

## Annotated checklist of Hongkong Lichens

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**Abstract.** An annotated checklist of the lichens of Hong Kong, based on all available literature reports and specimens, including those recently collected by the authors, is presented. In total, 261 species are reported, of which 176 are new records for Hong Kong, 132 of which are new for China, 43 are new for East Asia, and 27 are new for Asia. The lichen vegetation is mainly tropical, as is shown by the distribution patterns of the identified species: 53 species are cosmopolitan, 40 northern temperate, 122 pantropical, 17 paleotropical and 29 endemic to tropical East Asia. With regard to substrata, 129 species are corticolous, 148 saxicolous, 17 foliicolous and 19 terricolous. Four species are newly described: *Anisomeridium conorostratum* Aptroot, *A. hydei* Aptroot, *Caloplaca pulicarioides* Aptroot and *Placidiopsis poronioides* Aptroot.

The flora is rather poor in species; for example, no Caliciales have been found. In the past, the numbers of species of several groups such as the Graphidaceae, *Heterodermia* and *Xanthoparmelia* have been overestimated, whereas few pyrenocarps have been reported. The flora of wet granitic outcrops is surprisingly well developed in Hong Kong. Although not a single *Peltula* species was reported before, six species were identified, including one that was previously only known from Africa. In addition, several other cyanophilic genera are present, such as *Euopsis*, *Psorotichia*, *Pyrenopsis* and, most unexpectedly, *Vestergrenopsis*, each with one species.

A comparison between old and recent records shows that many Lobarion species are now extinct. The drastic decline of species of the Lobarion vegetation indicates that air pollution and other habitat disturbances, mainly deforestation, to which these species are very sensitive, are seriously threatening the lichen biodiversity of Hong Kong.

## Introduction

The lichen flora of Hong Kong received scant attention in the 19th century with only a few records provided by the following collectors: E.M. Bodinier, P.J.M. Delavay, H.F. Hance, F. von Hochstetter, R. Rabenhorst, B.C. Seemann, H.R. Wawra von Fernsee and C. Wright. A small collection of Hong Kong lichens mounted on 14 sheets, in poor condition and as yet unidentified, is to be found in the Herbarium of the Hong Kong Government Offices (HK). This is comprised of 1 specimen collected by C.Ford (1844-1927) in 1882 and 13 specimens by S.T.Dunn (1868-1927) collected from various localities between 1903 and 1905.

No lichenologist has collected in Hong Kong until the 1960s, when Stella Thrower started working on its lichens, resulting in a preliminary lichen flora (Thrower 1988). In 1983, the second author (MRDS) commenced his studies on the lichen flora, the work intensifying in the 1990s due to collaborative investigations with F. Joanna Chu on coastal lichens, which culminated in a doctorate for the latter (Chu 1997). In June 1998, the first author (AA) collected over 700 specimens during a two-week stay in Hong Kong at the invitation of Dr K.D. Hyde.

Prior to 1998, only 89 species had been correctly reported in the literature, under the name accepted here or a synonym. This number includes several species of which no material has been seen by the authors, but four dubious records are excluded.

## Study area

Hong Kong, located at 22°9'- 22°37' N and 113°52'-114°30' E on the southern coast of mainland China, comprises the Kowloon Peninsula and New Territories on the mainland, Hong Kong island and many other islands. The total area is c. 1092 km<sup>2</sup> (Howlett 1996), with a coastline of c. 870 km (So 1985). The terrain is mountainous with little natural level ground. However, reclamation of land from the sea and the levelling of hills since the 18th century has significantly changed the natural landscape. The

vast increase in Hong Kong's population over recent decades has necessitated the infill of shallow bays and coves to create land for large housing estates and industrial areas. By 1994, the total reclaimed land was over 5000 ha and the population was six million. Since then, the population has risen still further and more land has been reclaimed for an airport, port development and a new town, with further reclamation programmes in progress or planned. In all cases, substantial lengths of natural rocky coastlines and their associated lichen floras have been lost. The artificial sea-walls created in their place have not proved favourable as habitats for maritime lichens, although some *Peltula* species are present.

Hong Kong has a subtropical monsoon climate, with warm rain-bearing south-easterlies in summer and cold north-easterlies in winter (Morton & Morton 1983; Morton & Harper 1995). The summer is hot and bright with c. 6-7 hours of sunshine per day and a mean monthly air temperature of c. 28°C; the hottest period is from June to September when the maximum air temperature reaches c. 36°C and rock surface temperatures can exceed 50°C (Williams 1994). About 80% of the annual rain falls during the summer, the wettest month being August with a rainfall of more than 390 mm; summer humidity varies between 78 and 82%. The highest monthly humidity levels of 83% are recorded in April and May. The prevailing wind turns from north-east to east in May, then to south-east (and even south-west) from June to September, and then back to east in October. The mean wind speed varies from 18.5 to 21.9 km/h during the summer, but tropical cyclones, with wind speeds in excess of 118 km/h, are frequent (Howlett 1996). The cold dry winter is dominated by the north-easterly monsoon. January and February are usually the coldest months with a mean temperature of c. 16°C, although minimum temperatures approaching zero have been recorded. The lowest average humidity level of 68% occurs in December, the driest month is January with a monthly rainfall average of little more than 20 mm, and March has the lowest daily mean of sunshine of only 3 hours. Although typhoons are uncommon in winter, the mean wind speed is higher than in summer, being c.

24 and 27 km/h in January and February respectively.

Hong Kong lies on the edge of the northern tropical zone as characterized by the few remaining patches of sclerophyllous forest, mainly composed of Fagaceae and Lauraceae trees, i.e. the oak-laurel forest (Hill *et al.* 1978). The vegetation of Hong Kong has been affected by human impact for about 6000 years, but more profoundly over the past 1000 years due to large-scale deforestation (felling and burning). The former evergreen broad-leaved rainforest trees and shoreline mangrove forests have for the most part disappeared. The fragile soils beneath the forests, which although giving the appearance of being deep and rich, are in fact poor in humus and often on steep hillsides, are frequently washed away by heavy summer rains or wind-eroded when exposed following forest removal. Replacement vegetation is restricted to grassland with a few associated shrubs which are often resistant to fire damage. The frequency of fire, the degree of shelter, availability of water and depth of soil in any area will determine how well scrub will grow (Hill *et al.* 1978); in time, if left undisturbed, such areas may be transformed into scrubland with a fairly continuous cover, and eventually restored to (sub-)tropical forest.

The majority of species which constitute the rather poor terricolous lichen flora of Hong Kong are to be found in these grasslands and scrublands. Scrubland in Hong Kong is either a transitory phase in the succession of denuded forest back into rain forest or forms a narrow altitudinal belt separating hilltop grassland from forest on the lower slopes. The largest and best developed forests of Hong Kong are now protected; these are essentially composed of planted trees around which natural forest has developed. Such habitats often contain some of Hong Kong's rarest lichens, but in forests with dense shade the lichen flora is much reduced. Due to extensive and wide-ranging agricultural practices it is often difficult to differentiate between native and naturalized species. Nevertheless, a wide variety of trees outside built-up areas collectively support a diverse epiphytic lichen flora, and reasonably diverse assemblages, including such species as *Lecanora*

*leprosa*, *Chrysothrix candelaris*, *Pyxine cocoës* and *Dirinaria picta*, are often to be found on tree trunks in suburban areas and occasionally in urban parks and gardens.

The geology of Hong Kong is variable, the types of rocks, their classification and genesis being described in detail by Atherton & Burnett (1986). Rocks undoubtedly provide important substrata for lichens, the different geological composition and microtopography dictating the assemblages. Of particular interest are the saxicolous assemblages of granitic boulders which occur from sea-level to hilly slopes at reasonably high altitudes. Even where there appears to be consistency, as in the case of siliceous rocks dominating the shorelines, wide variation in rock texture and chemistry significantly affects lichen species distribution (Chu 1997).

Although lichens show zonal patterns on some Hong Kong shores, a general picture of zonation similar to that found in temperate regions of the world cannot be delimited (Chu 1997). However, it would appear that cyanobacteria, which are an important component of intertidal biofilms on tropical rocky shores (Nagarkar & Williams 1997), have a greater potential to delimit local littoral zonation. Due to Hong Kong's geographical position, there is no regular tidal rhythm; although the mean tidal range is 1.5 m, the maximum tidal range of c. 2.8 m at the time of springs may be as little as 1.0 m at neap tides (Morton & Harper 1995). Furthermore, the tidal range is often overridden by wave heights, the action of which is determined by the direction and speed of the prevailing winds; naturally the predominating south-easterlies will subject facing shores to greater wave action and spring tidal heights can be elevated to as much as 6 m in winter (Morton & Harper 1995). The species composition, diversity and distribution of lichens according to the different maritime and geological factors operating on Hong Kong's shorelines have been extensively researched by Chu (1997). More often than not the lichen communities on the upper shore are dictated by terrestrial effects, the downwash of soil, water and chemicals (e.g. pig manure, domestic and industrial effluents) seasonally enhancing these

considerably.

Undoubtedly, the domination of more than 20% of Hong Kong's landscape by urban and industrial development will have had, and continues to have, a very considerable impact on the lichen flora. The replacement of natural substrata by building materials and the atmospherically polluted environment have dramatically reduced lichen diversity. To date, the lichens of man-made substrata in Hong Kong have received only limited attention and much work remains to be done on this aspect of its flora. The first results, presented below, show that some unexpected species are present, including several not previously known from Asia. A simple biomonitoring scale using a few (sub-)tropical epiphytic lichens has been developed by Thrower (1980); this was effectively employed to show how the distribution of these lichens was related to sites of power stations, a desalting plant and industrialized areas.

### Material and methods

This annotated checklist is based on all available collections and references in the literature. Collecting localities are given for all identified collections made by the authors. For all other identified collections seen, the collector, number and herbarium, and sometimes the collecting locality are given. This study contains references to all previous literature reports. All old records, based on material and/or published descriptions and illustrations, have been re-evaluated.

For some species, attempts have been made to isolate the mycobiont in pure culture. When this was successful, the strain has been given a CBS-collection number and will be preserved in the CBS culture collection.

All material collected by the authors is kept in their respective herbaria (ABL and MRDS), and some duplicates have been lodged in the mycological herbarium of the Department of Ecology and Biodiversity, University of Hong Kong - HKU(M). For other herbaria the official abbreviations are indicated, e.g. HK = Hong Kong Government Offices, Kowloon; CUHK = Chinese University of Hong Kong. In the

collecting localities, NT means New Territories.

### Results

As this treatment is based on all available collections and references in the literature, some preliminary statistics can be presented on the lichens of Hong Kong. All old records based on material and/or published descriptions and illustrations, have been re-evaluated. This work has shown that in the past too many species were distinguished and reported from Hong Kong for several groups, notably the Graphidaceae, *Heterodermia* and *Xanthoparmelia*, whereas far too few have been reported in other groups, especially the cyanophilic and pyrenocarpous genera.

During the two-week field trip by the first author, 218 species were collected and identified. Some material remains unidentified, e.g. various *Lecanora*, *Ocellularia* and *Porina* species and many sterile crusts. In total 261 lichens are now known from Hong Kong. The flora is not very rich, with often just one species of a certain genus present. Some groups are poorly represented or even absent, e.g. no Caliciales *s. lat.* were found at all. The actual number of species occurring in Hong Kong may well be below 400. This figure, which is very low compared to other (sub-)tropical regions, is probably mostly due to the anthropogenic disturbances in the area, including deforestation and air pollution.

Among the species, 176 are new records for Hong Kong, of which 132 are new to China, 43 are new for East Asia and 27 are new for Asia. This means a considerable range extension for many species most of which are northern temperate in distribution.

As Hong Kong is located close to the Tropic of Cancer, species with either (sub-)tropical or more temperate distribution can be expected. The types of distribution of the identified species are as follows: 53 species are cosmopolitan, 40 northern temperate, 122 pantropical, 17 paleotropical and 29 endemic to tropical East Asia or part thereof. This shows that the majority of the flora is (pan-)tropical.

An ecological subdivision shows the following pattern: 129 identified species were

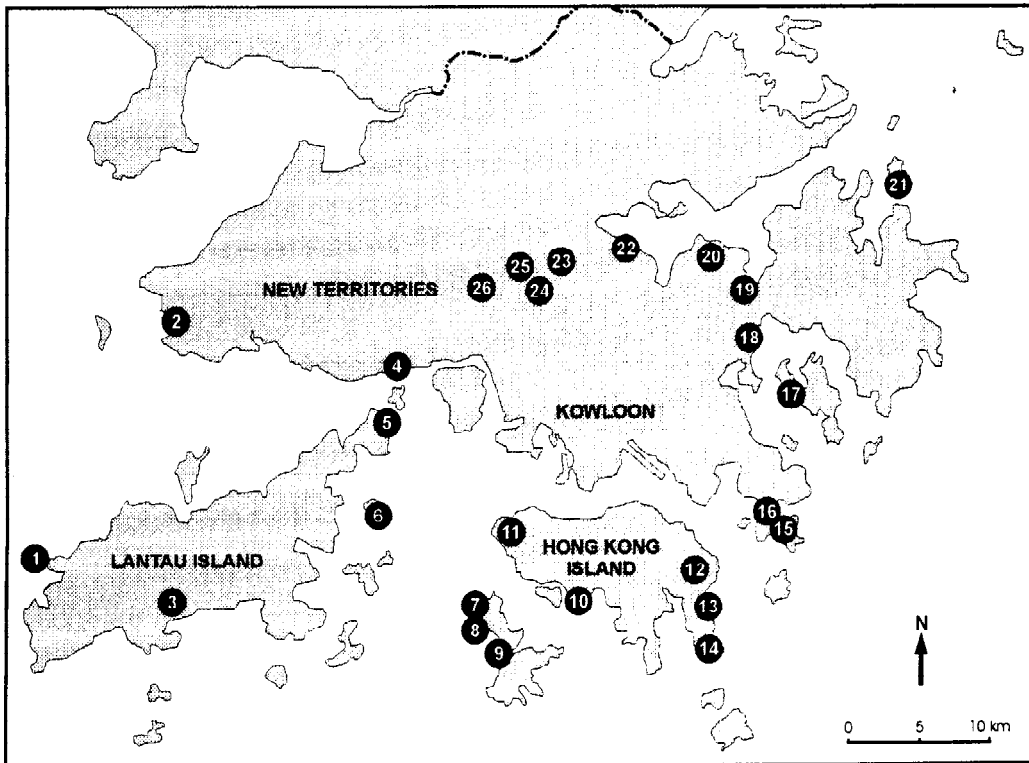


Fig. 1. Location of major survey sites, 1990-1998.

- 1 Tai O Beach, sea-level, weathered quartzitic coastal rocks
- 2 Lung Kwu Tan, sea-level, granitic coastal rocks
- 3 Tong Fuk, sea-level, volcanic coastal rocks
- 4-5 Ma Wan, sea-level, volcanic coastal rocks
- 6 Peng Chau, sea-level, granitic coastal rocks
- 7-9 Lamma Island, sea-level, granitic coastal rocks
- 10 Aberdeen, Ocean Park, *c.* 100 m, park
- 11 Pok Fu Lam, Lung Fu Shan, Sai Ko Chun, Victoria Peak & Gap, 0-500 m
- 12 Big Wave Bay, sea-level, volcanic coastal rocks
- 13 Shek O Beach, sea-level, granitic coastal rocks
- 14 Cape d'Aguilar, sea-level, volcanic coastal rocks
- 15 Shek Mai Tau, sea-level, granitic coastal rocks
- 16 Clearwater Bay, sea-level, granitic coastal rocks
- 17 Kiu Tau, sea-level, granitic coastal rocks
- 18 Sai Kung Country Park, entrance area, sea-level, park and mangrove
- 19 Sai Kung Country Park, Ngau Yee, Shek Shan, *c.* 200 m, mountain slope
- 20 Wu Kai Sha, sea-level, granitic coastal rocks
- 21 Grass Island, sea-level, granitic and volcanic coastal rocks
- 22 Tai Po Kau, *c.* 150 m, mountain forest
- 23 Tai Po Kau, Fire Lookout, *c.* 350 m, mountain peak
- 24 Shin Ming Reservoir, Bamboo Garden, *c.* 400 m, iron-rich boulders
- 25 Tai Mo Shan, *c.* 800 m, open mountain slope
- 26 Tai Mo Shan, *c.* 500 m, mountain forest

found to be corticolous, 148 saxicolous, 17 foliicolous and 19 terricolous; the total is higher than the number of species, since some species were found on different substrata.

The flora of wet granitic outcrops is surprisingly well developed in Hong Kong. Although not a single *Peltula* species was previously reported, six species were identified, including one known only from Africa. In addition, several other cyanophilic genera are present, such as *Euopsis*, *Psorotichia*, *Pyrenopsis* and, most unexpectedly, *Vestergrenopsis*, each with one species.

The figures show that only 37 of the previously known species were not recollected by the first author in 1998. An analysis of the respective species shows that this concerns mainly macrolichens characteristic of the Lobarion vegetation; for instance, no species of *Collema*, *Menegazzia*, *Physma*, *Pseudocyphellaria*, *Sticta* and *Usnea* were found. This cannot merely be due to chance, as these are conspicuous species, and many of the previous collecting localities have been re-investigated. The drastic decline of these species of the Lobarion vegetation indicates that air pollution, and other habitat disturbances, mainly deforestation, to which these species are very sensitive, is threatening the lichen biodiversity of Hong Kong. The source of noxious gases may very well be outside Hong Kong, in neighbouring regions of China, where industries are booming and no strict regulations regarding pollution exist.

### The species

#### ***Acarospora fuscata* (Schrader) Th. Fr.**

On granite in mountain area at 200 m. New to China; cosmopolitan.

Sai Kung Country Park, Shek Shan, NT, 1998, *Aptroot* 43511 & 43517.

#### ***Acarospora oligospora* (Nyl.) Arnold**

On granite in coastal and mountain areas, also along streams. New to East Asia; northern temperate.

Shek Mai Tau, NT, 1998, *Aptroot* 43462; Lung Fu Shan, 1998, *Aptroot* 43083; Pok Fu Lam

Reservoir, 1998, *Aptroot* 43705; Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108746 & HKU(M) 10426), 1994, *Chu* (MRDS 106722); also Kiu Tau, Grass Island, Cape d'Aguilar & Clearwater Bay (*Chu* 1997: 48).

#### ***Acarospora smaragdula* (Wahlenb.) Massal.**

On granite and brick in coastal and mountain areas, also along streams. New to Hong Kong; cosmopolitan.

Clearwater Bay, NT, 1998, *Aptroot* 43434; Lung Fu Shan, 1998, *Aptroot* 43117, 43147 & 43413A; Tai Po Kau, NT, 1998, *Aptroot* 43210; Kai Kung Shan, 1975, *Thrower* 2406 (CUHK).

#### ***Agonimia pacifica* (Harada) Diederich**

On shaded, weathered granite in coastal area. New to Hong Kong; known from tropical East Asia, but recent as yet unpublished records show a pantropical distribution.

Clearwater Bay, NT, 1998, *Aptroot* 43448.

#### ***Anisomeridium anislobum* (Müll. Arg.) Aptroot**

On shaded trees, but also on shaded rock, especially in forests. A pantropical species that has not previously been recorded from rock.

Lung Fu Shan, 1998, *Aptroot* 43049 & 43090; Pok Fu Lam, University Campus, 1998, *Aptroot* 43024 & 43032; Pok Fu Lam Reservoir, 1998, *Aptroot* 43696; *Thrower* (1988: 15, under its synonym *Anisomeridium feeanum* (Müll. Arg.) R.C. Harris).

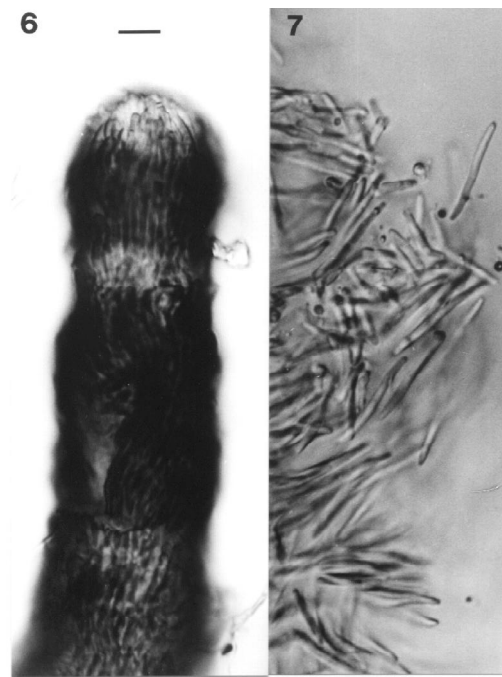
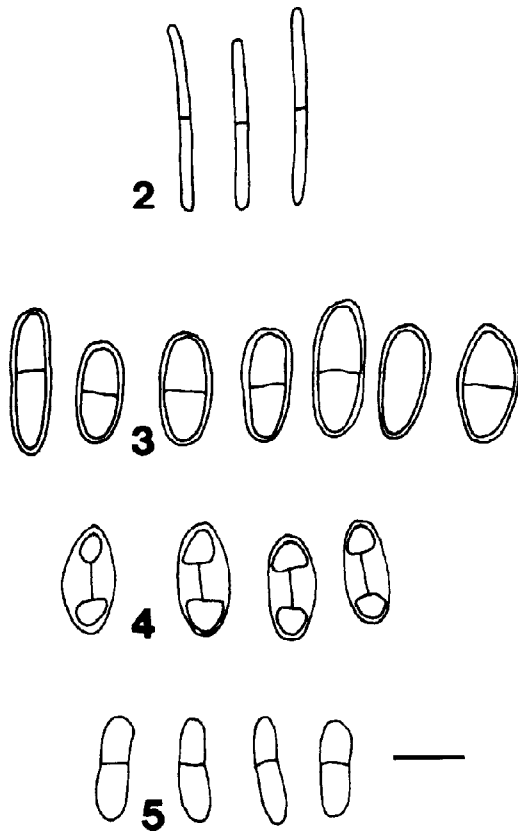
#### ***Anisomeridium conorostratum* Aptroot sp. nov.**

*Anisomeridium macropycnidiis rostratis, rostro capillaceo, macroconidiis linearibus, uniseptatis, 20–25 × 1–1.5 μm.*

Typus: Hong Kong, Hong Kong Island, Lung Fu Shan, mountain slope, 200 m alt., June 1998, *Aptroot* 43116 (HKU(M)—holotypus, ABL—isotypus).

(Figs 2, 6, 7)

Thallus epilithic, c. 1–2 cm diam., metallic grey, shiny or partly dull, not corticate, thin but continuous, without a conspicuous hypothallus, but often bleached near the margins.



Figs 6-7. *Anisomeridium conorostratum*. Fig. 6. Ostiole of conidioma. Fig. 7. Conidia. All after holotype. Bar = 10  $\mu$ m.

Figs 2-5. Ascospores and conidia. Fig. 2. Conidia of *Anisomeridium conorostratum*. Fig. 3. Ascospores of *Anisomeridium hydei*. Fig. 4. Ascospores of *Caloplaca pulicarioides*. Fig. 5. Ascospores of *Placidiopsis poronioides*. All from holotypes. Bar = 10  $\mu$ m.

Algae trentepohlioid. Macropycnidia conical, black, c. 0.1–0.2 mm diam., superficial, but the sides immersed in the thallus. Ostiole rostrate; rostrum regularly tapering, black, c. 0.2–0.4 mm long, c. 60–80  $\mu$ m wide at the base, c. 30–35  $\mu$ m wide at the tip. Tip hyaline over c. 10  $\mu$ m. Wall of the rostrum prosoplectenchymatous, consisting of elongated, straight or somewhat wavy cells, lumina clear, but cell walls darkly pigmented, cells c. 8–12  $\times$  1.5–2.5  $\mu$ m. Macroconidia hyaline, linear, straight or a bit wavy, one-septate, not constricted near the septum, 20–25  $\times$  1–1.5  $\mu$ m. Ascomata not

observed. No secondary substances detected.

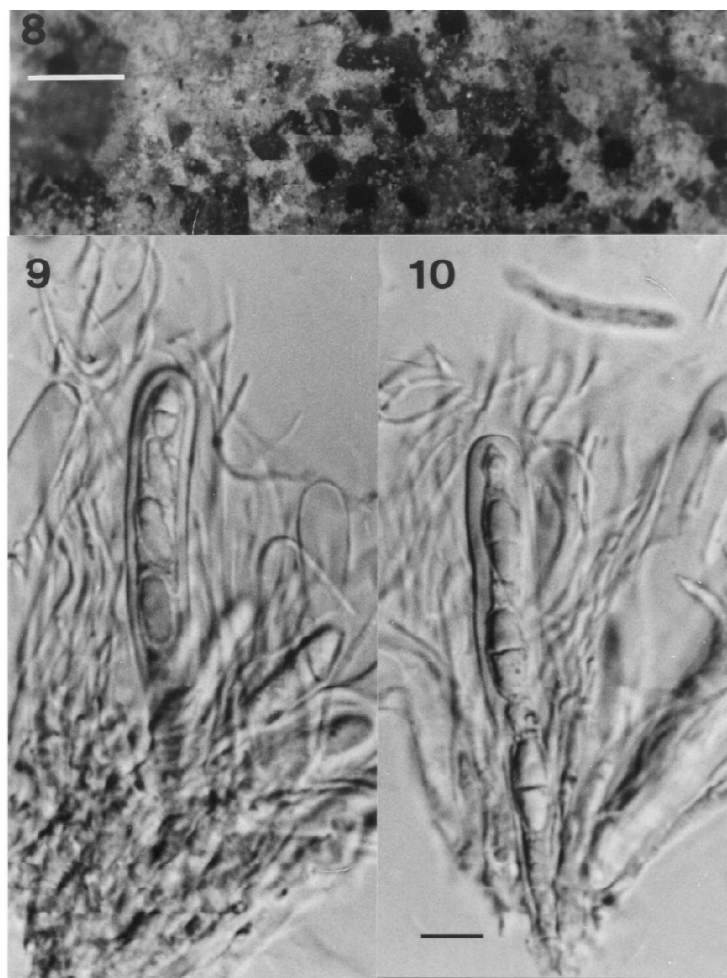
On exposed granite along mountain stream.

This species differs from all previously known species of *Anisomeridium* by the longer, one-septate macroconidia. Only two species of *Anisomeridium*, viz. *A. polypori* and *A. throwerae*, are so far described with rostrate pycnidia and, surprisingly, both are known from Hong Kong. Both have smaller, a-septate, macroconidia; in *A. throwerae* they are up to 20  $\mu$ m; in *A. polypori* (= *A. nyssaegenum*) they are up to 5  $\mu$ m.

#### ***Anisomeridium consobrinum* (Nyl.) Aptroot**

On shaded trees, e.g. *Liquidambar*, mostly in forests. New to China; known from tropical Asia and Oceania.

Tai Po Kau, NT, 1998, *Aptroot* 43255 & 43280; living culture CBS 101364.



Figs 8-10. *Anisomeridium hydei*. Fig. 8. Thallus with ascomata. Figs 9-10. Asci with ascospores and hamathecium. All after holotype. Bar = 1 mm in fig. 8; bar = 10  $\mu\text{m}$  in figs 9-10.

***Anisomeridium hydei* Aptroot sp. nov.**

*Anisomeridium ascis cylindricis, ascosporis ellipsoideis, simplicibus vel medio uniseptatis, crassitunicatis, 10–20  $\times$  4–6  $\mu\text{m}$ .*

Typus: Hong Kong, Hong Kong Island, Pok Fu Lam, University Campus, 150 m alt., June 1998, Aptroot 43026 (HKU(M)—holotypus, ABL—isotypus).

(Figs 3, 8-10)

Thallus epilithic, covering areas of up to 8 cm diam., metallic grey, dull, not corticate, thin but continuous, without a conspicuous hypothallus. Algae trentepohlioid. Ascomata hemispherical, black, 0.2–0.5 mm diam., superficial, but the sides immersed in the thallus. Ascomatal wall densely carbonized on all sides, c. 50–80  $\mu\text{m}$  thick. Ostiole apical, depressed,

whitish or black, c. 50–80  $\mu\text{m}$  diam. Asci cylindrical, 8-spored, 60–80  $\times$  10–13  $\mu\text{m}$ . Hamathecium consisting of less than 1  $\mu\text{m}$  wide filaments, anastomosing above the asci. Ascospores uniseriate, ellipsoid, hyaline, simple or with one median or slightly sub- or supra-median septum, not constricted at the septum, very variable in length, even within one ascoma, 10–20  $\times$  4–6  $\mu\text{m}$ , wall c. 0.5  $\mu\text{m}$  thick, smooth. Pycnidia black, superficial, c. 0.1 mm diam., without conidia. No secondary substances detected.

On shaded concrete in park-like area.

This species differs from all previously known species of *Anisomeridium* in the partly non-septate ascospores reminiscent of *Monoblastia* species. It is quite unexpected to find a species new to science on concrete on a



university campus, where it was found close to the HKU(M) herbarium. The species is named in honour of the prolific ascomycete taxonomist Dr Kevin D. Hyde.

**Anisomeridium polypori (Ellis & Everh.) M.E. Barr**

On trees, but also on shaded rock, mostly in park-like areas. New to East Asia; cosmopolitan.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43016; Lung Fu Shan, 1998, *Aptroot* 43054 & 43100.

**Anisomeridium subnexum (Nyl.) R.C. Harris**

On shaded trees and branches, mostly in forests. New to China; known from tropical Asia and Oceania.

Tai Po Kau, NT, 1998, *Aptroot* 43243, 43240, 43312 & 43366; Victoria Peak Gap, 1998, *Aptroot* 43667; Victoria Peak, 1998, *Aptroot* 43613; on *Clerodendron inerme*, Kau Sai Chau, NT, 1975, *Thrower* 2305 (CUHK & HK); on *Cratogeomys ligustrinum*, Chek Keng-Wu Kau Tang, NT, 1976, *Thrower* 2478 (HK); on *Eurya japonica*, Fei Ngo, Shan, NT, 1980, *Thrower* 3485 (CUHK); on *Altingia chinensis*, Tai Shui Hang, NT, 1980, *Thrower* 3190 (CUHK); *Thrower* (1988: 15 & 57, wrongly identified as *Arthopyrenia annulata* R.C. Harris *ined.*, an undescribed species mainly differing by the non-anastomosing pseudoparaphyses and the flatter, often ringed, ascomata).

**Anisomeridium tamarindi (Fée) R.C. Harris**

On shaded trees in forest. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43259.

**Anisomeridium terminatum (Nyl.) R.C. Harris**

On shaded trees in forest. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43264.

**Anisomeridium throwerae R.C. Harris**

On shaded trees in forest. Described, and so far only known, from Hong Kong.

Cheung Uk, NT, 1977, *Thrower* 2900 (NY); Harris (1995: 150).

**Arthonia cf. astropica Krempelh.**

On exposed trees. The identity of the present material with this species restricted to tropical Asia remains uncertain.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43019; Aberdeen, Ocean Park, 1998, *Aptroot* 43707; Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109087); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1416 (HK); on *Macaranga tanarius*, Kei Ling Ha Hoi, NT, 1984, *Thrower* 3728 (HK); on *Sapium discolor*, Sai O Beach, NT, 1973, *Thrower* 1600 (HK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2273 (CUHK); Grassy Hill, NT, 1976, *Thrower* 2799 (CUHK); on *Strychnos umbellata*, South Lamma Island, 1978, *Thrower* 3112 (CUHK); *Thrower* (1988: 15 & 51); on *Celtis sinensis*, Cape d'Aguilar, 1974, *Thrower* 2137 (HK); *Thrower* (1988: 15 & 56, wrongly identified as *Arthonia cf. schoepfiae* Zahlbr.; the illustration and description show no major differences with the other material cited here).

**Arthonia cinnabarina (DC.) Wallr.**

On exposed base of *Phoenix* palm. New to Hong Kong; pantropical to nearly cosmopolitan.

Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109086).

**Arthonia cf. leioplacella Zahlbr.**

On exposed trees, especially branches. The identity of the present material with this species restricted to tropical Asia remains uncertain.

Shek O Beach, 1998, *Aptroot* 43180; on *Acacia confusa*, Soko Island, 1975, *Thrower* 2216 (HK); *Thrower* (1988: 15 & 54).

**Arthonia cf. lopingensis Zahlbr.**

On exposed trees, especially branches. The identity of the present material with this species restricted to tropical Asia remains uncertain.

Shek O Beach, 1998, *Aptroot* 43176; Lung Fu Shan, 1998, *Aptroot* 43139; Sai Ko Chun, 1998, *Aptroot* 43655; Sai Kung Country Park, Shek Shan, NT, 1998, *Aptroot* 43516; Wu Kai Sha, NT, 1973, *Thrower* 1619 (HK); on *Ficus*

*hispidia*, Hok Tsui Wan, Cape d'Aguilar, 1974, *Thrower* 2139 (HK); Soko Island, 1975, *Thrower* 2236 (HK); Thrower (1988: 15 & 55); on *Macaranga tanarius*, Sai Kung, 1983, *Thrower* 3700 (HK); on *Macaranga tanarius*, Kei Ling Ha Hoi, NT, 1984, *Thrower* 3715 (CUHK); Thrower (1988: 15 & 49, wrongly identified as *Arthonia cf. albofuscescens* Tuck.; the illustration and description show no major differences with the other material cited here); Thrower (1988: 15 & 50, wrongly identified as *Arthonia cf. antillarum* (Fée) Nyl., which differs, e.g. by yellowish ascomata; the illustration and description show no major differences with the other material cited here).

**Arthonia spadicea Leighton**

On shaded trees in forests. New to China; probably cosmopolitan, at least widely distributed in warm temperate areas of both hemispheres.

Lung Fu Shan, 1998, *Aptroot* 43037, 43056 & 43057; Victoria Peak Gap, 1998, *Aptroot* 43679; Tai Po Kau, NT, 1998, *Aptroot* 43263; Shin Ming Reservoir, NT, 1998, *Aptroot* 43403; on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2269 (HK); on *Acacia confusa*, Keung Shan, Lantau, 1982, *Thrower* 3488 (HK); Thrower (1988: 15 & 52, wrongly identified as *Arthonia complanata* Fée, which differs, e.g. by the truly black (not dark reddish brown) ascomata).

**Arthonia trilocularis Müll. Arg.**

On living leaves of ferns, *Pandanus* and trees in forests. New to China; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43034 & 43035; Tai Po Kau, NT, 1998, *Aptroot* 43324, 43331 & 43383; living culture CBS 101371.

**Aspicilia caesiocinerea (Nyl. ex Malbr.) Arnold**

On exposed granite, especially in coastal areas, but found up to 800 m alt. New to Hong Kong; cosmopolitan.

Sai Ko Chun, 1998, *Aptroot* 43650; Lung Fu Shan, 1998, *Aptroot* 43165; Shek O Beach, 1998, *Aptroot* 43201 & 43202; Tai Mo Shan, NT, 1998, *Aptroot* 43570; Shek Mai Tau, NT, 1998, *Aptroot* 43482; Clearwater Bay, NT, 1998, *Aptroot* 43439; Tai Po Kau, NT, 1998, *Aptroot*

43234; Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108827); Clearwater Bay, NT, 1994, *Chu* (HKU(M) 10427); Wu Kai Sha, NT, 1972, *Thrower* 1402 (HK); Tsing Yi Island, 1974, *Thrower* 1990 (HK); Ma Shi Chau, NT, 1979, *Thrower* 3219 (CUHK); South Ninepin Island, 1980, *Thrower* 3282 (CUHK); Needle Hill, NT, 1980, *Thrower* 3267 (CUHK); Tai Mo Shan, NT, 1980, *Thrower* 3309 (CUHK); Thrower (1988: 15 & 58, wrongly identified as *Aspicilia cf. cinerea* (L.) Körber, which differs, e.g., by the KOH+red reaction of the thallus); also Lung Kwa Tan, Ma Wan, Kiu Tau, Grass Island, Tong Fuk & Cape d'Aguilar (*Chu* 1997: 48, as *Aspicilia cf. cinerea*).

**Astrothelium cinnamomeum (Eschw.) Müll. Arg.**

On tree in forest. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43277.

**Bacidia arnoldiana Körber**

On trees, but also on granite and concrete in shaded forests and parks. New to China; known from Europe, Asia and North America.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43017; Victoria Peak, 1998, *Aptroot* 43642; Tai Mo Shan, NT, 1998, *Aptroot* 43599; living culture CBS 101361.

**Bacidia delicata (Larbal. ex Leighton) Coppins**

On trees, but also on granite in shaded forests and parks. New to Asia; known from Europe, but probably also occurring elsewhere.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43692; Lung Fu Shan, 1998, *Aptroot* 43124, 43135 & 43136; Tai Mo Shan, NT, 1998, *Aptroot* 43592.

**Bacidia medialis (Tuck. ex Nyl.) B. de Lesd.**

On trees, but also on rock in shaded forests and parks. Pantropical.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43025; Pok Fu Lam Reservoir, 1998, *Aptroot* 43691 & 43697; Lung Fu Shan, 1998, *Aptroot* 43050, 43088, 43112 & 43113; living culture CBS 101492; Tai Po Kau, NT, 1998, *Aptroot* 43302; Wu Kai Sha, NT, 1972, *Thrower*

1441 (HK); Soko Island (North), 1975, *Thrower* 2235 (HK); *Thrower* (1988: 15 & 61).

**Bacidia triseptata (Hepp in Zollinger) Zahlbr.**

On soil of roadbanks, but also on rock. New to China; only known from tropical Asia and Australia, where it is widespread and rather common.

Victoria Peak, 1998, *Aptroot* 43627; Lung Fu Shan, 1998, *Aptroot* 43418; Clearwater Bay, NT, 1995, *Chu* (MRDS 108861); on path, Tai Au Wan & Tai Wan Tau, NT, 1971, *Thrower* 1264 (HK & CUHK); on soil, roadside bank, Mai Po, 1974, *Thrower* 2118 (HK & CUHK); *Thrower* (1988: 15 & 60, under its possible synonym *Bacidia* cf. *hunana* Zahlbr.).

**Baeomyces rufus (Hudson) Rebent.**

On exposed rock in forest area. New to Hong Kong; probably cosmopolitan.

Tai Po Kau, NT, 1998, *Aptroot* 43230.

**Bellemerea cinereorufescens (Ach.) Clauzade & Roux**

On exposed rock in mountain area at 800 m alt. New to Hong Kong; northern temperate.

Tai Mo Shan, NT, 1998, *Aptroot* 43572.

**Buellia efflorescens Müll. Arg.**

On exposed coastal trees; in Hong Kong e.g. found on *Araucaria* and *Casuarina*. New to China; pantropical.

Aberdeen, Ocean Park, 1998, *Aptroot* 43711 & 43712; Wu Kai Sha, NT, 1983, *Seaward* & *Thrower* (MRDS 105897).

**Buellia lauricassiae (Fée) Müll. Arg.**

On exposed coastal trees; in Hong Kong e.g. found on *Kandelia* and *Sapium discolor*. New to Hong Kong; pantropical.

Sai Kung Country Park, NT, 1998, *Aptroot* 43506 & 43529; on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1459 (HK); on *Sapium discolor*, Sai O Beach, NT, 1973, *Thrower* (MRDS 107611); Cheung Uk, NT, 1978, *Thrower* 2949 (HK); also *Thrower* (1988: 15, wrongly identified as *Buellia disciformis* var. *triphragma* Boistel, which is a temperate taxon).

**Buellia sequax (Nyl.) Zahlbr.**

On coastal granite rocks. New to Asia; so far known from Europe and adjacent Africa.

Shek O Beach, 1998, *Aptroot* 43186; Cape d'Aguilar, 1990, *Seaward*; Big Wave Bay, 1994, *Seaward* & *Chu* (MRDS 108742, 108756 & HKU(M) 10431).

**Buellia spuria (Schaerer) Anzi**

On exposed, inland granite rocks. New to Asia; so far known from North America, Australia, Europe and adjacent Africa, so apparently cosmopolitan.

Mount Davis, 1998, *Aptroot* 43551; Lung Fu Shan, 1998, *Aptroot* 43097 & 43410; Tai Po Kau, NT, 1998, *Aptroot* 43216; Wu Kwai Sha, NT, 1972, *Thrower* 1407 (CUHK); Cape d'Aguilar, 1974, *Thrower* 2176 (CUHK); *Thrower* (1988: 15, as *Buellia* cf. *spuria*-group).

**Buellia stellulata (Taylor) Mudd**

On exposed, inland granite rocks. New to China; so far known from Asia, Australia, North America, Europe and adjacent Africa, so apparently cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43149; Clearwater Bay, NT, 1993, *Seaward* & *Chu* (MRDS 108829); Big Wave Bay, 1994, *Chu* (MRDS 108760); *Thrower* (1988: 15, as *Buellia* cf. *stellulata*-group).

**Buellia subdisciformis (Leighton) Vainio**

On coastal and inland granite rocks and tombstones. Northern temperate.

Shek O Beach, 1998, *Aptroot* 43143 & 43209; Pok Fu Lam Reservoir, 1998, *Aptroot* 43703; Lung Fu Shan, 1998, *Aptroot* 43155; Clearwater Bay, NT, 1998, *Aptroot* 43435 & 43444; Shek Mai Tau, NT, 1998, *Aptroot* 43463; Cape d'Aguilar, 1990, *Seaward* (MRDS 108664); Big Wave Bay, 1994, *Chu* (ABL & HKU(M) 10430); Lamma Island, 1994, *Chu* (MRDS 108690 & HKU(M) 10435); Clearwater Bay, NT, 1993, *Seaward* & *Chu* (MRDS 108662, 108700), 1994, *Chu* (HKU(M) 10429); Lung Kwu Tan, 1994, *Chu* (MRDS 108839 with *Buellia* cf. *testacea*); Stanley, 1994, *Chu* (HKU(M) 10432); Ma Wan, 1995, *Chu* (HKU(M) 10428); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108860 with *Pertusaria flavicans*);

Wu Kai Sha, NT, 1993, *Seaward & Chu* (MRDS 108870 with *Caloplaca holochracea*), 1972, *Thrower* 1407 (CUHK) & 1408 (HK, CUHK); also: *Thrower* 1453, 2115, 2149, 2636 (HK) & 1454, 1988, 2090, 2094, 2176, 2177, 2228, 2311, 2315, 2343, 2402, 2404, 2489, 2764, 3050, 3060, 3135, 3215, 3233, 3277, 3279, 3428, 3472, 3505, 3506, 3517, 3518 (CUHK); *Thrower* (1988: 15 & 65); also Peng Chau, Kiu Tau, Tong Fuk & Grass Island (Chu 1997: 48).

**Buellia cf. testacea Müll. Arg.**

On coastal and inland granite rocks. So far known from South America. The identity of this species remains uncertain.

Shek O Beach, 1998, *Aptroot* 43185 & 43208; Lung Fu Shan, 1998, *Aptroot* 43098 & 43154; Clearwater Bay, NT, 1998, *Aptroot* 43443; Shek Mai Tau, NT, 1998, *Aptroot* 43471; Tai Mo Shan, NT, 1998, *Aptroot* 43571; Cape d'Aguilar, 1990, *Seaward* (MRDS 108836); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108673, HKU(M) 10433); Big Wave Bay, 1994, *Chu* (MRDS 108760 with *Buellia stellulata*); Lamma Island, 1994, *Chu* (MRDS 108838); Lung Kwu Tan, NT, 1994, *Chu* (MRDS 108839); Wu Kai Sha, NT, 1994, *Seaward & Chu* (MRDS 108691), 1994, *Chu* (ABL & HKU(M) 10434); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108860 with *Pertusaria flavicans*); also Ma Wan, Peng Chau, Kiu Tau, Tong Fuk & Grass Island (Chu 1997: 48 as *Buellia cf. subdisciformis* 2).

**Bulbothrix isidiza (Nyl.) Hale**

On trees & shrubs, but also on painted granite pole, in upland areas. Pantropical.

Tai Mo Shan, NT, 1998, *Aptroot* 43577, 43578 & 43587; Black's Link, Mount Nicholson, 1966, *Thrower* 1193 (HK); on *Schefflera octophylla*, Tai Po Kau, NT, 1974, *Thrower* 1876 (HK); Luggard Road, 1976, *Thrower* 2457 (HK); on *Euonymus chinensis*, Tai Mo Shan, NT, 1976, *Thrower* 2545 (CUHK, HK, MRDS 107567); Ngong Ping Shan, NT, 1978, *Thrower* 3123 (CUHK); on *Viburnum odoratissimum*, Ma On Shan, NT, 1980, *Thrower* 3244 (HK); also: *Thrower* 1876, 2457 (HK) & 2551, 2559, 2564 & 2569 (CUHK); Tchou (1935, wrongly identified as *Parmelina quercina* (Willd.) Hale),

which is a temperate taxon; *Thrower* (1988: 15 & 67).

**Byssolecania deplanata (Müll. Arg.) R. Sant.**

On living leaves of *Pandanus* and trees in forests. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43374 & 43384.

**Calopadia puiggarii (Müll. Arg.) V3zda**

On living leaves of trees in forests. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43353 & 43386; living culture CBS 101254.

**Caloplaca conversa (Krempelh.) Jatta**

On granitic coastal rocks. New to China; northern temperate.

Pok Fu Lam, 1998, *Aptroot* 43006 & 43009; Shek O Beach, 1998, *Aptroot* 43206; Big Wave Bay, 1994, *Seaward & Chu* (MRDS 107277, 108767, 108853 & HKU(M) 10442); Shek O Beach, 1971, *Thrower* 1297 (HK); Cape d'Aguilar, 1990, *Seaward* (MRDS 108669), 1994, *Chu* (HKU(M) 10443), 1974, *Thrower* 2151 (HK); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 107281 & HKU(M) 10436), 1994, *Chu* (MRDS 108710); Pearl Island, 1993, *Chu* (HKU(M) 10439); Lamma Island, 1994, *Chu* (HKU(M) 10441); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108671, HKU(M) 10440); Cafeteria Beach, 1994, *Chu* (MRDS 107274, HKU(M) 10437); Shek O Beach, 1994, *Chu* (MRDS 107278, 107279, 107280, 108703 & HKU(M) 10438); Lung Kwu Beach, NT, 1994, *Chu* (MRDS 107275); Cape d'Aguilar, 1974, *Thrower* 2150 (HK); Soko Island, 1975, *Thrower* 2231 (CUHK); Kau Sai Chau, 1975, *Thrower* 2304 (CUHK); Lai Chi Wo, NT, 1975, *Thrower* 2310 (CUHK); Bluff Island, 1980, *Thrower* 3328 (CUHK); also: *Thrower* 2151, 3507, 3510 (CUHK); *Thrower* (1988: 15 & 64, wrongly identified as *Blastenia handelii* Zahlbr. p.p., left hand photo only); also Ma Wan, Wu Kai Sha, Lung Kwu Tan, Peng Chau & Grass Island (Chu 1997: 48 as *Caloplaca conversa* and *C. carneofusca*).

**Caloplaca flavovirescens (Wulfen) Dalla Torre & Sarnth.**

On granitic coastal and inland rock and concrete. Northern temperate. The material is extremely variable and may represent two different taxa: one from concrete with an areolate thallus and one from coastal and inland granitic rock with a smooth thallus.

Lung Fu Shan, 1998, *Aptroot* 43416; Victoria Peak, 1998, *Aptroot* 43634; Victoria Peak Gap, 1998, *Aptroot* 43674; Shek Mai Tau, NT, 1998, *Aptroot* 43474; Clearwater Bay, NT, 1998, *Aptroot* 43433; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108674, 108701); Kiu Tau, Sharp Island, 1995, *Chu* (HKU(M) 10444); Shek O Beach, 1971, *Thrower* 1296 (HK); Cape d'Aguilar, 1974, *Thrower* 2146 (HK & CUHK); Soko Island, 1975, *Thrower* 2224 (CUHK); Bluff Island, 1976, *Thrower* 2645 (HK & CUHK), 1980, *Thrower* 3323 (CUHK); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108663); Sai Wan, NT, 1978, *Thrower* 2925 (CUHK); also: *Thrower* 2017 (CUHK); *Thrower* (1988: 15 & 70); erroneously reported by Rabenhorst 1873: 287 (as its synonym *Calloplisma aurantiacum* var. *flavovirescens* (Wulfen) Th. Fr.) on the basis of a corticolous specimen collected by R. Rabenhorst in 1871-72, and by Krempelhuber 1873: 471 & 1874: 66 (wrongly identified as *Caloplaca aurantiaca* (Lightf.) Th. Fr.).

#### **Caloplaca holochracea (Nyl.) Zahlbr.**

On exposed, coastal or inland granitic rocks and tombstones. New to China; known from temperate Asia.

Shek O Beach, 1998, *Aptroot* 43145; Lung Fu Shan, 1998, *Aptroot* 43158; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108678, HKU(M) 10445); Wu Kai Sha, NT, 1972, *Thrower* 1405 (HK), 1974, *Thrower* 1976 (CUHK), 1993, *Seaward & Chu* (MRDS 108870); Stanley, 1994, *Chu* (HKU(M) 10432 with *Buellia subdisciformis*); Grass Island, 1995, *Chu* (HKU(M) 10446); Naam Gwoh Chau, 1970, *Thrower* 1372 (HK); Shek O Beach, 1971, *Thrower* 1467 (CUHK); Waglan Island, 1972, *Thrower* 1517 (CUHK); Lamma Island, 1973, *Thrower* 1668 (CUHK); Nai Chung Ferry Pier, NT, 1973, *Thrower*, 1674 (HK & CUHK); Tsing Yi Island, 1974, *Thrower* 1994 (CUHK); Cape d'Aguilar, 1974, *Thrower* 2147 (CUHK); Chek Keng, NT, 1975, *Thrower* 2296 (CUHK); Pak

Nai, NT, 1975, *Thrower* 2380 (CUHK); Kai Kung Shan, NT, 1975, *K.K.Mark* (Thrower 2403, CUHK); Soko Island (North), 1975, *Thrower* 2223 (CUHK); Ma On Shan, NT, 1978, *Thrower* 3047 (CUHK); also: *Thrower* 1405 (HK); *Thrower* (1988: 15 & 69, wrongly identified as *Caloplaca* cf. *cinnabarina* (Ach.) Zahlbr., which differs, e.g. by the carmine-red instead of orange colour of the thallus); also Ma Wan, Lamma Island, Peng Chau, Kiu Tau, Tai O Beach, Tong Fuk & Big Wave Bay (Chu 1997: 48 as *C. cf. cinnabarina*).

#### **Caloplaca leptozona (Nyl.) Zahlbr.**

On coastal rocks. New to China; known from subtropical America, Asia and Australia.

Shek O Beach, 1998, *Aptroot* 43144; Pok Fu Lam, 1998, *Aptroot* 43007; Clearwater Bay, NT, 1998, *Aptroot* 43450; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 107281); Pearl Island, 1993, *Chu* (MRDS 106696 & HKU(M) 10447); Kadorie Beach, 1994, *Chu* (MRDS 108743); Lamma Island, 1994, *Chu* (HKU(M) 10448); *Thrower* (1988: 15 & 64, wrongly identified as *Blastenia handelii* Zahlbr. p.p., right hand photo only); also Peng Chau & Cape d'Aguilar (Chu 1997: 48 as *Caloplaca exsecuta* (Nyl.) Dalla Torre & Sarnth.).

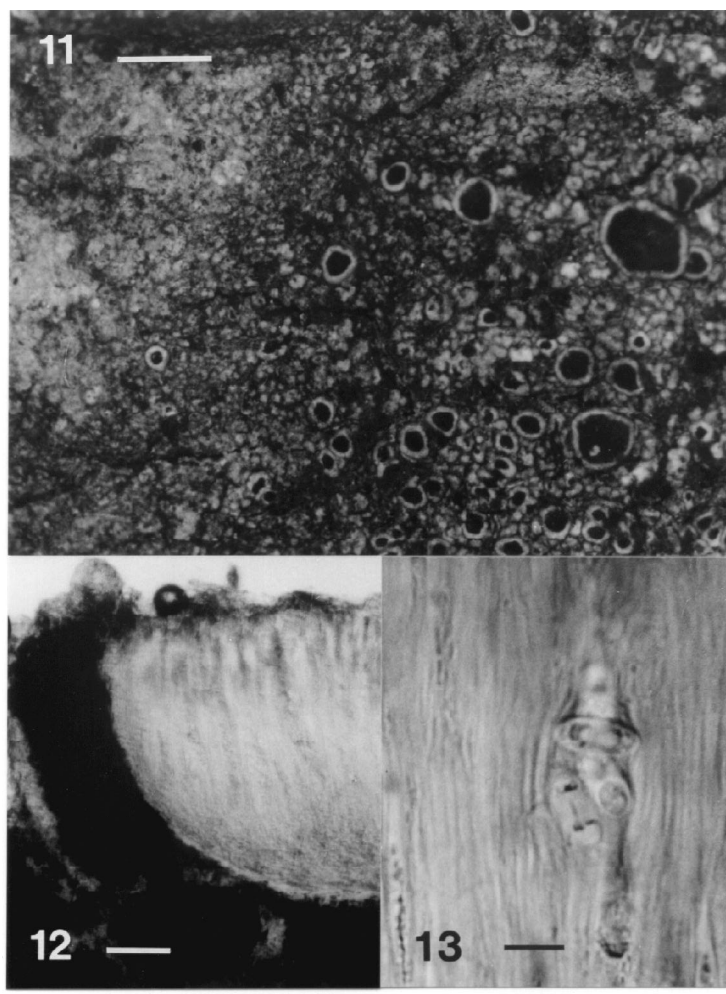
#### **Caloplaca pulicarioides Aptroot sp. nov.**

*Caloplaca corticola*, thallo griseo, apotheciis discis fuscatis, marginibus thalloideis griseis, ascosporis uniseptatis, 13–15 × 5.5–6.5 µm, septum 5–7 µm crassis.

Typus: Hong Kong, New Territories, Sai Kung Country Park, on *Kandelia* in mangrove near entrance area, 1 m alt., June 1998, *Aptroot* 43538 (HKU(M)—holotypus, ABL—isotypus).

(Figs 4, 11-13)

Thallus corticolous, up to 5 cm diam., greenish to metallic grey, shiny (mostly in marginal areas) to dull, continuous, smooth to warty in the centre; warts low, rounded to angular, crowded, c. 0.1 mm diam., without a clearly defined hypothallus. Algae chlorococcoid. Apothecia sessile, rounded to angular, crowded or not, 0.2–1.0 mm in diam., c. 0.2 mm high. Young apothecia immersed and then c. 0.2 mm diam., most of which is margin. Apothecium margin concolorous with the thallus, persistent,



Figs 11-13. *Caloplaca pulicarioides*. Fig. 11. Thallus with ascomata. Fig. 12. Section through margin of apothecium. Fig. 13. Ascus with ascospores and hamothecium. All after holotype. Bar = 1 mm in fig. 11; bar = 40  $\mu$ m in fig. 12; bar = 10  $\mu$ m in fig. 13.

corticate, often shiny, 100–200  $\mu$ m wide, usually irregular in thickness (but not crenate), causing an angular outline. Apothecium disc medium to dark brown, shiny, of the aspect of e.g. *Lecanora pulicaris*. Excipulum c. 70–100  $\mu$ m wide, corticate, hyaline or with a pale brown tinge, densely filled with algae, but without crystals. Parathecium present, c. 15  $\mu$ m thick, hyaline but fuscous brown at the rim. Hymenium c. 100–150  $\mu$ m high, hyaline, with pale brown epihymenium. Hypothecium hyaline, with algae. Asci clavate, 8-spored, 50–70  $\times$  10–15  $\mu$ m. Paraphyses up to 2  $\mu$ m wide. Ascospores hyaline, irregularly arranged in the ascus, ellipsoid, polar-diblastic with 2 loculi, 13–15  $\times$  5.5–6.5  $\mu$ m, septum 5–7  $\mu$ m, measuring about half of the ascospore length. Pycnidia not observed. Thallus

reactions C–, K– UV–; no secondary metabolites observed.

On trees, e.g. *Bischoffia trifoliata* and *Kandelia*.

Additional material seen: Alberose, 1965, *Thrower* 2394 (HK); on *Bischoffia trifoliata*, Wu Kai Sha, NT, 1972, *Thrower* 1431 (HK) & 1429 (CUHK); also: *Thrower* 1614, 1903 (HK) & 1903, 2132, 2136, 2247, 2274, 2872 (CUHK); Thrower (1988: 15 & 68, wrongly identified as *Caloplaca* cf. *cerina* (Ehrh. ex Hedwig) Th. Fr., which differs, e.g. by the yellowish to orange-red disc.

This species has the aspect of a *Lecanora* of the *L. pulicaris*-group, and therefore differs from all other known *Caloplaca* species except *C. homologa* (Nyl.) Hellbom and *C. triloculans*

Zahlbr. (Hafellner & Poelt 1979), which both differ by the consistently 3-loculate ascospores.

**Catillaria picila (Massal.) Coppins**

On granitic inland rock and concrete. New to Asia; so far known only from temperate Europe.

Lung Fu Shan, 1998, *Aptroot* 43066, 43121 & 43422; Victoria Peak, 1998, *Aptroot* 43645; Victoria Peak Gap, 1998, *Aptroot* 43683.

**Catinaria laureri (Hepp ex Th. Fr.) Degel.**

On trees in sheltered forest. New to Asia; so far known only from temperate Europe, Australia and North America.

Tai Po Kau, NT, 1998, *Aptroot* 43292.

**Celothelium dominicanum (Vainio) Aguirre**

On trees in open forest. New to China; pantropical. The species was synonymized with *Celothelium cinchonarum* (Müll. Arg.) Vainio by Harris (1995: 162). However, these species differ markedly in their ascocarp organization, and have been observed by the first author growing side by side, retaining their separate integrity, in Brazil and in Papua New Guinea.

Victoria Peak Gap, 1998, *Aptroot* 43666.

**Chrysothrix candelaris (L.) Laundon**

On trees in open areas and in forests. Cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43104; Sai Kung Country Park, NT, 1998, *Aptroot* 43530; Alberose, 1965, *Thrower* (MRDS 101243); on *Phyllanthus emblica*, Conduit Path, above University of Hong Kong, 1970, *Thrower* 1557 (HK); on *Albizia lebbek*, Pokfulam Road, 1970, *Thrower* 1250 (HK); on *Prunus*, Wu Kai Sha, NT, 1972, *Thrower* 1440 (HK); on *Wickstroemia indica*, High West, 1974, *Thrower* 1906 (HK); Tsing Yi Island, 1974, *Thrower* 1962 (HK); on *Pinus massoniana*, Nai Chung, NT, 1972, *Thrower* 1423 (CUHK); Wu Kai Sha, NT, 1983, *Thrower & Seaward* (MRDS 105897); also: *Thrower* 1430, 1594, 1657, 2320, 2806, 2821, 2901 & 3055; *Thrower* (1980 & 1988: 15 & 74).

**Cladia aggregata (Sw.) Nyl.**

On soil and rock, especially in grasslands. Pantropical.

Victoria Peak, 1967, *Thrower* 1280 (HK); Tai Mo Shan, NT, 1971, *Thrower* 1256 (HK & CUHK), 1972, *Thrower* 1477 (CUHK), 1973, *K.K. Mark* (*Thrower* 1853, CUHK); 1975, *S.Y. Hu* (*Thrower* 2250, HK & CUHK), 1976, *Thrower* 2558 (HK); Ma On Shan, NT, 1978, *Thrower* 3085 & 3095 (CUHK); West Point, 1930, *G.A.C. Herklots* (Herb. Univ. Leeds); *Thrower* (1988: 15 & 75).

**Cladonia macilenta Hoffm.**

On trees, rocks and soil in open areas and in forests. Cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43160; Victoria Peak, 1998, *Aptroot* 43595; Mirror Pool, NT, 1974, *H.M. Hang* (*Thrower* 2101, CUHK); Ho Mang Hang, 1975, *Thrower* 2191 (HK); Sai Kung, NT, 1976, *Thrower* 2726 (HK); Lantau, 1979, *Thrower* 3148 (HK); Hunchbacks, NT, 1980, *Thrower* 3195 (HK); Tai Shui Hang, NT, 1980, *Thrower* 3192 (CUHK); Tai Po Kau, NT, 1980, *Thrower* 3208 & 3211 (CUHK); *Thrower* (1988: 15, 77 & 78, partly under its synonyms *Cladonia bacillaris* Nyl. and *C. bacillaris* f. *nana* Asah.).

**Cladonia nana Vainio**

On exposed iron-containing rocks and granite. New to East Asia; apparently pantropical.

Lung Fu Shan, 1998, *Aptroot* 43038; Shin Ming Reservoir, 1998, *Aptroot* 43400; not *C. bacillaris* f. *nana* Asah. (*Thrower* 1988: 15, 78).

**Cladonia pseudogymnopoda Asah.**

On rocks and soil in open areas and in forests. Known from tropical Asia.

Victoria Peak, 1998, *Aptroot* 43597; Sai Kung Country Park, Shek Shan, 1998, *Aptroot* 43514; Black's Link, 1966, *Thrower* 1192 (CUHK); Tai Mo Shan, NT, 1971, *Thrower* 1255 (HK & CUHK), 1972, *Thrower* 1480 (HK), 1976, *Thrower* 2622 (HK); *loc. non. cit.*, c. 1972, *Thrower* (MRDS 107616); also: 1270, 1875, 2027, 2301, 2560, 2728, 3316, 3320 & 3350 (CUHK); *Thrower* (1988: 15 & 79); additional Hong Kong records probably also referable to this species: *Cladonia rappii* A. Evans (Sandstede 1938); *Cladonia verticillaris* (Raddi) Fr. (Sandstede 1938) and *Cladonia verticillaris*

forma *penicellata* Vainio (Hue 1898); the latter two are both endemic to the neotropics.

**Cladonia ramulosa (With.) Laundon**

On trees, rocks and soil in open areas and in forests. Cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43063; Victoria Peak, 1998, *Aptroot* 43629; Tai Po Kau, Fire Lookout, NT, 1998, *Aptroot* 43398A; Tai Mo Shan, NT, 1998, *Aptroot* 43585; Sai Kung Country Park, Shek Shan, 1998, *Aptroot* 43515; Tai Au Mun - Tai Wan Tau, NT, 1971, *Thrower* 1266 (CUHK); Tai Hang Hau, NT, 1971, *Thrower* 1269 (HK); Victoria Peak, 1972, *Thrower* 1692 (HK); also: 1464, 2106, 2126, 3069, 3210 (HK) & 1194, 1195, 1252, 1300, 1578, 1588, 1692, 1985, 1986, 2106, 2300, 2783, 2796, 3045, 3213, 3290 (CUHK); Throwing (1988: 15 & 76, under its synonym *Cladonia anomaea* (Ach.) Ahti & P. James); probably also referable to this species: *Cladonia cariosa* (Ach.) Sprengel (Wawra c. 1868-71, in Krempelhuber 1876: 436).

**Cladonia subradiata (Vainio) Scriba**

On exposed soil. New to China; pantropical.

Tai Mo Shan, NT, 1998, *Aptroot* 43605; Tai Po Kau, NT, 1998, *Aptroot* 43222.

**Clathroporina nuculastrum Müll. Arg.**

In Hong Kong repeatedly found on sheltered granite; in other regions usually corticolous. New to China; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43111 & 43131; Tai Po Kau, NT, 1998, *Aptroot* 43219.

**Coccocarpia erythroxyli (Sprengel) Swinscow & Krog**

On trees in forest. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43283; on *Viburnum*, Ngong Ping Shan, NT, 1980, *Thrower* 3241 (HK); Throwing (1988: 15 & 80); Hue (1908).

**Coccocarpia palmicola (Sprengel) Arvidsson & D. Galloway**

On trees in forest and terrestrial in a coastal site. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43320;

Tai Po Kau, NT, 1971, *Thrower* 1289 (HK & MRDS 107586, 107598); Cape d'Aguilar, 1972, *Thrower* 1502 (CUHK & MRDS 107599); Chek Keng-Wu Kau Tong, NT, 1976, *Thrower* 2466 (HK); on *Syzygium jambos*, Nai Chung, NT, 1976, *Thrower* 2422 (HK & MRDS 107609); Tai Mo Shan, NT, 1976, *Thrower* 2668 (CUHK & MRDS 107587); on *Altingia chinensis*, Ma On Shan, NT, 1980, *Thrower* 3187 (CUHK); Mau Ping, Ma On Shan, NT, 1981, *Thrower* 3364 (HK); Wu Kai Sha, NT, 1994, *Seaward & Chu* (MRDS 106770, 107609); Throwing (1988: 15 & 81).

**Coccocarpia pellita (Ach.) Müll. Arg.**

On trees in forest and along coast. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43218; Hok Tsui Wan, Cape d'Aguilar, 1978, *Thrower* 2958 (HK); Throwing (1988: 15 & 82).

**Coenogonium linkii Ehrenb.**

On trees and sheltered granite rocks in forest. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43233 & 43279.

**Collema leptaleum Tuck.**

On trees in forest. Pantropical.

On *Ficus*, Ping Shan Tsai, NT, 1973, *K.K. Mark* (Thrower 1889, HK); Tai Po Kau, NT, 1971, *Thrower* 1301 (HK); Throwing (1988: 15 & 84).

**Collema leptaleum var. biliosum (Mont.) Degel.**

On trees in forest. Pantropical.

On fallen tree, Kei Ling Ha Hoi, NT, 1973, *Thrower* 1527 (HK, CUHK & MRDS 107553); Throwing (1988: 15 & 85).

**Collema pulcellum var. subnigrescens (Müll. Arg.) Degel.**

On trees in forests and more rarely on coastal rocks. Pantropical.

On coastal rocks, Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108823); on *Aleurites moluccana*, Tai Tam Bay, 1971, *Thrower* 1290 (HK); on *Litsea monopetala*, Sai O Beach, NT, 1973, *Thrower* 1654 (CUHK); Kei Ling Ha Hoi,



NT, 1973, *Thrower* 1524 (HK); High West, 1973, *Thrower* 1580 (CUHK); Soko Island, 1975, *Thrower* 2209 (HK); Thrower (1988: 15 & 86); Cape d'Aguilar, 1971, *Thrower* 1382 (HK), 1972, *Thrower* 3262 (HK & CUHK); Thrower (1988: 15 & 83, wrongly identified as *Collema complanatum* Hue).

**Collema rugosum Krempelsh.**

On trees in forests and on granitic outcrop on roadside. Paleotropical.

Cape d'Aguilar, 1971, *Thrower* 1381 (CUHK), 1972, *Thrower* 1498 (HK); Sai Wan, NT, 1973, *S.T.Chan* (Thrower 1641, CUHK); Tai Tam, Cape d'Aguilar, 1990, *Seaward* (MRDS 106167); Thrower (1988: 15 & 87).

**Cresponea leprieurii (Mont.) Egea & Torrente**

On trees, e.g. *Callitris*, in forest. New to Asia; known from the neotropics and Australasia.

Tai Po Kau, NT, 1998, *Aptroot* 43274; living culture CBS 101255.

**Cresponea proximata (Nyl.) Egea & Torrente**

On trees in forests. Known from tropical Asia, the neotropics and Australasia.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43698; Victoria Peak Gap, 1998, *Aptroot* 43664; Tai Po Kau, NT, 1998, *Aptroot* 43274A; on *Schefflera octophylla*, Tai Po Kau, NT, 1976, *Thrower* 2784 (HK); Cheung Uk, NT, 1977, *Thrower* 2879 (HK), 1978, *Thrower* 3503 (CUHK); Egea & Torrente (1993: 329); Thrower (1988: 15 & 62, wrongly identified as *Bacidia* cf. *morula* Zahlbr., which differs, e.g., by the dark brown, not truly black, hypothecium and excipulum).

**Cryptothecia subsecta Stirton**

On trees, e.g. *Kandelia*, in forests. New to China; known from tropical Asia.

Sai Kung Country Park, NT, 1998, *Aptroot* 43531; Tai Po Kau, NT, 1998, *Aptroot* 43361.

**Dibaeis sorediata Kalb & Gierl**

On soil, especially in roadside cuttings in upland areas. New to China; paleotropical.

Sai Kung Country Park, Shek Shan, NT,

1998, *Aptroot* 43512; Tai Po Kau, Fire Lookout, NT, 1998, *Aptroot* 43398; Hunchbacks, NT, 1982, *Thrower* 3439 (HK); *loc. non cit.*, 1976, *Thrower* (MRDS 107020); Thrower (1988: 15 & 63, wrongly identified as *Baeomyces absolutus* Tuck., which differs, e.g., by the absence of soralia).

**Dichosporidium boschianum (Mont.) Thor**

On trees, e.g. *Liquidambar*, in forest. New to China; known from tropical Asia and Australasia.

Tai Po Kau, NT, 1998, *Aptroot* 43256.

**Dichosporidium cf. nigrocinctum (Ehrenb. : Fr.) Thor**

On trees in forest. New to Asia; known with certainty only from the neotropics; the present collection is sterile, and its identity remains dubious.

Tai Po Kau, NT, 1998, *Aptroot* 43338.

**Dimerella dilucida (Krempelsh.) R. Sant.**

On living leaves of *Pandanus*, bamboo and trees in forests. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43322, 43378 & 43391.

**Dimerella epiphylla (Müll. Arg.) R. Sant.**

On living leaves of trees in forests. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43330.

**Dimerella lutea (Dickson) Trevisan**

On sheltered trees and rock in forests. New to Hong Kong; cosmopolitan.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43694.

**Diploschistes actinostomus (Pers. ex Ach.) Zahlbr.**

On exposed granite, both coastal and inland. Nearly cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43153 & 43166A; Shek O Beach, 1998, *Aptroot* 43146; Cape d'Aguilar, 1972, *Thrower* 1509 (MRDS 105045), 1990, *Seaward* (MRDS 108821), 1994, *Chu* (MRDS 107809); Wu Kai Sha, NT, 1972, *Thrower* 1404 (HK & CUHK), 1993, *Seaward* & *Chu* (MRDS 108843); Big Wave Bay, 1994,

*Seaward & Chu* (MRDS 108986); Grass Island, 1995, *Chu* (HKU(M) 10450); Tai O Beach, Lantau, 1995, *Chu* (HKU(M) 10451); Fat Tong Chau, 1993, *Chu* (MRDS 107584); Clearwater Bay, NT, 1993, *Seaward & Chu* (HKU(M) 10448), 1995, *Chu* (MRDS 107810); also: *Thrower* 1977, 2381, 3281 (HK) & 1535, 1669, 3223, 3229, 3278 (CUHK); *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Rabenhorst* 1873: 287 & *Krempelhuber* 1873: 471 & 1874: 67, all as its synonym *Limborina actinostoma* (Pers. ex Ach) Massal.; Herb. M - specimen not seen); *Thrower* (1988: 15 & 88); also Ma Wan, Lamma Island, Peng Chau, Kiu Tau & Tong Fuk (*Chu* 1997: 48).

***Dirinaria aegialita* (Ach. in Afz.) Moore**

On exposed trees, branches and granite, both coastal and inland. Nearly cosmopolitan.

Shek O Beach, 1998, *Aptroot* 43190; Tai Po Kau, NT, 1998, *Aptroot* 43340; Shek Mai Tau, NT, 1998, *Aptroot* 43479; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108699), 1994, *Chu* (HKU(M) 10452); Yung Shui Wan, Lamma Island, 1993, *Chu* (HKU(M) 10453); Big Wave Bay, 1994, *Seaward & Chu* (MRDS 109093); Stanley, 1994, *Chu* (MRDS 108837); Tai O Beach, Lantau, 1995, *Chu* (MRDS 109092); on *Litsea chinensis*, Cheung Keng, Wu Kai Sha, NT, 1974, *Thrower* 1966 (CUHK); Centre Island, 1979, *Thrower* 3226 (CUHK); Ma Shi Chau, NT, 1979, *Thrower* 3220 (CUHK); Sham Wat, Lantau, 1979, *Thrower* 3216 (HK); Nai Chung, NT, 1983, *Thrower* 3660 (HK); *Thrower* (1988: 15); also Wu Kai Sha, Kiu Tau, Grass Island, Tong Fuk & Cape d'Aguiar (*Chu* 1997: 48).

***Dirinaria applanata* (Fée) Awasthi**

On exposed trees and granite, coastal. Nearly cosmopolitan.

Shek Mai Tau, NT, 1998, *Aptroot* 43467; Wu Kai Sha, NT, 1993, *Seaward & Chu* (MRDS 108763, HKU(M) 10454); *loc. non cit.*, 1891, *Delavay* (in *Awasthi* 1975: 81; Herb. PC - specimen not seen).

***Dirinaria picta* (Sw.) Clem. & Shear**

On exposed trees, branches and granite, both coastal and inland. Cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43082;

Shek Mai Tau, NT, 1998, *Aptroot* 43476; Sai Kung Country Park, NT, 1998, *Aptroot* 43532; Alberose, 1965, *Thrower* (MRDS 101242); Tai Wan Tau, NT, 1970, *Thrower* 1254 (CUHK); on *Albizia lebbek*, Pokfulam Road, 1970, *Thrower* 1249 (HK); Kei Ling Ha Hoi, NT, 1978, *Thrower* 3081 (HK & CUHK); also: *Thrower* 1386, 1412, 1425, 1434, 1516, 1530, 1627, 1640, 1659, 1878, 2093, 2245, 2319, 2655, 3269, 3319 (CUHK); *loc. non cit.*, 1891, *Delavay* (in *Zahlbruckner* 1930, as its synonym *Physcia picta* (Sw.) Nyl.) and (in *Awasthi* 1975: 75; Herb. PC - specimen not seen); *Thrower* (1980, 1988: 15 & 89); also Tai O Beach & Clearwater Bay (*Chu* 1997: 48).

***Echinoplaca cf. epiphylla* Fée**

On living leaves of ferns, *Pandanus* and trees in forests. New to China; pantropical. The material is not well developed, so the identity remains uncertain.

Tai Po Kau, NT, 1998, *Aptroot* 43325, 43327, 43355, 43375, 43380 & 43389; Sai Kung Country Park, 1998, *Aptroot* 43486 & 43498.

***Endocarpon pusillum* Hedw.**

On exposed and sheltered soil, cement and granite, both coastal and inland. New to Hong Kong; cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43068, 43157 & 43413; Victoria Peak, 1998, *Aptroot* 43633; Shek Mai Tau, NT, 1998, *Aptroot* 43478 & 43484; Clearwater Bay, NT, 1998, *Aptroot* 43440; Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109089).

***Enterographa pallidella* (Nyl.) Redinger**

On exposed trees and branches. New to China; pantropical.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43014 & 43021; Lung Fu Shan, 1998, *Aptroot* 43103; on *Acacia confusa*, Soko Island (North), 1975, *Thrower* 2215 (HK); *Thrower* (1988: 15 & 53 wrongly identified as *Arthonia cf. fissurina* Nyl., which differs, e.g., by the less developed excipulum).

***Enterographa praepallens* (Nyl.) Redinger**

On sheltered, overhanging, coastal granite rocks. New to China; so far only known from tropical Asia and Australasia.

Clearwater Bay, NT, 1998, *Aptroot* 43431.

**Euopsis pulvinata (Schaerer) Vainio**

On exposed, wet granitic rock along streams. New to China; northern temperate, but recently also reported from the mountains of South East Asia (*Aptroot* 1998: 30).

Pok Fu Lam Reservoir, 1998, *Aptroot* 43700; Lung Fu Shan, 1998, *Aptroot* 43096.

**Fellhanera bouteillei (Desm.) V3zda**

On leaves, e.g. of *Citrus* and *Pandanus*. Cosmopolitan.

Tai Po Kau, NT, 1976, *Thrower* 2424 (HK) & 2426, 2427, 2429, 2451 (CUHK & MRDS 107552, 107607, 107608), 1982, *Thrower* 3438 (CUHK); South of Tai Po Kau, NT, 1981, *Thrower* (MRDS 107606); on *Quercus edithae*, Wong Chuk Yeung, NT, n.d., *Thrower* 3157 (CUHK); *Thrower* (1988: 15 & 73, as its synonym *Catillaria bouteillei* (Desm.) Zahlbr.).

**Glyphis cicatricosa Ach.**

On exposed trees and branches. Pantropical.

On *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1457 (CUHK); on *Sapium discolor*, Sai O Beach, NT, 1973, *Thrower* 1603 (HK); Ping Shan Tsai, NT, *Thrower*, 1917 (HK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2267 (HK); *Thrower* (1988: 15 & 91).

**Graphina analoga (Nyl.) Zahlbr.**

On exposed trees and branches, rarely also on exposed granite along stream, from coastal mangrove forest to 800 m alt. Pantropical. Reported under various, partly synonymous, names from Hong Kong before, due to over-emphasizing characters which are quite plastic within single specimens of Graphidaceae, like ascospore size and extension of carbonization.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43701; Victoria Peak, 1998, *Aptroot* 43609; Sai Kung Country Park, NT, 1998, *Aptroot* 43519 & 43535; Tai Mo Shan, NT, 1998, *Aptroot* 43562; Tai Po Kau, NT, 1998, *Aptroot* 43360; Upper Tai Tam Reservoir, 1966, *Thrower* 1202 (CUHK); Lugard Road, Victoria Peak, 1966,

*Thrower*, 1399 (HK & CUHK); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower*, 1458 (HK); on *Eurya japonica*, Mt Collinson, 1973, *Thrower*, 1539 (HK & CUHK); on *Schima superba*, Tai Po Kau, NT, 1975, *Thrower* 2363 (HK, CUHK & MRDS 101244), 1983, *Thrower & Seaward* (MRDS 104631); Cheung Uk, NT, 1977, *Thrower* 2888 (HK); Ngong Ping Shan, NT, 1978, *Thrower* 3118 & 3124 (HK); also: *Thrower* 1387, 1393, 1546, 1550, 1571, 1683, 1922, 1926, 3077, 3275, 3476 (CUHK); *Thrower* (1988: 15 & 93, as *Graphina cleistoblephara* (Nyl.) Zahlbr.); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1458 (HK); on *Strychnos umbellata*, Lamma Island, 1978, *Thrower* 3115 (CUHK); *Thrower* (1988: 15 & 96, as *Graphina hiasecens* Müll. Arg.).

**Graphina fissofurcata (Leighton) Müll. Arg.**

On granite boulders in shaded forest or along stream beds, but also on sheltered trees. New to Hong Kong; known from tropical Asia, including China. The identity of the saxicolous specimens of this species, which was so far known only from trees, was confirmed by the joint occurrence of identical corticolous and saxicolous specimens at the same locality.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43690; Lung Fu Shan, 1998, *Aptroot* 43138; Tai Po Kau, NT, 1998, *Aptroot* 43227 & 43242; on *Schefflera octophylla*, Tai Po Kau, NT, 1983, *Seaward & Thrower* (*Thrower* 3665 & MRDS 108830); Mau Ping, NT, 1980, *Thrower* 3250 (HK); *Thrower* (1988: 15 & 99, as its probable synonym *G. lapidicola* Müll. Arg.).

**Graphina incrustans (Fée) Müll. Arg.**

On exposed trees and branches. Pantropical. Previously reported under two, possibly partly synonymous names from Hong Kong.

Victoria Peak, 1998, *Aptroot* 43638; Victoria Peak Gap, 1998, *Aptroot* 43665; Sai Kung Country Park, NT, 1998, *Aptroot* 43504; Tai Po Kau, NT, 1998, *Aptroot* 43268, 43286, 43315 & 43345; Tai Mo Shan, NT, 1998, *Aptroot* 43604; on *Symplocos*, Ma On Shan, NT, 1973, *S.T.Chan* (*Thrower* 1609, HK); Ping Shan Tsai, NT, 1973, *Thrower* 1915 (HK); on *Aquilaria sinensis*, Sai O Beach, NT, 1973, *Thrower* 1634

(CUHK); Wu Kai Sha, NT, 1974, *Thrower* 1951 & 1968 (HK); on *Euonymus chinensis*, Tai Mo Shan, NT, 1976, *Thrower* 2578 (HK); also: *Thrower* 2662 (CUHK); *Thrower* (1988: 15 & 98); Shing Mun Reservoir, NT, 1970, *Thrower* 1246 & 1376 (HK); on *Ardisia quinquegona*, Wu Kau Tang, NT, 1976, *Thrower* 2486 (CUHK); *Thrower* (1988: 15 & 92, as *Graphina adscibens* (Nyl.) Müll. Arg.); *Thrower* (1988: 15, 94 & 95, erroneously reported as *Graphina colliculosa* (Mont.) Hale).

**Graphina mendax (Nyl.) Müll. Arg.**

On sheltered trees. Known from tropical Asia. Previously reported under two possibly synonymous names from Hong Kong.

Lung Fu Shan, 1998, *Aptroot* 43045 & 43106; on *Aquilaria sinensis* & *Sapium discolor*, Sai O Beach, NT, 1973, *Thrower* 1650 & 3740 (HK); Sai Wan, NT, 1973, *S.T.Chan* (*Thrower* 1645, HK); Fung Yuen Valley, NT, 1977, *Thrower* 2882 (HK); on *Aquilaria sinensis*, Plover Cove, NT, 1984, *Thrower* 3721 (CUHK); *Thrower* (1988: 15 & 100); *Thrower* (1988: 15 & 97, as *Graphina* cf. *hologlauca* Zahlbr.; *Thrower* (1988: 15 & 101, as *Graphina* cf. *virginica* (Eschw.) Müll.Arg.).

**Graphis afzelii Ach.**

On exposed trees, e.g. *Callitris*, especially on branches. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43251 & 43287; Tai Tum Tuk Reservoir, 1965, *Thrower* 1224 (HK); *Thrower* (1988: 15 & 102).

**Graphis alboglauca Vainio**

On sheltered trees, especially on branches. New to China; known from tropical Asia.

Tai Po Kau, NT, 1998, *Aptroot* 43365; Sai Kung Country Park, NT, 1998, *Aptroot* 43508.

**Graphis aphanes Mont. & v. d. Bosch**

On sheltered trees, also on granite boulders along streams. New to China; known from tropical Asia. The identity of the saxicolous specimens of this species, which was so far known only from bark, was confirmed by the joint occurrence of identical corticolous and

saxicolous specimens at the same locality.

Tai Po Kau, NT, 1998, *Aptroot* 43231, 43238 & 43239; Tai Mo Shan, NT, 1998, *Aptroot* 43601; on *Cinnamomum camphora*, Tai Po Kau, NT, 1983, *Seaward & Thrower* (MRDS 108831); *Thrower* (1988: 16 & 136, wrongly identified as *Phaeographina maxima* Groenh., which differs, e.g., in having brown, muriform spores).

**Graphis caesiella Vainio**

On exposed and sheltered trees and branches, rarely also on granite boulders, from coastal mangrove forest to 800 m alt. Pantropical. Previously reported under various, partly possibly synonymous and partly erroneous names from Hong Kong, due to over-emphasizing the extension of carbonization as a specific character.

Shek O Beach, 1998, *Aptroot* 43181; Lung Fu Shan, 1998, *Aptroot* 43048, 43077, 43107 & 43108; Victoria Peak Gap, 1998, *Aptroot* 43669; Sai Ko Chun, 1998, *Aptroot* 43649; Sai Kung Country Park, NT, 1998, *Aptroot* 43520; Tai Po Kau, NT, 1998, *Aptroot* 43232 & 43319; Tai Mo Shan, NT, 1998, *Aptroot* 43593; on *Cratoxylum ligustrinum*, Chek Keng, NT, 1976, *Thrower* 2501 (HK); on *Plumeria rubra*, Happy Valley Cemetery, 1976, *Thrower* 2767 & 2771 (CUHK) & 2807 (HK); *Thrower* (1988: 16); Cheung Uk, NT, 1977, *Thrower* 2880 & 2894 (CUHK); on *Schefflera octophylla*, Tai Po Road, NT, 1978, *Thrower* 3035 (CUHK) & 3038 (HK); Cheung Shu Tan, NT, 1980, *Thrower* 3335 (CUHK); on *Bombax malabaricum*, Chi Ma Wan, Lantau, 1983, *Thrower* 3523 (CUHK); *Thrower* (1988: 16, incorrectly reported as *Graphis glaucescens* Fée; Wu Kai Sha, NT, 1972, *Thrower* 1385 (HK & CUHK); *Thrower* (1988: 16, as *Graphis glauconigra* Vainio).

**Graphis dumastii Fée**

On exposed and sheltered trees and branches. New to China; pantropical. Previously reported under another, possibly synonymous name from Hong Kong (see below).

Pok Fu Lam, University Campus, 1998, *Aptroot* 43012; Lung Fu Shan, 1998, *Aptroot* 43051; Sai Kung Country Park, NT, 1998, *Aptroot* 43533; Tai Po Kau, NT, 1998, *Aptroot* 43254, 43262 & 43351; on *Phyllanthus emblica*, Pak Kung Au, NT, 1983, *Thrower* 3699 (HK);

Thrower (1988: 16, as *Graphis tachygrapha* Nyl.).

**Graphis lineola Ach.**

On exposed and sheltered trees and branches, once on terrace walls, from coastal mangrove forest to 800 m alt. Pantropical. Specimens *Aptroot* 43241 and 43534 differ by an inspersed hymenium. Previously reported under various, partly synonymous names from Hong Kong, due to over-emphasizing the characters ascospore size and septation.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43699; Sai Kung Country Park, NT, 1998, *Aptroot* 43493 & 43534; Tai Mo Shan, NT, 1998, *Aptroot* 43563 & 43588; Tai Po Kau, NT, 1998, *Aptroot* 43241 & 43359; Wu Kai Sha, NT, 1983, *Seaward & Thrower* (MRDS 108832); Chek Keng, NT, 1975, *Thrower* 2271 (CUHK); also: *Thrower* 3387 (HK) & 2934, 3034, 3184 (CUHK); Thrower (1988: 16); Wu Kau Tang, NT, 1976, *Thrower* 2485 (HK); on *Altingia chinensis*, Tai Shui Hang, NT, 1980, *Thrower* 3180 (HK); Thrower (1988: 15, as *Graphis batanensis* Vainio); Tai Mo Shan Public Road, NT, 1976, *Thrower* 2669 (CUHK); Tai Mo Shan, NT, 1976, *Thrower* 2610, 2617 & 2619 (HK) & 3293 (CUHK); Thrower (1988: 16, as *Graphis cervina* Müll. Arg.); Upper Tai Tam Reservoir, 1966, *Thrower* 1197 (CUHK); also *Thrower* 1422, 2306, 2333, 3179, 3485 (HK) & 1204, 1215, 3349, 3353, 3388, 3481, 3484, 3487, 3694 (CUHK); Thrower (1988: 16, as *Graphis desquamescens* (Fée) Zahlbr.); Tai Mong Tsai, NT, 1974, *Thrower* 2186 (CUHK); on *Acacia confusa*, Soko Island (North), 1975, *Thrower* 2214 (HK); Tai Po Kau, NT, 1975, *Thrower* 2373 (HK); Thrower (1988: 16, as *Graphis guimarana* Vainio); on *Cratoxylum ligustrinum*, Tai Po Kau, NT, 1975, *Thrower* 2346 (HK); Thrower (1988: 16, as *Graphis leptocarpa* Ach.; Tai Tam Reservoir, 1965, *Thrower* 1226 (CUHK); Wu Kai Sha, NT, 1983, *Seaward & Thrower* (MRDS 105902); also: *Thrower* 1465, 2500, 2877, 2881, 3389 (HK) & 1465, 2378, 2398, 3038, 3355, 3678, 3703; Thrower (1988: 16 & 106, as *Graphis librata* C. Knight); on *Aquilaria sinensis*, Tai Po Kau, NT, 1975, *Thrower* 2327 (HK & CUHK); also *Thrower* 2104, 2359, 3351 (HK) & 2345, 3533, 3710 (CUHK); Thrower

(1988: 16, as *Graphis sapii* Zahlbr.); Thrower (1980, as *Graphis tenellula* Vainio).

**Graphis rimulosa (Mont.) Trevisan**

On exposed and sheltered trees and branches. Pantropical. Previously reported under various, possibly partly synonymous names from Hong Kong, due to over-emphasizing the ascospore size and septation as specific characters.

Tai Po Kau, NT, 1998, *Aptroot* 43252; Tai Mo Shan, NT, 1998, *Aptroot* 43590A; Shing Mun Reservoir, NT, 1970, *Thrower* 1238 (CUHK); on *Aquilaria sinensis*, Tai Po Kau, NT, 1975, *Thrower* 2328 (HK); on *Syzygium jambos*, Nai Chung, NT, 1976, *Thrower* 2421 (HK); on *Eurya japonica*, Fei Ngo Shan, NT, 1980, *Thrower* 3256 (HK); Thrower (1988: 16); Tai Mo Shan, NT, 1976, *Thrower* 2624 (HK); Thrower (1988: 16, as *Graphis dupaxana* Vainio); Thrower (1988: 16, as *Graphis treubii* Zahlbr.); Thrower (1988: 15) and Zahlbruckner (1930: comm. Tuckerman, Herb. FH, as *Graphis asterizans* Nyl.).

**Graphis turgidula Müll. Arg.**

On exposed and sheltered trees and branches. New to China; pantropical. Previously reported under another, possibly synonymous name from Hong Kong (see below).

Tai Po Kau, NT, 1998, *Aptroot* 43344; Victoria Park, 1966, *Thrower* 1213 (HK & CUHK); Fei Ngo Shan, NT, 1976, *Thrower* 2731 (CUHK); Hunchbacks, NT, 1980, *Thrower* 3197 (HK); Tai Mo Shan, NT, 1983, *Thrower* 3530 & 3532 (HK) & 3531 & 3534 (CUHK); Thrower (1988: 16, as *Graphis bifera* var. *cinerea* Zahlbr.).

**Gyrostomum scyphuliferum (Ach.) Nyl.**

On exposed trees, e.g. *Kandelia*, especially on branches. New to China; pantropical. Previously reported under another, possibly synonymous, name from Hong Kong (see below).

Aberdeen, Ocean Park, 1998, *Aptroot* 43708; Lung Fu Shan, 1998, *Aptroot* 43052; Sai Kung Country Park, NT, 1998, *Aptroot* 43490 & 43521; Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109088); Alberose, 1965,

*Thrower* 2321 (HK & MRDS 101245); on *Aquilaria sinensis*, Aberdeen Reservoir, 1980, *C.C. Lay* (*Thrower* 3337, HK); Wu Kai Sha, NT, 1972, *Thrower* 1436 (CUHK & MRDS 109081), 1973, *Thrower* 1612 (HK) & 1618 (CUHK), 1983, *Thrower & Seaward* (MRDS 104623); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1457 (CUHK); on *Lumnitzera racemosa*, Kei Ling Ha Hoi, NT, 1973, *Thrower* 1660 (CUHK); Ping Shan Tsai, NT, 1973, *Thrower* 1899 (CUHK); on *Aquilaria sinensis*, Lok Wo Sha, NT, 1974, *Thrower* 1960 (CUHK); on *Melia azedarach*, Mai Po, NT, 1974, *Thrower* 2120 (CUHK); on *Acacia confusa*, Soko Island (North), 1975, *Thrower* 2249 (CUHK); on *Plumeria rubra*, Happy Valley Cemetery, 1976, *Thrower* 2772 & 2810 (CUHK); on *Bombax malabaricum*, Chi Ma Wan, Lantau, 1983, *Thrower* 3524 (HK); also: *Thrower* 1602 & 2915 (HK); *Thrower* (1988: 16 & 137, as *Phaeographina obfirmata* Zahlbr.).

#### **Haematomma persoonii (Fée) Massal.**

On exposed trees, especially on branches. New to China; pantropical.

Hok Tsui Wan, Cape d'Aguilar, 1978, *Thrower* 2962 (HK); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1420 (HK); on *Cerbera manghas*, Kei Ling Ha Hoi, NT, 1984, *Thrower* 3713 & 3714 (CUHK) & 3709 (HK); *Thrower* (1988: 16 & 107, as its synonym *Haematomma similis* Bagl.)

#### **Hafellia bahiana (Malme) Sheard**

On exposed trees, especially on branches. New to China; pantropical, but so far only reported from the neotropics.

Shek O Beach, 1998, *Aptroot* 43173; Sai Kung Country Park, NT, 1998, *Aptroot* 43528; Alberose, Pokfulam Road, 1965, *Thrower* 2399 (CUHK); on *Pinus massoniana*, Nai Chung, NT, 1972, *Thrower* 1427 (HK, CUHK, MRDS 107597); Sai O Beach, NT, 1973, *Thrower* (MRDS 107611); on *Phyllanthus emblica*, Tsing Yi Island, 1974, *Thrower* 1963 (HK & MRDS 107615); on *Celtis sinensis*, Cape d'Aguilar, 1974, *Thrower* (MRDS 107588); on *Acacia confusa*, Soko Island, 1975, *Thrower* 2248 (CUHK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2270 (CUHK); Grassy Hill,

NT, 1976, *Thrower* 2801 (CUHK); on *Cassia siamea*, Chung Hom Kok, 1977, *Thrower* 2870 (CUHK); on *Pinus massoniana*, Ma On Shan, NT, 1981, *Thrower* 3412 (CUHK); Aberdeen Reservoir, 1980, *C.C. Lay* (*Thrower* 3341, CUHK); also: *Thrower* 2121 (HK) & 2105, 2116, 2931, 3052, 3059, 3105 & 3181 (CUHK); *Thrower* (1988: 15, wrongly identified as *Buellia dives* Th. Fr. and *Buellia disciformis* (Fr.) Mudd, which are both temperate species, differing by the lack of ascospore wall thickenings).

#### **Heterodermia speciosa (Wulfen) Trevisan**

On exposed rocks, including painted granite poles, especially in the mountains. Cosmopolitan. There is no doubt that only one species of *Heterodermia* has so far been found in Hong Kong, although it was illustrated under several names by *Thrower* (1988).

Tai Po Kau, NT, 1998, *Aptroot* 43213; Tai Mo Shan, NT, 1998, *Aptroot* 43556 & 43573; *loc. non cit.*, 1846-51, *Hance* & 1850, *Seemann* (in *Seemann* 1852-57: 432 as *Parmelia speciosa* (Wulfen) Ach.; *Zahlbruckner* 1930, as *Anaptychia speciosa* (Wulfen) Massal.); Tai Tam Tuk Reservoir, 1965, *Thrower* 1219 (CUHK); Tai Po Kau, NT, 1971, *Thrower* 1288 (CUHK); Cape d'Aguilar, 1971, *Thrower* 1277 (CUHK), 1972, *Thrower* 1501 (CUHK), 1975, *A.Proud* (*Thrower* 2206, CUHK); Tai Mo Shan, NT, 1965, *Thrower* 2414 (CUHK), 1972, *S.T.Chan* (*Thrower* 1512, HK & CUHK), 1972, *P.Tam* (*Thrower* 1492, 1494, 1495, CUHK), 1972, *Thrower* 1479 (CUHK), 1973, *Thrower* 1582 & 1585 (CUHK), 1584 (HK & CUHK) & 1587 (HK), 1976, *Thrower* 2555 (CUHK) & 2563 (CUHK & MRDS 107551), 1978, *Thrower* 3040 (CUHK); Mui Tse Lam, NT, 1973, *Thrower* 1870 (CUHK); Black's Link, 1973, *Thrower* 1815 (CUHK & MRDS 109080); Tai Mon Tsai, 1974, *K.K.Mark* (*Thrower* 2117, CUHK); Wu Kau Tang, 1976, *Thrower* 2465 (CUHK); Ma On Shan, 1978, *L.B.Thrower* (*Thrower* 3091, CUHK); also *Thrower* 1870, 2258 & 3443 (HK); *Thrower* (1988: 16 & 108, wrongly identified as *Heterodermia diademata* (Taylor) Awasthi; *Thrower* (1988: 16 & 109, wrongly identified as *Heterodermia diademata* f. *angustata* (Räsänen) Kurok.); Victoria Peak, 1966, *Thrower* 1216 (CUHK); Kwan Yum Shan, 1987, *Thrower* 3099

(CUHK); also *Thrower* 1242, 2415, 3442, 3535 (HK) & 1473, 2456 (CUHK); *Thrower* (1988: 16 & 110, under the probable synonym *Heterodermia pseudospeciosa* (Kurok.) W. Culb.).

**Hymenelia lacustris (With.) M. Choisy**

On exposed rocks, submerged or not, especially along streams in the mountains; more rarely on coastal rocks. Probably cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43084 & 43137; Victoria Peak Gap, 1998, *Aptroot* 43671; Sai Ko Chun, 1998, *Aptroot* 43648; Tai Po Kau, NT, 1998, *Aptroot* 43226; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108866), 1995, *Chu* (MRDS 108865); Ma On Shan, NT, 1978, *S.H. Kwan* (*Thrower* 3108, HK & CUHK), 1981, *Thrower* 3416 (HK); *Thrower* (1988: 15 & 59, under its synonym *Aspicilia lacustris* (With.) Th. Fr.).

**Julella vitrispora (Cooke & Harkness) M.E. Barr**

On exposed trees; usually on wood but in Hong Kong found on dead branches among lichens. New to China; cosmopolitan. Previously reported under another, probably synonymous name from Hong Kong. The two species were separated by Harris (1995: 85) on the basis of the number of spores in the asci and a slight difference in ascospore size. However, these characters were shown by *Aptroot & van den Boom* (1995: 1) to be variable even within single specimens of the genus.

Tai Mo Shan, NT, 1998, *Aptroot* 43623; living culture CBS 101259; *Thrower* (1988: 17 & 148, under the probable synonym *Polyblastiopsis geminella* (Nyl.) Zahlbr.).

**Lecanora chrysocardia Zahlbr.**

On coastal rocks. New to Hong Kong; known from East Asia.

Cape d'Aguilar, 1990, *Seaward* (MRDS 108668), 1994, *Chu* (MRDS 107276).

**Lecanora farinaria Borrer**

On exposed trees; usually on wood but in Hong Kong found on bark among lichens. New to Asia; so far known from temperate Europe and North America. The identity remains slightly

uncertain as the material bears no apothecia, which, however is often the case.

Tai Po Kau, NT, 1998, *Aptroot* 43336.

**Lecanora flavoviridis Krempelh.**

On granite boulders, but also on painted granite poles, in the mountains, up to 800 m alt. Originally described from Hong Kong.

Tai Mo Shan, NT, 1998, *Aptroot* 43555, 43560 & 43584; *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Krempelhuber* 1873: 470 & 1874: 65; *Rabenhorst* 1873: 287; *Zahlbruckner* 1930; *Herb. UPS* - specimen not seen); *Thrower* (1988: 16); *Lumbsch* (1994: 157).

**Lecanora gangaleoides Nyl.**

On granite boulders in the mountains, up to 800 m alt. New to Hong Kong; cosmopolitan.

Tai Mo Shan, NT, 1998, *Aptroot* 43575.

**Lecanora leprosa Fée**

On exposed trees, especially on branches, rarely on exposed granite boulders. Pantropical.

Pok Fu Lam, 1998, *Aptroot* 43005 & 43010; Lung Fu Shan, 1998, *Aptroot* 43089 & 43095; Aberdeen, Ocean Park, 1998, *Aptroot* 43713; Sai Kung Country Park, NT, 1998, *Aptroot* 43487 & 43539; on *Acacia confusa*, Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109091); Naam Gwoh Chau, South Ninpin Island, 1970, *Thrower* 1236 (CUHK); Wu Kai Sha, NT, 1972, *Thrower* 1435, 1438 (CUHK) & 1429, 1439 (HK & CUHK), 1973, *Thrower* 1605 & 1614 (CUHK), 1974, *Thrower* 1902 (CUHK); on *Sapium discolor*, Sai O Beach, NT, 1973, *Thrower* 1601 (CUHK); on *Lumnitzera racemosa*, Kei Ling Ha Hoi, n.d., *Thrower* 1666 (CUHK); on *Cerbera manghas*, Kei Ling Ha Hoi, NT, 1984, *Thrower* 3708 & 3712 (CUHK); also: *Thrower* 1414, 1595 (HK) & 1595, 1907, 1964, 1987, 2014, 2119, 2246, 3173, 3174, 3175, 3176, 3182 (CUHK); *Thrower* (1980, 1988: 16 & 111).

**Lecanora oreinodes (Körber) Hertel & Rambold**

On granite on coastal rocks. Described from Hong Kong under a synonymous name (see below); cosmopolitan.

*Loc. non cit.*, 1871-72, *R. Rabenhorst* (in

Hertel 1977: 297, as *Lecidea oreinodes* (Körber) W.A. Weber & Hertel; also under its synonym *Lecidea internigrans* Krempelsh. in Rabenhorst 1873: 286; Krempelhuber 1873: 468 & 1874: 60; Zahlbruckner 1930; Herb. M - specimen not seen); Thrower (1988: 16, as *L. internigrans*).

**Lecanora orosthea (Ach.) Ach.**

On exposed coastal granite. New to Asia; so far known only from temperate Europe, Africa and North America. The identity remains slightly uncertain as the material bears no apothecia, which, however is often the case.

Shek Mai Tau, NT, 1998, *Aptroot* 43481; Clearwater Bay, NT, 1998, *Aptroot* 43425, 1993, *Seaward & Chu* (MRDS 108679), 1995, *Chu* (HKU(M) 10455).

**Lecanora pseudistera Nyl.**

On granite, most common on coastal rocks, but also on lower slopes. New to China; nearly cosmopolitan.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43704; Lung Fu Shan, 1998, *Aptroot* 43099 & 43152; Sai Ko Chun, 1998, *Aptroot* 43652 & 43652A; Shek O Beach, 1998, *Aptroot* 43170 & 43205; Shek Mai Tau, NT, 1998, *Aptroot* 43461; Clearwater Bay, NT, 1998, *Aptroot* 43427, 1993, *Seaward & Chu* (MRDS 108747 & HKU(M) 10457), 1994, *Seaward & Chu* (MRDS 107209), 1994, *Chu* (HKU(M) 10456), 1995, *Chu* (MRDS 108670); Tsing Yi Island, 1974, *Thrower* 1989, 2089 (HK) & 2108, 2112 (CUHK); Lung Kwu Beach, 1993, *Seaward & Chu* (MRDS 106813, 107209, 107585), 1994, *Chu* (HKU(M) 10458); Fat Tong Chau, 1993, *Chu* (MRDS 108745); Cape d'Aguilar, 1990, *Seaward* (MRDS 108748), 1994, *Chu* (HKU(M) 10459); Big Wave Bay, 1994, *Chu* (MRDS 108759 & HKU(M) 10460); Thrower (1988: 17 & 168, wrongly mentioned as *Squamaria* sp.); also Wu Kai Sha, Ma Wan, Peng Chau, Kiu Tau, Lamma Island, Grass Island, Tai O Beach & Tong Fuk (Chu 1997: 48).

**Lecanora subimmersa (Fée) Vainio**

On granite in coastal areas and along mountain stream on lower slope. New to Hong Kong; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43114;

Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108875); Big Wave Bay, 1994, *Chu* (MRDS 107812, 108874); Kiu Tau, 1995, *Chu* (MRDS 108826); Sai Wan, NT, 1980, *Thrower* 3371 (HK); Thrower (1988: 16, as *Lecania* sp.).

**Lecanora sulphurescens Fée**

On granite boulders and on granite rock in walls on lower slopes. New to China; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43151 & 43421; Cape d'Aguilar, 1994, *Chu* (MRDS 108744); *loc. non cit.*, 1871-72, *R. Rabenhorst* (in Rabenhorst 1873: 287; Krempelhuber 1873: 470, 1874: 65; Zahlbruckner 1930; Thrower 1988: 16 - all under its probable synonym *Lecanora subfusca* var. *chlarona* f. *microcarpa* Krempelsh.); also Ma Wan, Tai O Beach & Clearwater Bay (Chu 1997: 48).

**Lecidea granifera (Ach.) Vainio**

On shaded trees and lianas along mountain stream. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43246 & 43299; on *Schefflera octophylla*, Tai Po Kau, NT, 1975, *Thrower* 2351 (HK); on *Machilus thunbergiana*, Tai Mo Shan, NT, 1976, *Thrower* 2584 (HK); Plover Cave, NT, 1978, *Thrower* 2947 (CUHK); Ngong Ping, Ma On Shan, NT, 1980, *Thrower* 3395 (HK); Thrower (1988: 16 & 113).

**Lecidea hypomela Nyl.**

On shaded trees and lianas along mountain stream. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43300.

**Lecidella enteroleucella (Nyl.) Hertel**

On coastal rocks and on exposed granite on mountain peak of low mountain at 250 m. New to Hong Kong; paleotropical, extending into adjacent subtropics, including Macao.

Lung Fu Shan, 1998, *Aptroot* 43166; Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108844 & HKU(M) 10461); Clearwater Bay, NT, 1995, *Chu* (MRDS 108873).

**Lempholemma chalazanum (Ach.) B. de Lesd.**

On brick and compacted soil on peaks of low mountains at 300-500 m. New to East Asia;



northern temperate. This is one of the most unexpected records. The species has most probably been overlooked, due to the lack of attention to lichens on man-made areas outside western Europe. It may be present only in the rainy season.

Lung Fu Shan, 1998, *Aptroot* 43408 & 43415; Victoria Peak, 1998, *Aptroot* 43606 & 43608.

***Lepraria lobificans* Nyl.**

On shaded soil and mossy rocks. Cosmopolitan. TLC revealed atranorin and the stictic acid complex.

Lung Fu Shan, 1998, *Aptroot* 43060; Chinese University of Hong Kong, NT, 1974, *Thrower* 2028 (HK); Tai Po Kau, NT, 1980, *Thrower* 3312 (HK); *Thrower* (1988: 16).

***Lepraria neglecta* (Nyl.) Lettau**

On exposed to shaded granite and soil, in coastal areas, but also in the mountains, up to 800 m alt. New to East Asia; so far known from temperate Europe, Asia, Australia and North America, so probably cosmopolitan. TLC revealed atranorin and alectorialic acid.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43693; Lung Fu Shan, 1998, *Aptroot* 43062 & 43081; Victoria Peak, 1998, *Aptroot* 43631; Shek O Beach, 1998, *Aptroot* 43203; Tai Mo Shan, NT, 1998, *Aptroot* 43582; Tai Tam, Cape d'Aguilar, 1990, *Seaward* (MRDS 107829, 107830); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108681); Big Wave Bay, 1994, *Chu* (HKU(M) 10462); Wu Kai Sha, NT, 1994, *Seaward & Chu* (MRDS 108877 & HKU(M) 10463); Shek O Beach, 1994, *Seaward & Chu* (MRDS 108676); Hunchbacks, NT, 1982, *Thrower* 3454 (CUHK); *Lepraria* sp. in *Chu* (1997: 48) is this species.

***Leprocaulon pseudoarbuscula* (Asah.) Lamb & Ward**

On shaded soil. Pantropical.

Ma On Shan, 1931, *G.A.C. Herklots* (Herb. Univ. Leeds, *Thrower* 1852, CUHK); Lamb & Ward (1974); *Thrower* (1988: 16 & 115).

***Lepruloma membranaceum* (Dickson) Vainio**

On shaded granite in coastal areas and on mountains. New to Hong Kong; cosmopolitan.

Victoria Peak, 1998, *Aptroot* 43637; Shek O Beach, 1998, *Aptroot* 43196; *Thrower* (1988: 114, as *Lepraria* sp., left-hand specimen only).

***Lepruloma vouauxii* (Hue) Laundon**

On shaded trees along mountain stream. New to China; cosmopolitan.

Tai Po Kau, NT, 1998, *Aptroot* 43339.

***Leptogium corticola* (Taylor) Tuck.**

Mostly on shaded trees, but also on shaded granitic rock along streams. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43266, 43284 & 43285; Shing Mun Reservoir, NT, 1970, *Thrower* 1377 (CUHK); Tai Po Kau, NT, 1971, *Thrower* 1299 (HK & CUHK), 1980, *Thrower* 3193 (CUHK), 1982, *Thrower* 3435 (CUHK); Tai Mo Shan, NT, 1976, *Thrower* 2552 (HK, CUHK & MRDS 107550); on *Fraxinus retusa*, Ngong Ping, NT, 1980, *Thrower* 3247 (HK & CUHK), 1981, *Thrower* 3362 (CUHK & MRDS 109079); *Thrower* (1988: 16 & 116, wrongly identified as *Leptogium azureum* (Sw. ex Ach.) Mont., which differs, e.g., by the more bluish-black thallus).

***Leptogium cyanescens* (Rabenh.) Körber**

Mostly on shaded trees, but also on shaded granitic rock along streams. Pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43212 & 43337; on *Cinnamomum*, Tai Po Kau, NT, 1971, *Thrower* 1287 (HK & CUHK); Cape d'Aguilar, 1972, *Thrower* 1499 (HK & CUHK), 1978, *Thrower* 2955 (CUHK); Nai Chung, NT, 1972, *Thrower* 1421 (HK & CUHK); on *Ficus superba*, Sai O Beach, NT, 1973, *Thrower* 1632 (CUHK); Sai Wan, NT, 1973, *S.T. Chan* (*Thrower* 1642, CUHK); Tai Mo Shan, NT, 1976, *Thrower* 2625 & 2679 (CUHK); on *Gnetum montanum*, Tai Po Kau, NT, 1978, *Thrower* 3070 (CUHK); Ma On Shan, NT, 1979, *Thrower* 3172 (CUHK); Mau Ping, NT, 1981, *Thrower* 3363 (CUHK); also: *Thrower* 1368, 1537, 1656, 2294 (HK); *Thrower* (1988: 16 & 117).

***Leptogium denticulatum* Nyl.**

Mostly on shaded trees, but also on shaded granitic rock and on *Ficus* roots. Pantropical.

Victoria Peak Gap, 1998, *Aptroot* 43673 & 43675; Tai Po Kau, NT, 1998, *Aptroot* 43211 & 43265; Tai Po Kau, NT, 1971, *Thrower* 1306 (CUHK), 1980, *Thrower* 3194 (HK); Cape d' Aguilar, 1972, *Thrower* 3264 (CUHK); Tai Mo Shan, NT, 1976, *Thrower* 2590 (HK); Wu Kau Tang, NT, 1976, *Thrower* 2467 (HK); Ngong Ping, Ma On Shan, NT, 1981, *Thrower* 3351 (HK); Mau Ping, NT, 1981, *Thrower* 3365 (CUHK); *Thrower* (1988: 16 & 118).

**Mazosia dispersa (Hedrick) R. Sant.**

On living leaves of *Pandanus* in forests. New to Asia; apparently pantropical, as it was known from tropical Africa and the neotropics.

Tai Po Kau, NT, 1998, *Aptroot* 43371.

**Mazosia melanophthalma (Müll. Arg.) R. Sant.**

On living leaves of trees and *Pandanus* in forests, but also on bark of trees, e.g. *Callitris*. Pantropical.

Victoria Peak Gap, 1998, *Aptroot* 43661; Tai Po Kau, NT, 1998, *Aptroot* 43272 & 43356; on *Pandanus furcatus*, Tai Po Kau, NT, 1983, *Thrower & Seaward* (Thrower 3658, HK & MRDS 106038); *Thrower* (1988: 16 & 119).

**Mazosia phyllosema (Nyl.) Zahlbr.**

On living leaves of *Pandanus* in forest. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43377.

**Melaspilea diplasiospora (Nyl.) Müll. Arg.**

On exposed trees; usually on wood but in Hong Kong found on branches among lichens. New to China; known from the neotropics and Australia, but recently also reported from East Asia (*Aptroot* 1998: 31), therefore probably pantropical. The records from Great Britain are erroneous. This is not the same species as reported and illustrated by *Thrower* (1988: 16 & 121) as *Melaspilea* sp. The latter is an immature *Opegrapha* (specimen seen: Tai Po Kau, NT, 1975, *Thrower* 2330, HK).

Tai Po Kau, NT, 1998, *Aptroot* 43363.

**Menegazzia terebrata (Hoffm.) Massal.**

On granite boulders in mountain area. Northern temperate.

Tai Mo Shan, NT, 1976, *Thrower* 2601 (HK); *Thrower* (1988: 16 & 122).

**Micarea bauschiana (Körber) V. Wirth & V3zda**

On compacted soil on mountain slope of low mountain at 200 m. New to East Asia; northern temperate.

Lung Fu Shan, 1998, *Aptroot* 43123; living culture CBS 101363.

**Micarea lutulata (Nyl.) Coppins**

On iron-containing rock and soil along path in coastal areas, but also on mountain slopes of low mountains up to 400 m. New to Asia; so far known from temperate Europe and North America.

Sai Kung Country Park, Shek Shan, NT, 1998, *Aptroot* 43513; Sai Kung Country Park, NT, 1998, *Aptroot* 43499; Shin Ming Reservoir, NT, 1998, *Aptroot* 43405.

**Micarea peliocarpa (Anzi) Coppins & R. Sant.**

Mostly on shaded trees, but also on granite, moss on rock and soil. New to Asia; so far known from Europe, Africa, Australasia and North America, so apparently cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43070; Victoria Peak, 1998, *Aptroot* 43611; Tai Mo Shan, NT, 1998, *Aptroot* 43561, 43590 & 43598; Tai Po Kau, NT, 1998, *Aptroot* 43215, 43247, 43282, 43296 & 43314.

**Multiclavula vernalis (Schw.) Petersen**

On compacted soil on road banks, from sea-level to 800 m alt. New to Asia; so far known from temperate Europe, Australia and North America. This is one of the most unexpected records. The species has most probably been overlooked. It may be present only in the rainy season.

Tai Po Kau, NT, 1998, *Aptroot* 43223; Sai Kung Country Park, NT, 1998, *Aptroot* 43497; Tai Mo Shan, NT, 1998, *Aptroot* (field record).

**Myelochroa aurulenta (Tuck.) Elix & Hale**

On rock in mountain areas. Pantropical.  
Tai Po Kau, NT, 1974, *Thrower* 1873 (HK); Tai Mo Shan, NT, 1975, *Thrower* 2302 (CUHK), 1976, *Thrower* 2626 (HK); also: *Thrower* 3133 (HK) & 2553, 2817 (CUHK); Hale (1976b: 22); *Thrower* (1988: 16 & 125, all under its synonym *Parmelina aurulenta* (Tuck.) Hale).

**Myriotrema compunctum (Ach.) Hale**

On shaded trees. New to China; pantropical.  
Tai Po Kau, NT, 1998, *Aptroot* 43295.

**Myriotrema minutum (Hale) Hale**

On shaded trees. New to China; so far only known from tropical Asia.  
Tai Po Kau, NT, 1998, *Aptroot* 43214.

**Myriotrema subcompunctum (Nyl.) Hale**

On shaded trees. New to China; pantropical.  
Victoria Peak Gap, 1998, *Aptroot* 43659; Tai Po Kau, NT, 1998, *Aptroot* 43346.

**Neocatapyrenium cladonioideum (Vainio) H. Harada**

On soil on coastal rock. Already reported as new to China by Breuss (1998), on the basis of the material mentioned below; only known from East Asia.  
Cape d'Aguiar, 1990, *Seaward* (MRDS 107619), 1994, *Chu*.

**Ocellularia perforata (Leighton) Müll. Arg.**

On shaded trees. New to China; pantropical.  
Tai Po Kau, NT, 1998, *Aptroot* 43298.

**Ochrolechia tartarea (L.) Massal.**

On shaded rock along stream at 800 m alt. New to Hong Kong; probably cosmopolitan.  
Tai Mo Shan, NT, 1998, *Aptroot* 43583; Tai Mo Shan, NT, 1976, *Thrower* 2608 (CUHK); *Thrower* (1988: 16 & 124, as *Ochrolechia* sp.).

**Opegrapha varia Pers.**

On shaded trees. New to China; cosmopolitan.  
Tai Po Kau, NT, 1998, *Aptroot* 43301, 43304 & 43309.

**Opegrapha viridis (Pers. ex Ach.) Nyl.**

On trees, e.g. *Kandelia*, in coastal areas. New to China; cosmopolitan.  
Shek O Beach, 1998, *Aptroot* 43191; Sai Kung Country Park, NT, 1998, *Aptroot* 43540; *Thrower* (1988: 16, under the probable synonym *Opegrapha* cf. *multiseptata* var. *plicatula* Redinger).

**Paraparmelia owariensis (Asah.) Elix & Johnston**

On granite (and more rarely basalt) boulders, especially in coastal areas. Paleotropical.  
Shek O Beach, 1998, *Aptroot* 43142 & 43188; Tai O Beach, Lantau, 1995, *Chu* (MRDS 108667); Pokfulam Reservoir Road, 1966, *Thrower* 1189 (BM & HK); Mui Tse Lam, NT, 1973, *Thrower* 1893 (CUHK); Chek Keng, NT, 1975, *Thrower* 2253 & 2260 (CUHK); Ngo Mei Chau, NT, 1976, *Thrower* 2527 (CUHK); Tai Mo Shan, NT, 1976, *Thrower* 2557 (CUHK); Bluff Island, NT, 1976, *Thrower* 2628 (CUHK); Ma On Shan, NT, 1978, *Thrower* 3048 (CUHK) & 3049 (HK); Sham Wat, Lantau, 1979, *Thrower* 3145 (CUHK); Shek Pik Reservoir, NT, 1979, *Thrower* 3166 (CUHK) & 3168 (HK); Mong Tung Wan, NT, 1983, *Thrower* 3516 (CUHK); also: *Thrower* 2494, 2635, 3291 (HK); Hale (1976a: 39); *Thrower* (1988: 17 & 154, all under its synonym *Pseudoparmelia owariensis* (Asah.) Hale).

**Parmelinella wallichiana (Taylor) Elix & Hale**

On granite boulders, occasionally on trees or on painted granite pole, in mountain areas. Paleotropical.  
Tai Mo Shan, NT, 1998, *Aptroot* 43557 & 43576; Tai Mo Shan, NT, 1973, *Thrower* 1586 (HK & US) & 1976, *Thrower* 2556 & 2562 (CUHK); also: *Thrower* 2667 (HK) & 2599, 2666, 2667, 2673 (CUHK); Hale (1976b: 52); *Thrower* (1988: 16 & 126, all under its synonym *Parmelina wallichiana* (Taylor) Hale).

**Parmotrema incrassatum Hale ex DePriest & B. Hale**

On trees, e.g. *Kandelia*, in mangrove, and on granite boulders, in coastal areas. Apparently endemic to Hong Kong, but easily confused with

other species, and possibly overlooked elsewhere.

Sai Kung Country Park, NT, 1998, *Aptroot* 43542; Soko Island, 1975, *Thrower* 2220 (CUHK & US); Po Toi Island, NT, 1975, *Thrower* 2288 (CUHK) & 2299 (HK); Sam Pak, Lantau, 1975, *W.T.Kok* (*Thrower* 2297, HK); Tai Mo Shan, NT, 1976, *Thrower* 2670 (CUHK); Nam Shan, Lantau, 1982, *Thrower* 3489 (CUHK); also: *Thrower* 2926, 3317 (HK) & 2218 (CUHK); Tchou (1935, wrongly identified as *Parmelia subrugata* Krempelth., which differs, e.g., by the presence of two types of rhizines); *Thrower* (1988: 16 & 128); DePriest & Hale (1998: 207); also Kiu Tau & Tai O Beach (Chu 1997: 48).

***Parmotrema praesorediosum* (Nyl.) Hale**

On trees, e.g. *Kandelia*, in mangrove, and on granite boulders, mostly in coastal areas. Pantropical.

Lung Fu Shan, 1998, *Aptroot* 43039, 43046 & 43128; Shek Mai Tau, NT, 1998, *Aptroot* 43460; Sai Kung Country Park, NT, 1998, *Aptroot* 43543; Clearwater Bay, NT, 1998, *Aptroot* 43429, 1993, *Seaward & Chu* (MRDS 10659, 107224, 107213); Cape d'Aguilar, 1990, *Seaward* (MRDS 108822); Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108848); Tai O Beach, Lantau, 1995, *Chu* (HKU(M) 10464); Tam Tai Tuk Reservoir, 1965, *Thrower* 1220 (CUHK); Nai Chung, NT, 1972, *Thrower* 1443 (HK & CUHK); Chek Nai Ping, NT, 1973, *Thrower* 1854 (HK & CUHK); Black's Link, Mt Nicholson, 1973, *Thrower* 1814 (HK & CUHK); Ping Chau Island, NT, 1974, *Thrower* 2018 (CUHK); Chek Keng, NT, 1975, *Thrower* 2256 (CUHK); Bluff Island, NT, 1976, *Thrower* 2651 (CUHK); Wu Kau Tang, NT, 1976, *Thrower* 2464 (HK, CUHK & MRDS 109078); Sai Wan, Tai Long Bay, NT, 1978, *Thrower* 2920 (CUHK); Tung Lung Island, NT, 1981, *Thrower* 3385 (CUHK); also: *Thrower* 1872, 2095, 2140, 2460, 2518, 2523 (HK) & 1271, 1295, 1449, 1451, 1515, 1892, 1894, 1965, 2092, 2167, 2184, 2207, 2211, 2254, 2257, 2284, 2298, 2470, 2905, 2919, 2921, 3092 (CUHK); *loc. non cit.*, 1846-51, *Hance* & 1850, *Seemann* (in *Seemann* 1852-57: 432 wrongly identified as *Parmelia perlata* (Huds.) Ach., which differs, e.g., by the chemistry); Tchou (1935, as *Parmelia perlata*); *Thrower* (1988: 16 & 129); also Tai Tau, Grass

Island & Tong Fuk (Chu 1997: 48).

***Parmotrema tinctorum* (Despr. ex Nyl.) Hale**

On trees, e.g. *Kandelia*, in mangrove, and on granite boulders, in coastal areas. Pantropical.

Shek Mai Tau, NT, 1998, *Aptroot* 43458; Sai Kung Country Park, NT, 1998, *Aptroot* 43544; Victoria Peak, 1965, *Thrower* 1196 (CUHK); Cape d'Aguilar, 1971, *Thrower* 1275 (CUHK), 1975, *A.Proud* (*Thrower* 2193, CUHK); Wu Kai Sha, NT, 1972, *Thrower* 1400 (CUHK); on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, n.d., *Thrower* 1411, 1525 (CUHK); Soko Island, 1975, *Thrower* 2210 (CUHK); Tai Mo Shan, NT, n.d., *P.Tam* (*Thrower* 1493, HK); Chek Keng, NT, 1975, *Thrower* (MRDS 101241); also: *Thrower* 1239, 1265, 1267 (HK); *Thrower* (1980, 1988: 16 & 131).

***Peltula bolanderi* (Tuck.) Wetmore**

On coastal granitic rocks, but also on concrete, affected by freshwater downflow. New to China; known from Africa, Australia and the neotropics, but recently also reported from South East Asia (*Aptroot* 1998: 31), so apparently pantropical.

Shek O Beach, 1998, *Aptroot* 43172; Clearwater Bay, NT, 1998, *Aptroot* 43453 & 43454.

***Peltula clavata* (Krempelth.) Wetmore**

On coastal granitic rocks, affected by freshwater downflow. New to East Asia; pantropical.

Wu Kai Sha, NT, 1994, *Seaward & Chu* (MRDS 106721 with *P. placodizans*, 107548 & ABL).

***Peltula coriacea* Büdel, Henssen & Wessels**

On coastal granitic rocks, affected by freshwater downflow. New to Asia; so far known from tropical South Africa.

Shek O Beach, 1998, *Aptroot* 43193; Clearwater Bay, NT, 1998, *Aptroot* 43451; Shek Mai Tau, NT, 1998, *Aptroot* 43473.

***Peltula euploca* (Ach.) Poelt ex Ozenda & Clauzade**

On coastal granitic rocks, but also on concrete, affected by freshwater downflow. New

to China; pantropical.

Pok Fu Lam, 1998, *Aptroot* 43001; Clearwater Bay, NT, 1998, *Aptroot* 43442; Cape d'Aguilar, 1990, *Seaward* (MRDS 107549).

**Peltula obscurans (Nyl.) Gyelnik**

On concrete and granitic rocks, mostly coastal, often affected by freshwater downflow. New to China; pantropical.

Pok Fu Lam, 1998, *Aptroot* 43001A; Victoria Peak, 1998, *Aptroot* 43635 Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108675); Lamma Island, 1994, *Chu* (MRDS 108677 & HKU(M) 10465); also Ma Wan, Wu Kai Sha, Peng Chau & Cape d'Aguilar (Chu 1997: 48 as *Peltula* sp.).

**Peltula placodizans (Zahlbr.) Wetmore**

On coastal granitic rocks, affected by freshwater downflow. New to Asia; known from Africa, Australia and the neotropics before, so apparently pantropical.

Clearwater Bay, NT, 1998, *Aptroot* 43441; Lung Kwu Beach, NT, 1994, *Seaward & Chu* (MRDS 108765), 1994, *Chu* (ABL); Wu Kai Sha, NT, 1993, *Seaward & Chu* (MRDS 106721, 108680); Lido Beach, 1993, *Chu* (MRDS 107116, 107734); Tai Lam Chung, 1993, *Chu* (HKU(M) 10466); Lamma Island, 1994, *Chu* (MRDS 107735, 108704 & HKU(M) 10467, 10448 with *Caloplaca leptozona*); also Ma Wan, Peng Chau & Cape d'Aguilar (Chu 1997: 48 incorrectly reported as *P. impressa* (Vainio) Swinscow & Krog).

**Pertusaria excludens Nyl.**

On coastal and inland, exposed granitic rocks. New to Asia; northern temperate. TLC revealed norstictic acid and in one collection also lichexanthone.

Cape d'Aguilar, 1994, *Chu* (MRDS 108661); Kiu Tau, Sharp Island, 1995, *Chu* (MRDS 107583); Tai Mo Shan, NT, 1976, *Thrower* 2544 (CUHK); Nai Chung, NT, 1983, *Thrower* 3659 (HK); *Thrower* (1988: 16 & 134, wrongly identified as cf. *Pertusaria subvaginata* var. *orientalis* Räsänen, which differs, e.g., by the chemistry); *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Rabenhorst* 1873: 287; *Krempelhuber* 1873: 469 & 1874: 61;

*Zahlbruckner* 1930; *Thrower* 1988: 16 - all wrongly identified as *Pertusaria leucopsara* Krempelhuber, which differs, e.g., by the chemistry); also Clearwater Bay (Chu 1997: 48 as *P. subvaginata* var. *orientalis*).

**Pertusaria flavicans Lamy**

On coastal and inland, exposed granitic rocks. New to Hong Kong; known so far from Europe and Asia. The material agrees well with European specimens. TLC revealed thiophanic acid.

Shek O Beach, 1998, *Aptroot* 43197; Lung Fu Shan, 1998, *Aptroot* 43085, 43129 & 43163; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108689, HKU(M) 10468); Fat Tong Chau, 1993, *Chu* (HKU(M) 10469); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108860); Cape d'Aguilar, 1972, *Thrower* 1461 (CUHK); High West, 1973, *Thrower* 1574 (HK & CUHK), 1974, *Thrower* 2148 (CUHK); Ping Shan Tsai, NT, 1973, *Thrower* 1862 (HK); Tsing Yi Island, 1974, *Thrower* 1996 (HK); Ma Shi Chau Island, NT, 1973, *Thrower* 1677 (CUHK); Lai Chi Wo, NT, 1975, *Thrower* 2312 (CUHK); *Thrower* (1988: 16 & 132, under the possible synonym *Pertusaria amarescens* Nyl.); also Lamma Island, Wu Kai Sha, Kiu Tau, Grass Island, Tong Fuk & Big Wave Bay (Chu 1997: 48 as *P. amarescens*).

**Pertusaria pseudocorallina (Liljeblad) Arnold**

On coastal and inland, exposed granitic rocks. New to Hong Kong; northern temperate.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43688; Tai Mo Shan, NT, 1998, *Aptroot* 43568; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108764); Big Wave Bay, 1994, *Chu* (MRDS 108762).

**Pertusaria tetrathalamia (Fée) Nyl.**

On exposed trees. New to China; pantropical.

On *Prunus*, Tai Po Kau, NT, 1980, *Thrower* 3651 (HK); on *Cerbera manghas*, Kei Ling Ha Hoi, NT, 1984, *Thrower* 3705 (HK); *Thrower* (1988: 16); *Thrower* (1988: 16 & 133, wrongly identified as *Pertusaria* cf. *subtruncata* Müll. Arg., which differs, e.g., by the chemical compounds present).

**Phaeographina pyrrhochroa (Mont. & v.d. Bosch) Zahlbr.**

On sheltered trees in forests. New to Hong Kong; pantropical.

Sai Kung Country Park, NT, 1998, *Aptroot* 43536; Tai Tam Reservoir, 1965, *Thrower* 1286 (CUHK); Shing Mun Reservoir, 1970, *Thrower* 1247 (CUHK); Ping Shan Tsai, NT, 1973, *K.K.Mark* (Thrower 1886 & 1916 CUHK); nr Chinese University of Hong Kong, 1974, *Thrower* 1934 (CUHK); Wu Kai Sha, NT, 1974, *Thrower* 1973 (CUHK); Tai Mong Tsai, NT, 1974, *Thrower* 2187, 2188 & 2194 (CUHK); Soko Island (North), 1975, *Thrower* 2234 (CUHK); also: *Thrower* 1394, 1538, 2474 (HK) & 2275, 2337, 2865 2895, 3203, 3258, 3339, 3701; Thrower (1988: 16 & 135, under the synonym *Phaeographina chlorocarpoides* (Nyl.) Zahlbr.).

**Phaeographina quassiaecola (Fée) Müll.Arg.**

On sheltered trees in forests. Pantropical.

On *Viburnum odoratissimum*, Ngong Ping, Ma On Shan, NT, 1980, *Thrower* 3240 (HK), 1981, *Thrower* 3357 (HK); Thrower (1988: 16 & 138).

**Phaeographina scalpturata (Ach.) Müll.Arg.**

On sheltered trees in forests. New to China; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43044; Tai Po Kau, NT, 1998, *Aptroot* 43318.

**Phaeographis exaltata (Mont. & v.d. Bosch) Müll. Arg.**

On sheltered trees in forests, e.g. on *Kandelia* in mangrove. Pantropical. Previously reported under various, partly synonymous names from Hong Kong, due to over-emphasizing characters which are quite plastic within single specimens of Graphidaceae, such as ascospore size and extension of carbonization.

Victoria Peak Gap, 1998, *Aptroot* 43681; Tai Po Kau, NT, 1998, *Aptroot* 43257 & 43303; Sai Kung Country Park, NT, 1998, *Aptroot* 43523 & 43537; on *Excoecaria agallocha*, Kei Ling Ha Hoi, NT, 1972, *Thrower* 1415 (HK); Tai Tam Reservoir, 1965, *Thrower* 1282 (HK); Lugard Road, Victoria Peak, 1966, *Thrower* 1212 (HK & CUHK); on *Sapium discolor*, Tai Po

Road, NT, 1978, *Thrower* 3036 (HK); Upper Tai Tam Reservoir, 1965, *Thrower* 1281 (CUHK) & 1282 (HK & CUHK), 1966, *Thrower* 1198, 1200 (HK) & 1205 (HK & CUHK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2317 (CUHK); also: *Thrower* 2307, 2591, 3693, 3698 (HK), 2196, 2331, 2395, 2591, 2598, 2878, 2933, 3106, 3183, 3677, 3692, 3702, 3711, 3720 (CUHK) & 2477 (HK & CUHK); Thrower (1988: 16 & 139, as *Phaeographis balansana* Müll. Arg.); Thrower (1988: 16 & 140, as *Phaeographis circumscripta* (Krempelh.) Zahlbr.); Thrower (1988: 16 & 141, as *Phaeographis computata* Müll. Arg.); Thrower (1988: 17 & 142, as *Phaeographis dendritica* (Ach.) Müll. Arg.); Thrower (1988: 17 & 144, as *Phaeographis inustoides* Fink).

**Phaeographis lobata (Eschw.) Müll. Arg.**

On tree in forest. New to China; pantropical.

On *Prunus*, Tai Po Kau, NT, 1980, *Thrower* 3649 (HK); Thrower (1988: 17 & 173, as the incorrectly reported *Thelotrema expansum* C. Knight).

**Phaeographis sericea (Eschw.) Müll. Arg.**

On sheltered trees in forests, e.g. on *Kandelia* in mangrove. New to China; pantropical.

Shek O Beach, 1998, *Aptroot* 43182; Sai Kung Country Park, NT, 1998, *Aptroot* 43549; on *Plumeria rubra*, Happy Valley Cemetery, 1976, *Thrower* 2765, 2766 (CUHK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2316 (HK); on *Phyllanthus emblica*, Pak Kung Au, NT, 1983, *Thrower* 3697 (HK); Thrower (1988: 17 & 146); Thrower (1988: 17 & 143, under its possible synonym *Phaeographis heterochroa* Zahlbr.).

**Phlyctis argena (Sprengel) Flotow**

On exposed trees. New to Hong Kong; so far known from Europe, North America and temperate Asia, only recently reported from China (Prillinger *et al.* 1997: 579, 582 & 583; identified by A. Aptroot). TLC revealed norstictic acid.

Lung Fu Shan, 1998, *Aptroot* 43040; Pok Fu Lam Reservoir, 1998, *Aptroot* 43695.

**Physcia albinea (Ach.) Malbr.**

On coastal rock. New to Hong Kong; northern temperate.

Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106549, 108871), 1995, *Chu* (MRDS 108666).

**Physcia atrostriata Moberg**

On sheltered trees in forests, e.g. on *Kandelia* in mangrove, and on coastal rock. New to Hong Kong; recently reported from China (Prillinger *et al.* 1997: 579, 582 & 583; identified by A. Aptroot); pantropical.

Sai Kung Country Park, NT, 1998, *Aptroot* 43496 & 43547; Waglan Island, 1972, *L.B.Thrower* (Thrower 1452, CUHK).

**Physcia crispa Nyl.**

On coastal rock. New to Hong Kong; pantropical.

Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108872).

**Physcia integrata Nyl.**

On roadside granitic outcrop and coastal rocks. New to China; pantropical.

Tai Tam, Cape d'Aguilar, 1990, *Seaward* (MRDS 106155).

**Physcia solediosa (Vainio) Lynge**

On coastal rocks. New to China; pantropical.

Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106556); also Cape d'Aguilar & Big Wave Bay (*Chu* 1997: 48 as *Physcia* sp.).

**Physma byrsaeum (Ach.) Müll. Arg.**

On trees, mostly in roadside woodlands. Pantropical.

On *Bauhinia*, Tai Po Kau, NT, 1974, *Thrower* 1874 (HK, CUHK & MRDS 109075); on *Cinnamomum camphora*, Wu Kai Sha, NT, 1974, *Thrower* 1974 (CUHK); Kei Ling Ha Hoi, NT, 1978, *Thrower* 3082 (HK & MRDS 107574); *Thrower* (1988: 17 & 147, under its synonym *Physma byrsinum* f. *hypomelaenum* Hue).

**Placidiosis poronioides Aptroot sp. nov.**

*Placidiosis saxicola*, *squamulis minutis*

*adpressis griseis*, *ascosporis* 11–13 × 3–4 µm.

Typus: Hong Kong, New Territories, Tai Mo Shan, 800 m alt., June 1998, *Aptroot* 43566 (HKU(M)—holotypus, ABL—isotypus); living culture CBS 101262.

(Figs 5, 14, 15)

Thallus superficial, crustose, consisting of rounded to angular or lobate, closely appressed squamules, brownish grey, not pruinose. Squamules 0.2–0.5 mm diam., c. 0.1 mm thick, solitary or in groups of up to 20, forming thalli of up to 2 mm, surrounded by and partly interspersed with a black, up to 0.2 mm wide hypothallus. Algae chlorococcoid, of Verrucariaceae-type, cells up to 15 µm diam. Ascomata immersed in the thallus, round to pyriform, only the black ostioles visible from above, wall very thin (c. 5 µm), hyaline to pale brown. Ostioles black, c. 0.1 mm wide, slightly protruding, wall c. 20 µm thick and always dark brown. Hamathecium consisting of unbranched, relatively short periphyses of c. 1.5 µm wide and desintegrating interascal filaments. Asci clavate, c. 30–40 × 8–10 µm. Ascospores irregularly arranged in the ascus, long ellipsoid, hyaline, with one supramedian septum, 11–13 × 3–4 µm.

On exposed granite on mountain slope.

This species differs from all other species of this genus (Breuss 1996) by the combination of the saxicolous habitat and ascospore size. Most species of this genus grow only on soil and all of those have larger squamules than the present species. The two other known saxicolous species have either smaller or larger ascospores, and both differ in additional details, as *P. minor* R.C. Harris is has a pruinose thallus, and *P. cavicola* Etayo & Breuss has finely notched-incised squamules (see Breuss 1996).

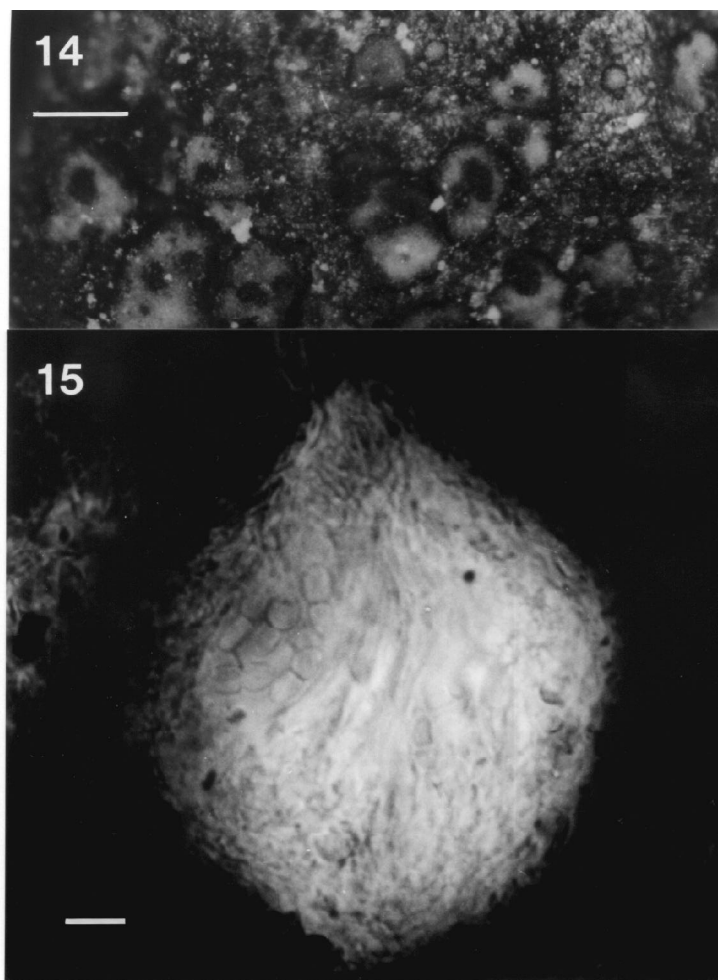
**Placopyrenium trachyticum (Haszlsinsky) O. Breuss**

On coastal rock. New to East Asia; known from temperate and subtropical Africa, Europe and Asia.

Big Wave Bay, 1994, *Seaward & Chu* (MRDS 108876).

**Placynthiella oligotropha (Laundon) Coppins & P. James**

On exposed granite rock. New to East



Figs 14-15. *Placidopsis poronioides*. Fig. 14. Thallus with ascomata. Fig. 15. Section through ascoma showing ascus with ascospores and hamothecium. Bar = 500  $\mu$ m in fig. 14; bar = 10  $\mu$ m in fig. 15.

Asia; northern temperate.

Lung Fu Shan, 1998, *Aptroot* 43159.

***Polyblastia vouauxii* B. de Lesd.**

On sheltered concrete. New to Asia; so far known from Europe, but doubtlessly often overlooked due to the lack of attention to lichens on man-made substrata outside western Europe.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43022; living culture CBS 101362.

***Polymeridium proponens* (Nyl.) R.C. Harris**

On sheltered trees in forests. New to China; pantropical.

Victoria Peak Gap, 1998, *Aptroot* 43677; Tai Tam Tuk Reservoir, 1965, *Thrower* 1225 (CUHK); Upper Tai Tam Reservoir, 1966,

*Thrower* 1203 (HK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2324 (HK); on *Hibiscus tiliaceus*, Kau Sai Chau, NT, 1975, *Thrower* 2308 (HK); *Thrower* (1988: 17 & 149, as *Polymeridium* sp.).

***Polysporina cyclocarpa* (Anzi) V 3zda**

On sheltered soft, calcareous, rock. New to China; so far known from Europe, North Africa and East Asia.

Lung Fu Shan, 1998, *Aptroot* 43069.

***Porina chlorotica* (Ach.) Müll. Arg.**

On sheltered granitic rock. New to China; cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43087 & 43132.



**Porina coralloidea P. James**

On trees in forest and on granitic rock along stream. New to Asia; so far known from Europe, Africa and Australia.

Pok Fu Lam Reservoir, 1998, *Aptroot* 43702; Tai Po Kau, NT, 1998, *Aptroot* 43350.

**Porina epiphylla (Fée) Fée**

On living leaves of *Pandanus*. New to Hong Kong; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43332.

**Porina guentheri (Flotow) Zahlbr.**

On sheltered granitic rock. New to China; cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43134; Victoria Peak, 1998, *Aptroot* 43670; Tai Po Kau, NT, 1998, *Aptroot* 43221.

**Porina leptalea (Durieu & Mont.) A.L. Sm.**

On sheltered granitic rock. New to China; cosmopolitan.

Pok Fu Lam, 1998, *Aptroot* 43004; Pok Fu Lam, University Campus, 1998, *Aptroot* 43013 & 43033; Lung Fu Shan, 1998, *Aptroot* 43133; Tai Po Kau, NT, 1998, *Aptroot* 43228.

**Porina limbulata (Krempelh.) Vainio**

On living leaves of trees and *Pandanus*. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43333, 43390 & 43397.

**Porina nitidula Müll. Arg.**

On living leaves of ferns and *Pandanus*. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43326 & 43373.

**Porina nucula Ach.**

On exposed trees, e.g. *Kandelia*, in mangrove forest. New to Hong Kong; pantropical.

Sai Kung Country Park, NT, 1998, *Aptroot* 43545 & 43546; Tai Po Kau, NT, 1998, *Aptroot* 43293.

**Porina rubentior (Stirton) Müll. Arg.**

On living leaves of *Pandanus*. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43372.

**Porina tetracerae (Afz. in Ach.) Müll. Arg.**

On sheltered granitic rock, trees, lianas and living leaves of creeping Araceae. New to Hong Kong; pantropical. Most Hong Kong specimens are isidiate.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43029; Tai Po Kau, NT, 1998, *Aptroot* 43237, 43297, 43329, 43341 & 43347.

**Porpidia platycarpoides (Bagl.) Hertel**

On exposed or sheltered granitic rock in mountain areas, sometimes submerged in mountain stream. New to China; northern temperate.

Lung Fu Shan, 1998, *Aptroot* 43093 & 43420; Tai Po Kau, NT, 1998, *Aptroot* 43224; Tai Mo Shan, NT, 1998, *Aptroot* 43564, 43567 & 43581; Shin Ming Reservoir, NT, 1998, *Aptroot* 43404; Fei Ngo Shan, NT, 1979, *Thrower* 3142 (HK), 1980, *Thrower* 3253 (HK); Ma On Shan, NT, 1980, *Thrower* 3205 (CUHK); Tai Po Kau, NT, 1982, *Thrower* 3598 (HK); *Thrower* (1988: 17 & 112, wrongly identified as *Lecidea albocaerulescens* (Wulfen) Ach., from which it differs, e.g., by the conspicuous KOH+red (crystals) reaction).

**Porpidia superba (Körber) Hertel & Knoph**

On exposed granitic rock on mountain at 800 m alt. New to Hong Kong; northern temperate.

Tai Mo Shan, NT, 1998, *Aptroot* 43565.

**Pseudocyphellaria argyracea (Delise) Vainio**

On exposed granitic rock in mountain area. Pantropical.

Tai Mo Shan, NT, 1976, *Thrower* 2549 (HK) & 2573 (CUHK); *Thrower* (1988: 17, 152 & 153).

**Pseudopyrenula subnudata Müll. Arg.**

On exposed or sheltered trees, often on branches, occurring in the mountains up to 800 m alt. Pantropical.

Victoria Peak, 1998, *Aptroot* 43612; Tai Po Kau, NT, 1998, *Aptroot* 43358; Tai Mo Shan, NT, 1998, *Aptroot* 43559; on *Raphiolepis indica*, Mt Collinson, 1973, *Thrower* 1547 (HK);

Thrower (1988: 17 & 155, under its synonym *Pseudopyrenula subgregaria* Müll. Arg.).

**Psorotichia schaeferi (Massal.) Arnold**

On exposed or sheltered concrete and brick, often affected by run-off from water. New to East Asia; northern temperate.

Pok Fu Lam, 1998, *Aptroot* 43003; Lung Fu Shan, 1998, *Aptroot* 43067 & 43414; Victoria Peak, 1998, *Aptroot* 43644.

**Pyrenocollema halodytes (Nyl.) R.C. Harris**

On maritime rocks, including granite, but characteristically on calcareous shells of barnacles in the littoral zone. New to China; cosmopolitan.

Clearwater Bay, NT, 1998, *Aptroot* 43436; Cape d'Aguilar, 1990, *Seaward* (MRDS 106547); Talo Harbour, 1990, *Seaward*; Tai O Beach, Lantau, 1994, *Chu* (MRDS 108828); *loc. non cit.*, 1851-53, *Eugenie*-expedition (in Santesson 1939: 63, under the probable synonym *Arthopyrenia sublitoralis* (Leighton) Arnold; Herb. S - specimen not seen).

**Pyrenopsis furfurea (Nyl.) Th. Fr.**

On coastal rocks, often affected by run-off from terrestrial freshwater. New to Asia; known from temperate Europe and North America.

Shek O Beach, 1998, *Aptroot* 43192 & 43199; Clearwater Bay, NT, 1998, *Aptroot* 43428, 43449 & 43452; Shek Mai Tau, NT, 1998, *Aptroot* 43459, 43468 & 43472; Cape d'Aguilar, 1990, *Seaward* (MRDS 108857); Clearwater Bay, NT, 1993, *Seaward* & *Chu* (MRDS 108673 with *Buellia* cf. *testacea* & HKU(M) 10470); Shek O Beach, 1994, *Chu* (MRDS 107736); 1994, *Seaward* & *Chu* (MRDS 106720, 108849 & HKU(M) 10471); Big Wave Bay, 1994, *Seaward* & *Chu* (HKU(M) 10472); Lamma Island, 1994, *Chu* (MRDS 108854 & HKU(M) 10473); Kiu Tau, Sharp Island, 1995, *Chu* (HKU(M) 10474).

**Pyrenula anomala (Ach.) Vainio**

On sheltered trees in forests. Pantropical. Tai Po Kau, NT, 1998, *Aptroot* 43260; on *Aquilaria sinensis*, Sai Wan, NT, 1973, *S.T.Chan* (Thrower 1604, CUHK); on

*Cratoxylum ligustrinum*, Wu Kau Tang, NT, 1976, *Thrower* 2472 & 2475 (HK); on *Sterculia lanceolata*, Cape d'Aguilar, 1978, *Thrower* 2982 (HK); Thrower (1988: 16 & 120, under its synonym *Melanotheca anomala* (Ach.) Massal. and wrongly identified as *Parathelium microcarpum* Riddle, which is restricted to North America).

**Pyrenula aspistea (Ach.) Ach.**

On sheltered trees in forests. New to Hong Kong; pantropical.

Victoria Peak Gap, 1998, *Aptroot* 43658; Sai Kung Country Park, NT, 1998, *Aptroot* 43492; Tai Po Kau, NT, 1998, *Aptroot* 43244 & 43349; on *Aquilaria sinensis*, Sai O Beach, NT, 1973, *Thrower* 1633 (CUHK); on *Sterculia lanceolata*, Hok Tsui Wan, Cape d'Aguilar, 1978, *Thrower* 2960 (CUHK).

**Pyrenula astroidea (Fée) R.C. Harris**

On sheltered tree in forest. New to China; pantropical. This species has been reported as *Anthracotheceium* sp. by Thrower (1988: 15).

On *Aquilaria sinensis*, Sai O Beach, NT, 1973, *Thrower* 2727 (HK).

**Pyrenula falsaria (Zahlbr.) R.C. Harris**

On sheltered trees in forests. New to Asia; pantropical. This species has been reported as *Parmentaria* sp. by Thrower (1988: 16 & 127).

On *Aquilaria sinensis*, Sai Wan, NT, 1973, *S.T.Chan* (Thrower 2733, CUHK); on *Aquilaria sinensis*, Wu Kai Sha, NT, 1974, *Thrower* 1949 (HK).

**Pyrenula leucotrypa (Nyl.) Upreti**

On sheltered tree in forest remnant. New to China; so far only known from India, including the Andaman Islands.

Sai Kung Country Park, near entrance area, 10 m alt., *Aptroot* 43491.

**Pyrenula macularis (Zahlbr.) R.C. Harris**

On exposed trees, e.g. *Bombax*, in forest. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43253.

**Pyrenula mamillana (Ach.) Trevisan**

On sheltered trees in forests. New to Hong

Kong; pantropical.

Victoria Peak Gap, 1998, *Aptroot* 43663; Tai Po Kau, NT, 1998, *Aptroot* 43245 & 43335.

**Pyrenula ochraceoflava (Nyl.) R.C. Harris**

On exposed *Pandanus* in coastal area. New to China; pantropical.

Shek O Beach, 1998, *Aptroot* 43141.

**Pyrenula parvinuclea (Meyen & Flotow) Aptroot**

On exposed trees in coastal areas. New to China; pantropical.

Aberdeen, Ocean Park, 1998, *Aptroot* 43706; Sai Kung Country Park, NT, 1998, *Aptroot* 43501.

**Pyrenula pileata Vainio**

On sheltered trees in forests. New to China; only recorded from tropical Asia, where it is widespread and common.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43011; Lung Fu Shan, 1998, *Aptroot* 43071; Tai Po Kau, NT, 1998, *Aptroot* 43281; Tai Mo Shan, NT, 1998, *Aptroot* 43602.

**Pyrenula pseudobufonia (Rehm) R.C. Harris**

On exposed and sheltered trees, especially branches. Known from East Asia and North America.

Shek O Beach, 1998, *Aptroot* 43177; Victoria Peak, 1998, *Aptroot* 43641; Sai Kung Country Park, NT, 1998, *Aptroot* 43488; Shing Mun Reservoir, NT, 1970, *Thrower* 1248 (HK); Cape d'Aguilar, 1971, *Thrower* 1395 (CUHK); on *Excoecaria agallocha*, Chek Keng, NT, 1975, *Thrower* 2323 (CUHK); on *Litsea*, Tai Po Road, NT, 1976, *Thrower* 2819 (CUHK); *Thrower* (1988: 17 & 156, under its synonym *Pyrenula neglecta* R.C. Harris).

**Pyrenula pyrenuloides (Mont.) R.C. Harris**

On exposed and sheltered trees in forests. New to China; pantropical.

Victoria Peak, 1998, *Aptroot* 43596; Sai Kung Country Park, NT, 1998, *Aptroot* 43503; Tai Po Kau, NT, 1998, *Aptroot* 43343.

**Pyrrhospora quernea (Dickson) Körber**

On exposed or sheltered trees, e.g.

*Araucaria*, *Callitris* and *Kandelia*, in parks forests or mangrove. New to East Asia; northern temperate. The Hong Kong material is mostly fertile, which is rare elsewhere.

Lung Fu Shan, 1998, *Aptroot* 43073 & 43101; Aberdeen, Ocean Park, 1998, *Aptroot* 43716; Tai Po Kau, NT, 1998, *Aptroot* 43269; Sai Kung Country Park, NT, 1998, *Aptroot* 43550.

**Pyxine cocoës (Sw.) Nyl.**

On exposed trees, rarely on coastal rocks. Pantropical.

Mount Davis, 1998, *Aptroot* 43552; Kowloon Tsi Park, NT, 1999, *Seaward & Maxwell* (MRDS 109103); Alberose, 1965, *Thrower* 2377 (HK); on *Tristania conferta*, Wu Kai Sha, NT, 1972, *Thrower* 1428 (HK); on *Ficus microcarpa* & *Celtis sinensis*, near Ha Hang, 1976, *Thrower* 2531 (CUHK & MRDS 107569); on *Bauhinia blakeana* & *Ficus microcarpa*, Kowloon Tong Park, NT, 1977, *Thrower* 2903 (CUHK); Yuen Long, NT, 1977, *G. Wong* (*Thrower* 2899, HK); on *Excoecaria agallocha*, Mai Po, NT, 1978, *Thrower* 2911 (HK); Sai Wan, NT, 1978, *Thrower* 2918 (HK); Cape d'Aguilar, 1990, *Seaward*; on old ? *Eucalyptus*, Kowloon Park, NT, 1979, *Thrower* 3154 (CUHK); *Thrower* (1980, 1988: 17 & 157); also Grass Island (Chu 1997: 48).

**Pyxine endochrysinina Nyl.**

On coastal rocks (granite and basalt). Paleotropical.

Shek O Beach, 1998, *Aptroot* 43189; Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 108665), 1995, *Chu* (MRDS 108666 with *Physcia albinea*); Bluff Island, 1976, *Thrower* 2642 (HK & CUHK); *Thrower* (1988: 17 & 158).

**Pyxine microspora Vainio**

On coastal granitic rock. New to Hong Kong; pantropical.

Grass Island, 1995, *Chu* (MRDS 108761); Tai O Beach, Lantau, 1995, *Chu* (MRDS 107210).

**Pyxine soreliata (Ach.) Mont.**

On exposed, coastal granite. New to

China; pantropical.

Shek Mai Tau, NT, 1998, *Aptroot* 43469; Tai Po Kau, NT, 1984, *Thrower* 3730 (CUHK); Thrower (1988: 17, wrongly identified as *Pyxine* cf. *copelandii* Vainio, which differs, e.g., by the lacking yellowish colour in the medulla).

**Ramalina inflata J.D. Hook. & Taylor**

On exposed and sheltered trees, particularly *Atalantia buxifolia*, in coastal areas, especially branches; more rarely on coastal rocks (basalt). New to Hong Kong; pantropical.

Tai Wan Tau, Clearwater Bay, NT, 1970, *Thrower* 1253 (CUHK); Cape d'Aguilar, 1971, *Thrower* 1273 (HK) & 1388, 1389 (CUHK); Ninepins Island, 1973, *M.H.Ho* (Thrower 1851, HK & CUHK); on *Atalantia buxifolia*, Ping Chau Island, NT, 1974, *Thrower* 2023 (HK & CUHK); on *Atalantia buxifolia*, Po Toi Island, NT, 1975, *Thrower* 2293 (CUHK); on *Atalantia buxifolia*, Ngo Mei Chau, NT, 1976, *Thrower* 2521 (CUHK); coastal rocks (basalt), Bluff Island, 1976, *Thrower* 2648 (CUHK); Hok Tsui Wan, Cape d'Aguilar, 1978, *Thrower* 2953 (CUHK); on *Atalantia buxifolia*, Sai Wan, Tai Long Bay, 1978, *Thrower* 2930 (CUHK); on *Atalantia buxifolia*, Bluff Island, 1980, *Thrower* (MRDS 107605); on *Atalantia buxifolia*, Ham Tin, 1982, *Thrower* (MRDS 107589); also: *Thrower* 3273 (HK); *loc. non cit.*, 1853-56 Expedition (det. Magnusson) - Thrower 1988: 17 & 160, wrongly identified as *Ramalina geniculata* J.D. Hook. & Taylor, which is restricted to New Zealand).

**Ramalina minuscula Nyl.**

On exposed and sheltered trees in coastal areas, especially branches, e.g. *Kandelia*, in mangrove. Known from Asia, North America and Europe.

Sai Kung Country Park, NT, 1998, *Aptroot* 43525; Cape d'Aguilar, 1971, *Thrower* 1380 (CUHK) & 1390 (HK); Tai Mo Shan, NT, 1972, *P.Tam* (Thrower 1496, HK); on *Sterculia lanceolata* & *Celtis sinensis*, Hok Tsui Wan, Cape d'Aguilar, 1974, *Thrower* 2130 & 2134 (CUHK); on *Atalantia buxifolia*, Po Toi Island, NT, 1975, *Thrower* 2293 (CUHK); on *Acacia confusa*, Soko Island, 1975, *Thrower* 2212 (HK & CUHK); on *Excoecaria agallocha*, Chek

Keng, NT, 1975, *Thrower* 2255 (HK & CUHK); on *Sterculia lanceolata*, Chung Hom Kok, 1977, *Thrower* 2868 (CUHK); on *Atalantia buxifolia*, Sai Wan, Tai Long Bay, NT, 1978, *Thrower* 3030 (CUHK); Mai Po Marshes, NT, 1978, *Thrower* 2908 (CUHK); also: *Thrower* 2192, 2952, 2954, 3164 (HK); Thrower (1988: 17 & 159, under its synonym *Ramalina dilacerata* (Hoffm.) Vainio).

**Ramalina nervulosa (Müll. Arg.) des Abb.**

On exposed rocks on mountain and twigs in lowland area. New to China; paleotropical.

Victoria Peak, 1966, *Thrower* 1218 (HK), 1972, *Thrower* (MRDS 107595); Mai Po Marshes, NT, 1978, *Thrower* 2909 (HK); Thrower (1988: 17 & 163, incorrectly reported as *R. pollinaria* (Westr.) Ach.).

**Ramalina pacifica Asah.**

On exposed branches on mountain. Paleotropical.

Tai Mo Shan, NT, 1972, *P.Tam* (Thrower 1497, HK); Thrower (1988: 17 & 162).

**Ramalina tenella Müll. Arg.**

On exposed granitic rock (more rarely basalt) in coastal areas, rarely on tree branches. New to China; pantropical.

Shek O Beach, 1998, *Aptroot* 43187; Clearwater Bay, NT, 1998, *Aptroot* 43446; Shek Mai Tau, NT, 1998, *Aptroot* 43466; South Ninepin, Naam Gwoh Chau, 1970, *Thrower* 1234 (HK) & 3270 (CUHK); Cape d'Aguilar, 1971, *Thrower* 1272 (CUHK & MRDS 107614), 1974, *Thrower* 2145 (CUHK & MRDS 107593), 1990, *Seaward* (MRDS 108984); Shek O Beach, 1971, *Thrower* 1294 (HK); Waglan Island, 1972, *Thrower* 1514 (HK & MRDS 107591), 1972, *L.B.Thrower* (Thrower 1448, 1450 & 1514, CUHK); Po Toi Island, 1975, *Thrower* 2123 (CUHK) & 2287, 2289 & 2291 (HK); Soko Island, 1975, *Thrower* 2219 (CUHK); Chek Keng, NT, 1975, *Thrower* 2252 (CUHK & MRDS 109084); Bluff Island, 1976, *Thrower* 2649, 2659 (CUHK); Ham Tin Wan, n.d., *Thrower* (MRDS 107596); Sai Wan, Tai Long Bay, NT, 1978, *Thrower* 2929 (CUHK); Lamma Island, 1978, *Thrower* 3116 (CUHK); Mai Po Marshes, NT, 1978, *Thrower* 2907 (CUHK); Fan Lau, Lantau, 1979, *Thrower* 3178 (CUHK); Tap

Mun Island, NT, 1979, *K.K.Mark* (Thrower 3234, CUHK); Tung Lung Island, NT, 1981, *Thrower* 3384 (CUHK); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106551); Shek O Beach, 1994, *Seaward & Chu* (MRDS 108688); Tai O Beach, Lantau, 1995, *Chu* (HKU(M) 10475); *loc. non cit.*, 1846-51, *Hance & 1850, Seemann* (in *Seemann* 1852-57: 432, wrongly identified as *Ramalina linearis* (Sw.) Ach.); *Zahlbruckner* (1930, as *Ramalina linearis*); *Thrower* (1988: 17 & 161, wrongly identified as *Ramalina* rel. *litoralis* Asah., which is restricted to Japan); also Grass Island & Big Wave Bay (Chu 1997: 48, as *R. rel. litoralis*).

#### **Relicina abstrusa (Vainio) Hale**

On exposed granitic rock (including stream-beds) and on fence post. Pantropical.

Tai Mo Shan, NT, 1965, *Thrower* 2412 (CUHK), 1976, *Thrower* 2554 (HK) & 2665 (CUHK); Pokfulam Reservoir Road, 1966, *Thrower* 1191 (CUHK); Lugard Road, Victoria Peak, 1972, *Thrower* 1472 (HK); Tai Mong Tsai, NT, 1974, *K.K.Mark* (Thrower 2175, CUHK); Hunchbacks, Ma On Shan, NT, 1978, *Thrower* 3084 (HK), 1982, *Thrower* 3441 (CUHK); Kwan Yum Shan, NT, 1978, *Thrower* 3103 (HK); *Thrower* (1988: 17 & 164).

#### **Rimelia reticulata (Taylor) Hale & Fletcher**

On trees, e.g. *Kandelia* in mangrove, and on granite boulders, mostly in coastal areas. Cosmopolitan.

Grassy Hill, NT, 1970, *Thrower* 1241 (HK & CUHK); Tai Mo Shan, NT, 1973, *Thrower* 1581 (HK) & 1583 (HK, CUHK & MRDS 109077), 1976, *Thrower* 2664 (HK & CUHK) & *Thrower* 2602 (MRDS 109083); also: *Thrower* 2458 (HK) & 2534, 2600 (CUHK); Moreau & Moreau (1951, wrongly identified as *Parmelia cetrata* Ach., which differs by the complete lack of soredia); *Thrower* (1988: 16 & 130, under its synonym *Parmotrema reticulatum* (Taylor) Hale).

#### **Rinodina cornutula Zahlbr.**

On siliceous rock on exposed mountain peak. New to Hong Kong; known so far only from the type from China. The material agrees with the description in *Mayrhofer* (1984), based

on the scanty type, but it may be added that the thallus is C+yellow and the hymenium inspersed. Lung Fu Shan, 250 m alt., *Aptroot* 43150.

#### **Rinodina lecideina Mayrh. & Poelt**

On granite in mountain forest. New to Asia; so far known from Europe and New Zealand, probably cosmopolitan, but probably much overlooked.

Victoria Peak, 1998, *Aptroot* 43636.

#### **Rinodina oxydata (Massal.) Massal.**

On exposed coastal rocks. Cosmopolitan. Shek O Beach, 1998, *Aptroot* 43207; *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Rabenhorst* 1873: 286, under its synonym *Buellia discolor* (Hepp) Anzi; *Krempelhuber* 1873: 468 & 1874: 60 as *B. discolor*; *Zahlbruckner* 1930, as *Rinodina discolor* (Hepp) Zahlbr.; *Thrower* 1988: 25 & 66 as *Buellia discolor*).

#### **Rinodina perminuta Groenhart ex Mayrh.**

On siliceous rock in coastal area. New to China; known so far only from Java. The material agrees well with the holotype in L and with the description in *Mayrhofer* (1984).

Pok Fu Lam, near cemetery, 1 m alt., 1998, *Aptroot* 43008.

#### **Rinodina xanthomelana Müll. Arg.**

On siliceous rock on mountain peaks at 300–500 m alt. New to China; known so far from Australia and tropical Asia.

Lung Fu Shan, 1998, *Aptroot* 43411; Victoria Peak, 1998, *Aptroot* 43628.

#### **Roccella sinensis Nyl.**

On supra-littoral granitic rock. Endemic in China and adjacent islands.

Shek O Beach, 1998, *Aptroot* 43184; Clearwater Bay, NT, 1998, *Aptroot* 43447; Shek Mai Tau, NT, 1998, *Aptroot* 43475; Shek O Beach, 1971, *Thrower* 1370 (CUHK); Cape d'Aguilar, 1971, *Thrower* 2144 (CUHK & MRDS 107592), 1974, *Thrower* 1948 (HK); Wu Kai Sha, NT, 1972, *Thrower* 1401 (CUHK & MRDS 107600); Po Toi Island, NT, 1975, *Thrower* 2292 (CUHK); Mong Fu Shek, NT, 1980, *Thrower* 3343 (CUHK); North Ninepin Island, 1980, *Thrower* (MRDS 107601); Tai

Tam, Cape d'Aguilar, 1990, *Seaward* (MRDS 106156); also: *Thrower* 1520, 2650, 3177 (HK); Darbshire 1898: 39 and 1928: map 4 - probably erroneously based on Meyen & Flotow 1843: 214, which is actually a record of *R. tinctoria* f. *hypomecha* Ach. from Macao (cf. Wei 1991: 228); *Thrower* (1988: 17 & 165); also Grass Island (Chu 1997: 48).

**Roccellina niponica (Nyl.) Tehler**

On overhanging supra-littoral granitic rock. New to China; so far known to be endemic in Japan.

Shek Mai Tau, NT, 1998, *Aptroot* 43464.

**Sarcographa intricans (Nyl.) Müll. Arg.**

On trees, mainly in mountain forests. New to China; pantropical.

Lung Fu Shan, 1998, *Aptroot* 43079; Victoria Peak, 1998, *Aptroot* 43594 & 43639; on *Viburnum odoratissimum*, Po Shan Road, 1975, *Thrower* 2251 (HK); on *Excoecaria agallocha*, Chek Keng, 1975, *Thrower* (MRDS 101246); on *Acacia confusa*, Wu Kai Sha, NT, 1983, *Thrower* 3679 (HK); *Thrower* (1988: 17, wrongly identified as *Sarcographa labyrinthica* (Ach.) Müll. Arg., which differs by a more compact stroma with much shorter discs, and under the probable synonym *Sarcographa* aff. *subtriosa* (Leighton) Müll. Arg.).

**Sarcographa protracta (Krempelh.) Zahlbr.**

On trees in mountain forests. New to China; known from tropical Asia. The identity of this material is slightly uncertain as no type or authentic material of the taxon has recently been studied. Important characters are the interspersed hymenium and the 5-septate ascospores. It was repeatedly found on the same trees as the former and the following species, each species retaining its own integrity.

Lung Fu Shan, 1998, *Aptroot* 43041, 43043 & 43080.

**Sarcographa tricola (Ach.) Müll. Arg.**

On trees, e.g. *Callitris* and *Kandelia*, in coastal areas, but also in mountain forests up to 500 m alt. Pantropical.

Lung Fu Shan, 1998, *Aptroot* 43058, 43078; Shek O Beach, 1998, *Aptroot* 43174 &

43175; Sai Ko Chun, 1998, *Aptroot* 43656; Sai Kung Country Park, NT, 1998, *Aptroot* 43505, 43510 & 43548; Shek Mai Tau, NT, 1998, *Aptroot* 43477; Tai Mo Shan, NT, 1998, *Aptroot* 43603; Tai Po Kau, NT, 1998, *Aptroot* 43271; Upper Tai Tam Reservoir, 1966, *Thrower* 1201 (HK & CUHK); Tai Mong Tsai, NT, 1974, *Thrower* 2189 & 2190 (HK); also: *Thrower* 1283, 1661, 2264, 3129, 3522 (HK) & 1413, 1544, 1662, 1900, 1908, 1927, 1932, 2204, 2213, 2214, 2479, 2808, 2809, 2251 (CUHK); *Thrower* (1988: 17 & 167).

**Sarcographina glyphiza (Nyl.) K. Singh & Awasthi**

On sheltered trees. Originally described from Hong Kong; known from tropical Asia only.

Tai Po Kau, NT, 1998, *Aptroot* 43278; Shing Ma Reservoir, 1970, *Thrower* 1371 (HK); on *Cratogeomys ligustrinum*, Chek Keng, NT, 1976, *Thrower* 2473 (HK & CUHK), 2480 (CUHK) & 3704 (HK); Nylander (1863: 374, under its synonym *Graphis glyphiza* Nyl.); Zahlbruckner (1930, under its synonym *Phaeographina glyphiza* (Nyl.) Zahlbr.); Singh & Awasthi (1978: 139); *Thrower* (1988: 17 & 145, under its probable synonym *Phaeographis neotricosa* Redinger).

**Stereocaulon japonicum Th. Fr.**

On granitic rock on mountain peaks at 500-800 m alt. Endemic in East Asia.

Victoria Peak, 1998, *Aptroot* 43630; Tai Mo Shan, NT, 1998, *Aptroot* 43580A; Tai Mo Shan, NT, 1965, *Thrower* 2417 (CUHK), 1972, *Thrower* 1478 (HK), 1973, *Thrower* 1592 (HK), 1975, *Thrower* 2280 (CUHK), 1976, *Thrower* 2678 (HK), 1980, *Thrower* 3308 (HK); Grassy Hill, NT, 1970, *Thrower* 1240 (CUHK); Ma On Shan, NT, 1978, *Thrower* 3094 (CUHK), 1981, *Thrower* 3410 (CUHK); Hue (1898: 253); Lamb (1977: 263); *Thrower* (1988: 17 & 169).

**Stereocaulon pileatum Ach.**

On exposed iron-containing boulders at c. 400 m alt. New to Hong Kong; cosmopolitan.

Shin Ming Reservoir, NT, 1998, *Aptroot* 43401; Ma On Shan, NT, 1974, *K.K.Mark* (*Thrower* 2011, CUHK).

**Stereocaulon soreidiiferum Hue**

On granitic rock on mountain peaks at 800 m alt. Endemic in East Asia.

Tai Mo Shan, NT, 1998, *Aptroot* 43580; Tai Mo Shan, NT, 1973, *Thrower* 1593 & 1689 (HK), 1975, *Thrower* 2281 (HK); Hue (1898: 250); Lamb (1965: 274 & 1977: 270); Thrower (1988: 17 & 170).

**Sticta weigeli (Isert in Ach.) Vainio**

On stream-bed rocks in mountain area. Pantropical.

Tai Mo Shan, NT, 1976, *Thrower* 2535 (CUHK) & 2548 (HK), 1983, *Thrower* 3538 (CUHK); Thrower (1988: 17 & 171).

**Strigula schizospora R. Sant.**

On living leaves of trees in forests. New to China; pantropical.

Tai Po Kau, NT, 1998, *Aptroot* 43381 & 43387; on *Quercus edithae*, Wong Chuk Yeung, NT, 1979, *Thrower* 3155 (HK); Thrower (1988: 17 & 150, wrongly identified as *Porina phyllogena* Müll. Arg.; the Hong Kong material was already reported to differ in ascospore dimensions).

**Strigula submuriformis (R.C. Harris) R.C. Harris**

On bark of trees in forests. New to Asia; so far known from the neotropics.

Lung Fu Shan, 1998, *Aptroot* 43075.

**Strigula subtilissima (Fée) Müll. Arg.**

On living leaves of trees in forests. New to China; pantropical.

Victoria Peak, 1998, *Aptroot* 43622 & 43625; on *Quercus edithae*, Wong Chuk Yeung, NT, 1979, *Thrower* 3155 (CUHK).

**Thelenella luridella (Nyl.) Mayrh.**

On exposed to sheltered granite, mainly in coastal areas. New to China; reported from tropical Asia, Australia, Oceania and the neotropics, so probably pantropical.

Shek O Beach, 1998, *Aptroot* 43167; living culture CBS 101277; Victoria Peak Gap, 1998, *Aptroot* 43658; Clearwater Bay, NT, 1998, *Aptroot* 43432; Shek Mai Tau, NT, 1998, *Aptroot* 43457; Clearwater Bay, NT, 1993, *Seaward* &

*Chu* (MRDS 108868 & HKU(M) 10476); Shek O Beach, 1994, *Chu* (MRDS 108869); Grass Island, 1995, *Chu* (HKU(M) 10477); also Big Wave Bay (*Chu* 1997: 48, as *Thelopsis* sp.).

**Thelidium minutulum Körber**

On brick in sheltered park. New to East Asia; northern temperate, no doubt overlooked elsewhere, due to the lack of attention to lichens on man-made saxicolous substrata in areas outside western Europe.

Pok Fu Lam, University Campus, 1998, *Aptroot* 43027.

**Thelopsis isiaca Stizenb.**

On coastal granitic rocks in only one bay. New to Asia; known from Europe, Africa and North America, extending into Mexico.

Clearwater Bay, NT, 1998, *Aptroot* 43426, 1993, *Seaward* & *Chu* (MRDS 106815), 1995, *Chu* (MRDS 108825).

**Thelotrema porinoides Mont. & v.d. Bosch**

On trees in forest. Pantropical.

Cape d'Aguilar, 1971, *Thrower* 1379 (CUHK); Thrower (1988: 17 & 174).

**Tomasellia eschweileri (Müll. Arg.) R.C. Harris**

On trees, especially on branches, from sea-level up to 800 m alt. Pantropical.

Shek O Beach, 1998, *Aptroot* 43179; Lung Fu Shan, 1998, *Aptroot* 43140; Tai Mo Shan, NT, 1998, *Aptroot* 43589; Thrower (1988: 17).

**Trapelia coarctata (Sm.) M. Choisy**

On exposed weathered granitic rock in mountain areas. New to Hong Kong; cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43119; Tai Po Kau, NT, 1998, *Aptroot* 43217.

**Trapelia involuta (Taylor) Hertel**

On exposed weathered granitic rock in mountain areas. New to China; known from Europe, North America and Asia; probably cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43127 & 43148; Tai Po Kau, NT, 1998, *Aptroot* 43235;

Shin Ming Reservoir, NT, 1998, *Aptroot* 43399.

**Trapelia placodioides Coppins & P. James**

On exposed weathered granitic rock in mountain areas. New to China; known from Europe, temperate Asia and North America, only recently reported from East Asia (*Aptroot* 1998: 32); probably cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43118 & 43126.

**Trapeliopsis cf. gelatinosa (Flörke) Coppins & P. James**

On sheltered soil in mountain area. New to East Asia; northern temperate. The identity of the specimen remains uncertain, as it is not fertile.

Lung Fu Shan, 1998, *Aptroot* 43064.

**Trapeliopsis wallrothii (Flörke) Hertel & G. Schneider**

On exposed weathered granitic rock in mountain areas. New to East Asia; probably cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43094; Tai Po Kau, NT, 1998, *Aptroot* 43569.

**Tricharia santessonii D. Hawksw.**

On bark, e.g. of *Araucaria* and *Citrus* and living leaves of *Pandanus*, bamboo and trees in forests and parks, rarely on sheltered rock, from sea-level to 800 m alt. Originally described from Hong Kong; pantropical. Most material contains the characteristic hyphophores, but no ascomata. An additional, unidentified, species of *Tricharia* was found once.

Shek O Beach, 1998, *Aptroot* 43178; Lung Fu Shan, 1998, *Aptroot* 43061, 43074, 43102 & 43116A; Tai Po Kau, NT, 1998, *Aptroot* 43323, 43364, 43370 & 43388; Tai Mo Shan, NT, 1998, *Aptroot* 43586 & 43607; Sai Kung Country Park, NT, 1998, *Aptroot* 43495 & 43502; Tai Po Kau, NT, 1969, *V. So* (Herb. IMI 160016); Tai Po Kau, NT, 1976, *Thrower* 2423 & 2450 (HK & MRDS 107568) & 2425 (CUHK); Hawksworth (1972); *Thrower* (1988: 17 & 176).

**Trypethelium eluteriae Sprengel**

On exposed trees in parks and open forests. Pantropical.

On *Callitris*, Tai Po Kau, NT, 1998, *Aptroot* 43248; living culture CBS 101278; on *Mangifera indica*, Wu Kai Sha, NT, 1973, *Thrower* 1611 (HK); Cheung Keng, Wu Kai Sha, NT, 1974, *Thrower* 1967 (CUHK); on *Bischoffia trifoliata*, Fanling, NT, 1976, *Thrower* 2661 (CUHK); on *Aleurites montana*, Tai Po Road, NT, 1976, *Thrower* 2818 (HK); Chinese University of Hong Kong, NT, 1983, *Thrower* 3676 (HK); *Thrower* (1988: 17 & 177).

**Trypethelium epileucodes Nyl.**

On sheltered trees in forests. New to China; known from Malaysia, Australia and Papua New Guinea (*Aptroot et al.* 1997).

Tai Po Kau, NT, 1998, *Aptroot* 43317; living culture CBS 101279.

**Trypethelium nitidiusculum (Nyl.) R.C. Harris**

On exposed trees, e.g. *Callitris*, in parks and open forests. New to China; pantropical. The species is occasionally gall-forming by distorting the otherwise smooth bark of trees. We do not agree with Harris (1995: 120), who synonymized this well-known species with *T. variolosum* Ach. The material from Hong Kong is uniform and agrees well with *T. nitidiusculum*. The presence of only one taxon from this complex in a certain geographic area stresses that the characters defining the species within the aggregate (presence or absence of lichexanthone in thallus and/or pseudostromata; separate or fused ostioles) are genetically based. As the characters mentioned above are correlated with subtle thallus differences, the taxa in this complex merit recognition at species level.

Mount Davis, 1998, *Aptroot* 43553; Lung Fu Shan, 1998, *Aptroot* 43042; Victoria Peak Gap, 1998, *Aptroot* 43660; Sai Ko Chun, 1998, *Aptroot* 43654; Tai Po Kau, NT, 1998, *Aptroot* 43250, 43290 & 43316; Tai Tam Reservoir, 1966, *Thrower* 1208 (CUHK).

**Trypethelium tropicum (Ach.) Müll. Arg.**

On exposed trees, e.g. *Callitris*, in parks and open forests. New to Hong Kong; pantropical.

Sai Ko Chun, 1998, *Aptroot* 43651; Tai Po Kau, NT, 1998, *Aptroot* 43249; Kowloon Tsi



Park, NT, 1999, *Seaward & Maxwell* (MRDS 109104).

**Usnea baileyi (Stirton) Zahlbr.**

On trees and rocks in the mountains. Pantropical. This is a very variable and common species in the tropics. Judging from the material, illustrations and descriptions of Thrower (1988), some *Usnea* species treated by her may refer to the above species, and some are *U. rubicunda*; all other previous records refer to species currently not known to occur in East Asia and may therefore also refer to the above species.

Tai Mo Shan, NT, 1965, *Thrower* 2413 (CUHK); Cape d'Aguilar, 1971, *Thrower* 1274 (CUHK); Ma On Shan, NT, 1973, *P. Tam* (Thrower 1606, CUHK), 1978, *L.B. Thrower* (Thrower 3087, CUHK), 1981, *K.K. Mark* (Thrower 3426, HK); Kwan Yum Shan, NT, 1978, *Thrower* 3064, 3100, 3102 (CUHK) & 3065, 3096 (HK); Thrower (1980, 1988: 17 & 178); *loc. non cit.*, 1897, *Bodinier* (in Olivier 1898: 82, as *Usnea scabrata* Nyl.); *Zahlbruckner* (1930: 207, as *Usnea ceratina* Ach.); *loc. non cit.*, n.d., *Hochstetter* (in Motyka 1936-38: 548, as *Usnea orientalis* Motyka; Herb. LD, W - specimens not seen); Thrower (1988: 17 & 179 as *Usnea confusa* Asah.).

**Usnea rubicunda Stirton**

On rocks in the mountains. New to Hong Kong; cosmopolitan.

Tai Mo Shan, NT, 1976, *Thrower* 2602 (CUHK) & 2603 (HK); Hunchbacks, Ma On Shan, 1978, *L.B. Thrower* (Thrower 3086, CUHK; 3087, HK, CUHK & MRDS 109076); Kwan Yum Shan, NT, 1978, *Thrower* 3066 (HK); Lantau Peak, Lantau, 1980, *Thrower* 3294 (HK) & 3296 (CUHK); Thrower (1988: 17 & 180 as *Usnea cf. eumitrioides* Motyka); Thrower (1988: 17 & 181 as *Usnea cf. glabrata* (Ach.) Vainio).

**Verrucaria dolosa Hepp**

On sheltered concrete and brick. New to East Asia; known from Europe, North Africa, temperate Asia and North America, but doubtlessly overlooked elsewhere, due to the lack of attention to lichens on man-made rock in areas outside western Europe.

Pok Fu Lam, University Campus, 1998,

*Aptroot* 43023; Victoria Peak, 1998, *Aptroot* 43632; living culture CBS 101360.

**Verrucaria halizoa Leighton**

On maritime rocks. New to China; cosmopolitan.

Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106550); Talo Harbour, Sai Sa, 1993, *Seaward & Chu* (MRDS 106553).

**Verrucaria macrostoma Dufour ex DC.**

On sheltered concrete and weathered granite. New to East Asia; known from Europe, Australia, temperate Asia and North Africa, but doubtlessly overlooked elsewhere, due to the lack of attention to lichens on man-made rock in areas outside western Europe.

Lung Fu Shan, 1998, *Aptroot* 43156; Victoria Peak, 1998, *Aptroot* 43643.

**Verrucaria margacea (Wahlenb.) Wahlenb.**

On wet or even submerged granite along streams in mountains at 200-800 m alt. New to China; known from Europe, Africa, temperate Asia, Australia and North America, but recently also reported from South East Asia (*Aptroot* 1998: 32), probably cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43125; Tai Mo Shan, NT, 1998, *Aptroot* 43579.

**Verrucaria muralis Ach.**

On sheltered concrete, weathered granite and brick. New to Hong Kong; cosmopolitan.

Pok Fu Lam, 1998, *Aptroot* 43002; Lung Fu Shan, 1998, *Aptroot* 43412, 43417 & 43423; Shek Mai Tau, NT, 1998, *Aptroot* 43483.

**Verrucaria nigrescens Pers.**

On sheltered concrete. New to Hong Kong; cosmopolitan.

Lung Fu Shan, 1998, *Aptroot* 43424.

**Verrucaria ochrostoma (Borrer ex Leighton) Trevisan**

On sheltered or exposed concrete. New to Asia; so far only known from Europe, but doubtlessly overlooked elsewhere, due to the lack of attention to lichens on man-made rock in areas outside western Europe.

Lung Fu Shan, 1998, *Aptroot* 43065;

Victoria Peak, 1998, *Aptroot* 43646.

**Verrucaria praetermissa (Trevisan) Anzi**

On shaded, wet or even submerged granite along streams in mountains at 10-350 m alt. New to China; known from Europe, temperate Asia, North America and Australia, but recently also reported from East Asia (*Aptroot* 1998: 32), probably cosmopolitan.

Victoria Peak Gap, 1998, *Aptroot* 43682 & 43684; Tai Po Kau, NT, 1998, *Aptroot* 43225, 43229 & 43236; Sai Kung Country Park, NT, 1998, *Aptroot* 43500.

**Vestergrenopsis isidiata (Degel.) E. Dahl**

On supra-littoral granitic rocks, affected by freshwater downflow. New to Asia; so far known from Europe and North America. This is one of the most unexpected species. It was found among numerous other cyanophilic lichens, including several *Peltula* species.

Shek O Beach, 1998, *Aptroot* 43195.

**Woessia pseudohyphosphorifera R. Lücking & Sérusiaux**

On shaded rock in park. New to Asia; so far known from the neotropics, but doubtlessly overlooked. The species was so far known to be obligately foliicolous. The material has a few apothecia, but abundant conidiomata.

Pok Fu Lam, University Campus, *Aptroot* 43028; living culture CBS 101334.

**Xanthoparmelia congensis (B. Stein) Hale**

On coastal and inland rocks. Pantropical, but overlooked and confused with other species (mentioned below).

Lung Fu Shan, 1998, *Aptroot* 43161 & 43162; Shek O Beach, 1998, *Aptroot* 43198; Shek Mai Tau, NT, 1998, *Aptroot* 43470; Cape d'Aguilar, 1990, *Seaward*; Lung Kwu Beach, 1993, *Seaward & Chu* (MRDS 108766); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106813, 107211); Kiu Tau, Sharp Island, 1995, *Chu* (MRDS 108850 & HKU(M) 10478); Tai O Beach, Lantau, 1995, *Chu* (MRDS 108860 with *Pertusaria flavicans*); High West, 1973, *Thrower* 1575 (CUHK); Ping Shan Tsai, 1973, *Thrower* 1860 (CUHK); Tsing Yi Island, 1974, *Thrower* 1999 (CUHK); Cape d'Aguilar, 1974,

*Thrower* 2164 (CUHK) & 2168 (HK); Yuen Long, NT, 1975, *K.K.Mark* (*Thrower* 2408, CUHK); Sham Wat, Lantau, 1979, *Thrower* 3217 (CUHK); also: *Thrower* 1190, 2107, 2382, 3292 (HK); *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Rabenhorst* 1873: 287, erroneously reported as *Parmelia mougeotii* Schaerer; Krempelhuber 1873: 471 & 1874: 66 as *P. mougeotii*; Zahlbruckner 1930 as *P. mougeotii*); *Thrower* (1988: 17 & 183, erroneously reported as *Xanthoparmelia mougeotina* (Nyl.) D.J. Galloway and *Xanthoparmelia conspersa* (Ach.) Hale); Hale (1990: 90); also Ma Wan, Lamma Island, Wu Kai Sha, Lung Kwu Tan, Peng Chau, Kiu Tau, Grass Island, Tong Fuk & Big Wave Bay (Chu 1997: 48, as *Xanthoparmelia mougeotina*).

**Xanthoparmelia scabrosa (Taylor) Hale**

On granitic and basalt rocks, mainly coastal. Known from temperate Asia, Australasia and South America.

Shek Mai Tau, NT, 1998, *Aptroot* 43465; Clearwater Bay, NT, 1998, *Aptroot* 43455; Cape d'Aguilar, 1971, *Thrower* 1381 (HK), 1972, *Thrower* 1500, 1503 & 1504 (HK), 1990, *Seaward* (MRDS 108985); Sai Wan, NT, 1978, *Thrower* 2916 (HK); Clearwater Bay, NT, 1993, *Seaward & Chu* (MRDS 106557 & HKU(M) 10480), 1995, *Chu* (HKU(M) 10479); Yung Shue Wan, Lamma Island, 1993, *Chu* (MRDS 108824 & HKU(M) 10481); Mui Tse Lam, NT, 1973, *Thrower* 1855 (CUHK & MRDS 109082) & 1866, 1871 (CUHK); Wu Kai Sha, NT, 1973, *Thrower* 1978 (CUHK); Ping Chau Island, NT, 1974, *Thrower* 2019 (CUHK); Soko Island (North), 1975, *Thrower* 2225 (CUHK); Chek Keng, NT, 1975, *Thrower* 2259 (HK) & 2261 (CUHK); Po Toi Island, NT, 1975, *Thrower* 2283 (CUHK) & 2290 (HK & CUHK); Bluff Island, NT, 1976, *Thrower* 2632, 2654 (CUHK) & 2640 (HK & CUHK), 1980, *Thrower* 3322 (CUHK); Tsing Yi Island, 1978, *Thrower* 2904 (CUHK); Mai Po Marshes, NT, 1978, *Thrower* 2906 (CUHK); *loc. non cit.*, 1871-72, *R. Rabenhorst* (in *Rabenhorst* 1873: 287, erroneously reported as *Parmelia mutabilis* Taylor; Krempelhuber 1873: 471 & 1874: 66, as *P. mutabilis*; Zahlbruckner 1930, erroneously reported as *P. hypoleia* Nyl.); *Thrower* (1988: 17 & 184, as

*Xanthoparmelia scabrosa* and erroneously reported as *X. tinctina* (Maheu & A. Gillet) Hale); also Ma Wan, Wu Kai Sha, Lung Kwu Tan, Peng Chau, Kiu Tau, Grass Island, Tai O Beach, Tong Fuk and Big Wave Bay (Chu 1997: 48, as *X. scabrosa* and the erroneously reported *X. tinctina*).

#### Unverified dubious records

*Arthonia varia* (Ach.) Nyl. Hue (1891).

*Lecidea chlororhonia* Tuck. Zahlbruckner (1930).

*Lecidea lygea* [sic] (Ach.) Zahlbr. On rocks, *loc. non cit.*, 1871-72, *R. Rabenhorst* (in Rabenhorst 1873: 286; Krempelhuber 1873: 468 & 1874: 60).

*Physcia setosa* Ach. Hee Chau Man, 1885, *Delavay* (in Hue 1887: 23).

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