Xanthoria parietina* on the twigs of a walnut tree in Hyde Park was described as new to science as recently as 2016.

Caloplaca phlogina is present on a large *Populus* trunk at TQ2718.8076. This is the second record for VC 21. Fletcher & Laundon (2009) in *The Lichens of Great Britain and Ireland* state of *C. phlogina*: 'On *Ulmus* bark; rare, declining. Mid-Scotland, English Midlands (old records).' It is unlikely that *C. phlogina* was lost from the Midlands (or was absent from the Home Counties). Much more likely is that this lichen was formerly confused with members of the *Caloplaca citrina* aggregate and hence much under-recorded.

Fig. 2. *Platanus* tree at TQ2744.8050 with a shaded and slightly flushed side facing the camera. Species present include *Bacidia neosquamulosa*, *Strigula taylorii* and the unidentified sorediate crust containing *Chlorella*-type photobiont.

Compared with a site like Kew Gardens, Hyde Park has rather poor corticolous lichen communities. The most likely factors that make Kew Gardens more favourable are the more sheltered conditions with well-lit but not exposed trees and shrubs, the greater diversity of tree species at Kew and its situation further out (to the south-west) of the main conurbation.

Prunus trees at TQ2749.8051 support a range of lichen species not found on other tree species at Hyde Park. The hard, smooth bark of *Prunus* twigs and branches act as less of a ‘sponge’ and are less eutrophicated by nitrogen compounds in the atmosphere. The *Prunus* trees were the only trees on which *Fuscidea lightfootii*, *Lecanora barkmaniana* and *L. pulicaris* were found.

Fig. 3. *Prunus* trees at TQ2749.8051, their hard, smooth bark supporting several species of lichens not found elsewhere in Hyde Park.

Table 1: list of lichens and lichenicolous fungi recorded in Hyde Park
Column A gives the standard BLS number for each taxon.
Column B gives the name of each taxon recorded.
Column C indicates whether the taxon is a lichenicolous fungus (LF), a fungus recorded by lichenologists (F) or a lichen (0).
Column D gives the conservation designations as follows: LC = Least Concern, NE = Not Evaluated, NS = Nationally Scarce.
Column E gives the substratum upon which the taxon was growing: Cort = corticolous (growing on bark), Lic = lichenicolous, Lig = lignicolous (growing on decorticated wood), Sax = saxicolous (growing on stonework).

A	B	C	D	E	2018	2003-06
212	*Amandinea punctata*	0	LC	Cort	x	x
2683	*Arthonia parietinaria*	{LF}	NE NS	Lic	x	
1542	*Arthopyrenia punctiformis*	{F}	LC	Cort	x	
130	*Bacidia neosquamulosa*	0	LC NS	Cort	x	

2315	*Caloplaca flavocitrina*	0	LC	Sax	x	
2527	*Caloplaca holocarpa s. str.*	0	LC	Sax	x	
2461	*Caloplaca oasis*	0	LC	Sax	x	
2317	*Caloplaca phlogina*	0	NE ?NS	Cort	x	
289	*Candelaria concolor*	0	LC	Cort	x	
291	*Candelariella aurella f. aurella*	0	LC	Sax	x	
297	*Candelariella reflexa*	0	LC	Cort	x	
298	*Candelariella vitellina f. vitellina*	0	LC	Sax	x	
306	*Catillaria chalybeia var. chalybeia*	0	LC	Sax	x	
316	*Catillaria nigroclavata*	0	LC NS	Cort	x	
912	*Cyrtidula quercus*	{F}	LC	Cort	x	x
2166	*Didymocyrtis slaptoniensis*	{LF}	NE NR	Lic	x	
491	*Diploicia canescens*	0	LC	Cort	x	
2108	*Erythricium aurantiacum*	{LF}	LC	Lic	x	
1018	*Flavoparmelia soredians*	0	LC	Cort	x	
521	*Fuscidea lightfootii*	0	LC	Cort	x	
1704	*Halecania viridescens*	0	LC NS	Cort	x	
2240	*Heterocephalacria physciacearum*	{LF}	LC NS	Lic	x	
1125	*Hyperphyscia adglutinata*	0	LC	Cort	x	
582	*Hypogymnia physodes*	0	LC			x
583	*Hypogymnia tubulosa*	0	LC	Cort	x	
2577	*Hypotrachyna revoluta s. str.*	0	LC	Cort	x	
159	*Lecania naegelii*	0	LC	Cort	x	
1708	*Lecania rabenhorstii*	0	LC	Sax	x	
627	*Lecanora albescens*	0	LC	Sax	x	
2121	*Lecanora barkmaniana*	0	LC NS	Cort	x	
635	*Lecanora campestris subsp. campestris*	0	LC	Sax	x	
636	*Lecanora carpinea*	0	LC	Cort	x	
639	*Lecanora chlarotera*	0	LC	Cort	x	
646	*Lecanora dispersa*	0	LC	Sax	x	
649	*Lecanora expallens*	0	LC	Cort	x	
621	*Lecanora hagenii*	0	NE	Cort	x	
661	*Lecanora muralis*	0	LC	Sax	x	
667	*Lecanora polytropa*	0	LC	Sax	x	
672	*Lecanora pulicaris*	0	LC	Cort	x	
688	*Lecanora symmicta*	0	LC			x
724	*Lecidea fuscoatra s. lat.*	0		Sax	x	
796	*Lecidella carpathica*	0	LC	Sax	x	
797	*Lecidella elaeochroma f. elaeochroma*	0	LC	Cort	x	
802	*Lecidella scabra*	0	LC	Sax	x	
803	*Lecidella stigmatea*	0	LC	Sax	x	
1629	*Lepraria finkii*	0	LC	Cort	x	
1020	*Melanelixia subaurifera*	0	LC	Cort	x	x
993	*Melanohalea elegantula*	0	LC	Cort	x	
995	*Melanohalea exasperata*	0	LC	Cort	x	

21	*Myriospora rufescens*	0	LC	Sax	x	
953	*Opegrapha niveoatra*	0	LC	Cort	x	
1022	*Parmelia sulcata*	0	LC	Cort	x	x
1008	*Parmotrema perlatum*	0	LC	Sax	x	
1107	*Phaeophyscia orbicularis*	0	LC	Cort	x	x
1112	*Physcia adscendens*	0	LC	Cort	x	x
1114	*Physcia caesia*	0	LC	Sax	x	
1120	*Physcia tenella*	0	LC	Cort	x	x
1127	*Physconia grisea*	0	LC	Cort	x	
1690	*Porpidia soredizodes*	0	LC	Sax	x	
1989	*Punctelia jeckeri*	0	LC	Cort	x	
2070	*Punctelia subrudecta s. str.*	0	LC	Cort	x	
	Punctelia subrudecta s. lat.					x
1235	*Ramalina fastigiata*	0	LC	Cort	x	
1289	*Rinodina oleae*	0	LC	Sax	x	
1306	*Sarcogyne regularis*	0	LC	Sax	x	
1320	*Scoliciosporum chlorococcum*	0	LC	Cort	x	x
1378	*Strigula taylorii*	0	LC NS IR	Cort	x	
2242	*Taeniolella phaeophysciae*	{LF}	LC	Lic	x	
1431	*Trapelia coarctata*	0	LC	Sax	x	
1432	*Trapelia glebulosa*	0	LC	Sax	x	
1434	*Trapelia obtegens*	0	LC	Sax	x	
1595	*Trapelia placodioides*	0	LC	Sax	x	
2260	*Unguiculariopsis thallophila*	{LF}	LC NS	Cort	x	
1507	*Verrucaria muralis*	0	LC	Sax	x	
1511	*Verrucaria ochrostoma*	0	DD NR	Sax	x	
1526	*Xanthoria calcicola*	0	LC	Sax	x	
1530	*Xanthoria parietina*	0	LC	Cort	x	x
1531	*Xanthoria polycarpa*	0	LC	Lig	x	x

Appendix A: an unidentified sorediate crust

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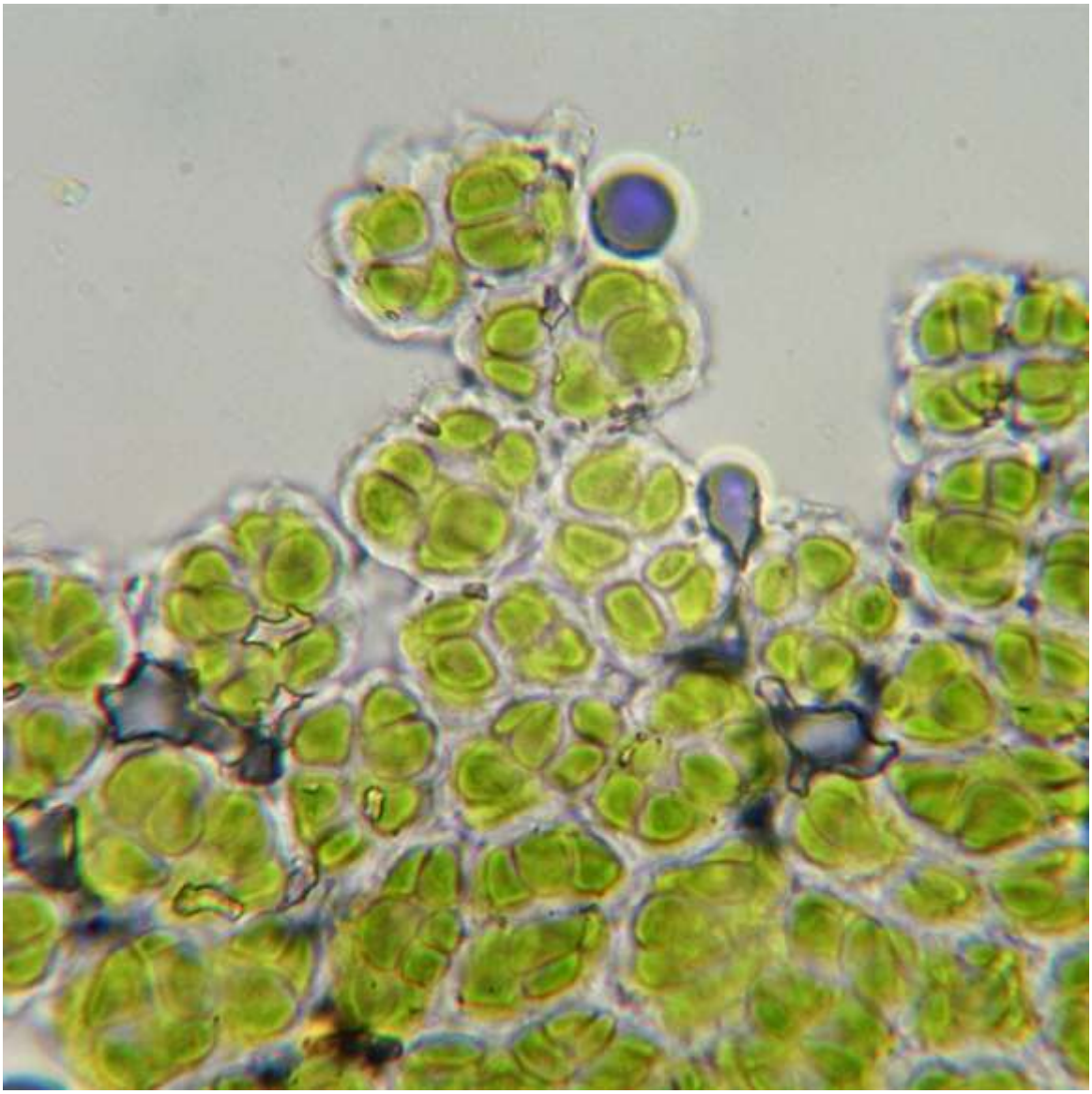
The flushed bark of several *Platanus* trees have colonies of a sterile sorediate crust which is unfamiliar to the author. When studying it in the field, speculations of possible identities were *Bacidia caligans* or *Psoroglaena stigonemoides* but it didn't seem quite right for either of those. Microscopic examination showed that the photobiont is distinctive, dividing by binary fission, and probably *Chlorella*-type, ruling out *Bacidia* or *Psoroglaena*. A genus that has algal cells often occurring in pairs is *Micarea* but in that genus the hyphae tend to align distinctively along the plane of algal cell division. The three most common genera containing *Chlorella*-type algal cells are *Fuscidea, Trapelia* and *Trapeliopsis*. *Fuscidea lightfootii* sometimes forms sorediate patches on tree trunks but that species is UV+ white and the thallus contains crystals and does not have the yellowish tinge of the Hyde Park material. Most of the members of *Trapelia* and *Trapeliopsis* have a thallus which is C+ red, which the Hyde Park material does not. The C- members of those two genera are not a good fit for the Hyde Park material. An attempt was made to identify this lichen using the Sterile key in LGBI2, but no likely candidate was revealed, hence a short description is provided in Appendix A.

Thallus non-corticate, consisting of goniocyst-like units approximately 30 µm diameter. The goniocysts in the lower parts of the thallus are green but form slightly raised portions where they are

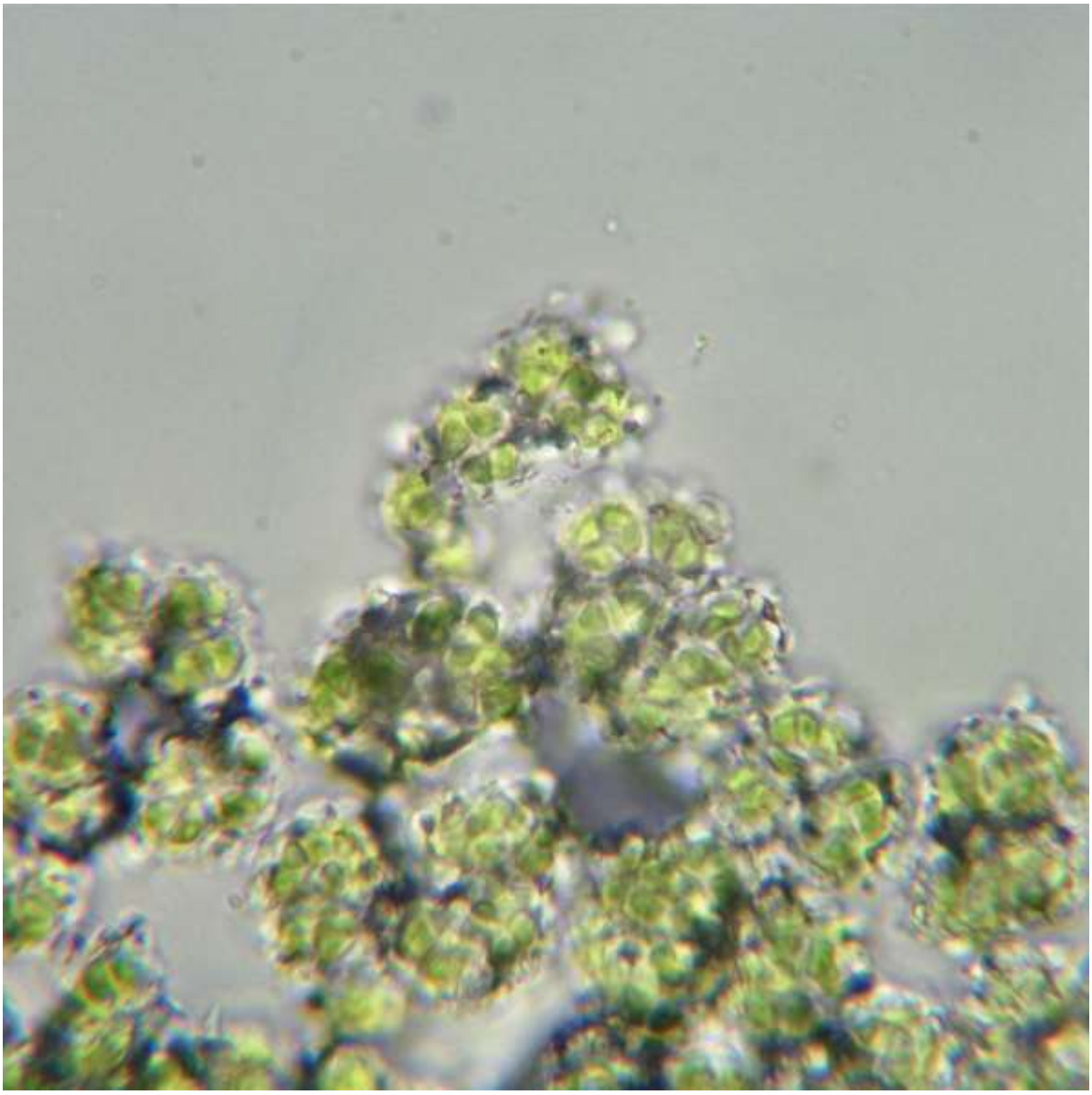
dividing rapidly and here they are a yellowish-green colour and very slightly smaller (25-30 µm). Look-alike species include *Bacidia caligans* (which has small flattened areoles of thallus and more demarcated soralia) and *Micarea prasina* agg. (which tends not to have a yellowish tinge).

A specimen of the unidentified Hyde Park material from the slightly flushed bark of a large *Platanus* trunk. Note that the thallus consists entirely of goniocyst-like units and form 'pseudo-soralia' where the more rapidly dividing portions become slightly raised and paler, with a slight yellowish tinge.

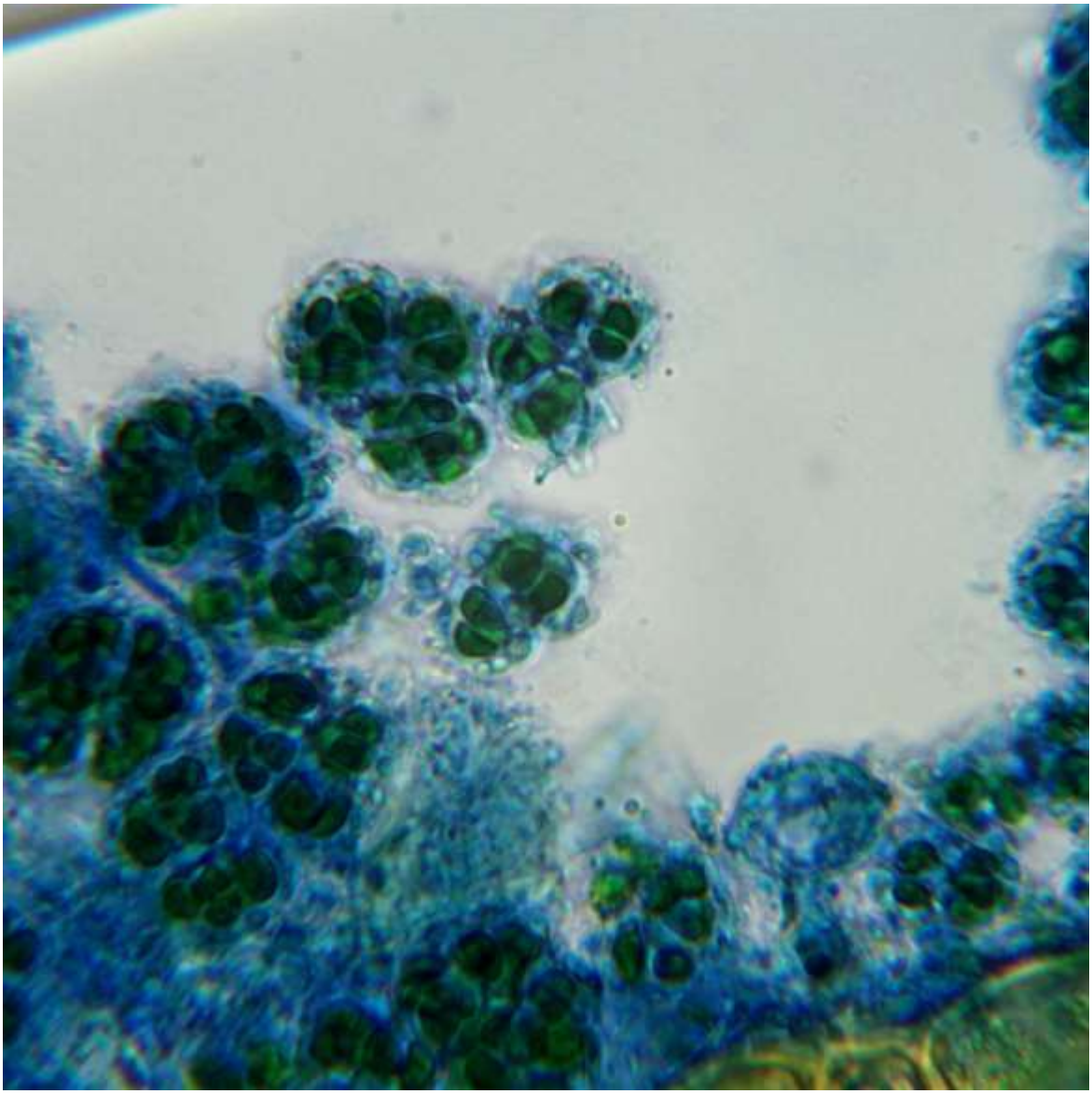
No pycnidia or apothecia were found. All chemical spot tests negative. All occurrences (half a dozen colonies) were found in a central part of Hyde Park growing on flushed bark of large *Platanus* trunks. Unless apothecia can be found, or this lichen is recognised by another lichenologist, perhaps molecular work would be required to discover its identity.



The unidentified Hyde Park sorediate lichen, micrograph showing the relatively large *Chlorella*-type photobiont cells from the lower goniocysts.



Micrograph of the rapidly dividing goniocysts from the upper paler part of a thallus. In these goniocysts the photobiont cells are smaller than those from goniocysts lower in the thallus (those shown in this micrograph being c. 6-8 µm diameter.



As previous image but after staining.

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