

Monograph  
on the  
British Parmeliaceae

by

Alexander. C. Mainyay.

March. 1858.



# Introduction

Numerous as are the labourers in the field of Botanical Science at the present day, but few seem to have turned their attention to the by-paths of Cryptogamic Botany, and still fewer have studied the apparently uninviting and in many cases imperfectly known plants included under the two great classes of Lichenes and Fungi.

Before the microscope was placed within the reach of every botanist, however humble, this neglect for plants undistinguishable without its aid was not to be wondered at.

Yet another cause has aided in keeping these Orders in obscurity, I allude to the almost total ignorance existing among botanists even up to the most recent period regarding the value and use of the Spores as a guide to the foundation and affinity of Genera and Species.

These two obstacles are now no longer in operation, but notwithstanding, Lichenology and Mycology have made as yet but little progress amongst us. On the Continent indeed, many valuable works regarding these two Orders have issued from the Press, to a notice regarding the former of which as relating more especially to the present work I shall confine myself.

Eschweiler in his *Systema lichenum* published in 1824 and followed by a new edition in 1834 devoted some slight attention to the Sporidia and described them in the Generic Characters.

Thus Fries in 1831 published his justly celebrated work upon the lichens of Europe, one which reflects the highest credit upon the acuteness and research of the illustrious author, rendering it all the more to be regretted that he did not take advantage of Eschweiler's previous notice of the Sporidia and introduce them into the work, the omitting of which especially in the Lecideaceae having led the author into many errors into which with the Sporidia as a guide, he could not possibly have fallen.

M. Lee in 1837 presented to the botanical world

his *Essai sur les Cryptogames des Ecores Offinales* in which he figures the spores in each Genus, although upon a small scale, this being the first work in which they were introduced as a part of the generic characters.

Schuer in the years 1823 - 46 published his *Spicilegium Lichenum Helveticorum*, but he did not notice the Sporidia, neither does he mention them in his *Enumeratio Critica Lichenum*, published so lately as 1850, a work far inferior in merit to that of Fries written twenty years previously.

Von Hohen has issued works upon the lichens of Silesia during the years 1839. 49. 50; these I have not seen; but I do not believe he devoted any attention to the Sporidia.

In 1851. The Ray Society bought out a work written by the Rev W. A. Leighton upon the British An-giocarpous Lichens embracing figures of the spores of each species, being the first lichenological work including them as a portion of the specific character of the plants.

Since the appearance of this work many Continental botanists have devoted themselves to the elucidation of the lichens by means of the Sporidia, including the well known names of Nylander, Massalongo, De Notaris, Koerber and Hepp.

The value in my opinion of the observations of Massalongo, De Notaris and Koerber is very much obscured by the complexity of their several arrangements of the lichens, which, from the very large number of new Genera introduced are at once complex and unnatural, and so far from aiding would rather tend to throw obstacles in the way of the advancement of the Science.

How may I ask is Lichenology to be benefited by separating the Genera *Pyropogon* and *Corn Alectoria*, *Leoria* and *Leurocra* or *Candelaria* and *Callophisma*.

In the British Islands the Rev W. A. Leighton is the only botanist who has published works elucidating the British lichens by means of

their sporidia, he having, in addition to the work  
previously noticed, written Monographs upon  
the Gymnoides and Umbilicinae, besides se-  
veral other short articles, leaving the Parmeli-  
aceae, Lecideaceae, Cladoniaceae and Caliciaceae  
untouched, inducing me to undertake the prepa-  
ration of a Monograph upon the former of these  
Natural Orders, namely, the Parmeliaceae to  
be followed by a Manual of the British lichens  
and ultimately by a *lichenologia Britannica*  
worthy at once of British Botany and British  
Science -

With regard to the Physiological relations of the  
Sporidia little comparatively is known, but  
for our knowledge upon this subject we are  
indebted chiefly to the researches of M. Fulsnes  
published in the *Annales des Sciences Naturelles*  
for 1852, also to Justavus. V. Rolle who published  
an inaugural dissertation "Zur Entwickelungs-  
geschichte der *Borrera ciliaria* (1849).

Dr. Lauder Lindsay of Perth has also published  
a few observations chiefly with reference to the  
Sporangia, in the *Microscopical Journal*.  
The results of M. Fulsnes's observations, which I may  
shortly add first drew the attention of botanists  
to the Sporangia of the lichens, was, to show  
that the most common manner of the development  
of the Sporidia was by an elongation of each pole of  
the Sporangium into a hyaline articulated filament  
which gradually came to throw out branches, in  
other words reducing the Sporangium to the state  
of the primordial cell of the future plant, it being  
either monocular or abraded articulated.  
I have frequently seen a slight elongation of each  
pole of the Sporangium which could only be due  
to a commencement of germination, and I  
have no doubt whatever of the correctness of Fu-  
lsnes's observations.

What are the stages of the development of the  
Sporidia themselves?

I am not aware that any special observations  
have been directed to this point, but as a re-  
sult of my own observations I find the ascus

\* \* In advancing this observation I find it necessary to restrict it to the Genus *Verrucosa*, *nobis*. (See drawings Vol II. Appendix of *Verrucosa polymorpha*, *nobis*. *B. glomerata*: Ach.) though it is probable the same holds good in the Genus *Imbricaria* also, as I find a very different system of development takes place in *Physcia aquila*, and probably in other if not all the species of the same Genus, viz from a minute nucleated cell the relation of which to the Blastema contained in the ascus, I have not yet determined, (For stages of the process see remarks upon the spores of *Physcia aquila*, and drawings of the same Vol II. Body of the work & Appendix.)

filled at first with granular homogeneous Hlastema from which I think it probable the ascus itself had been developed; This Hlastema then appears to cleave into a certain number of portions according to the number of spores about to be contained in the ascus. The now separated granular masses assume a more consistent subrotund form and the next step in the process is the development around them and from them of their cell wall. \* \*

Such from the observations I have been able to make I believe at present to be the stages of development of the spores, but to all answer the above as a positively correct explanation of the process will require more extended observations than I have been yet able to make.

With respect to the external characters of the fully developed spores, they may be divided into two great groups, namely, the dark brown and the pale.

The former require great caution in their microscopic examination from the great difficulty of transmitting light through them so as to appreciate correctly their internal structure. To remedy this inconvenience I was led to try the effect of various agents possessing the power of decolorizing vegetable ~~colours~~ without injury to the texture of the structure so decolorized.

One of the most effectual compounds for this purpose I have found to be a solution of common bleaching powder (Chloride & Hypochlorite of lime) by the agency of which I have been enabled perfectly to decolorize and determine the nature of the contents of many spores, regarding the internal structure of which I was previously in much uncertainty.

This was more especially the case with *Solorina saccata*, which has 4 large very dark brown spores in each ascus.

Hooker describes the spores of this species as follows "magnae, biscoetiformes, dyblastae, diam. 3-4 pl. longius, obscure fuscae"

but by means of a decolorizing solution I was enabled to make out a very much more complex structure, consisting of a dark brown outer shell enclosing two sub-quadrate nuclei enclosed each in its own proper cell wall, no trace of a septum across the Sporidium being visible. (See drawings of spores of this species).

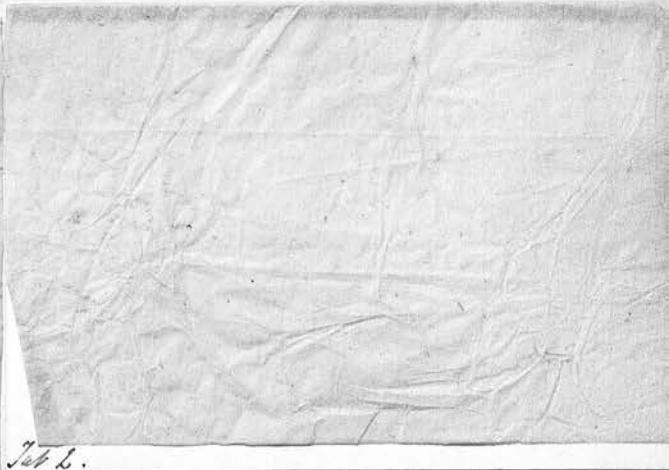
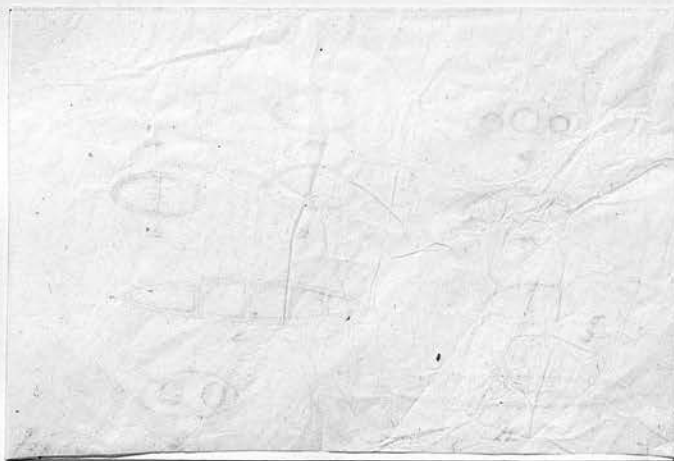
This last fact leads me to a consideration of a very important structural point in the brown spores, namely, whether the dark line seen crossing the short diameter of the spores in many species of the Genus *Physcia* is due to a proper membrane or to an optical deception? I believe the latter will be found to be the case the best proof of which is presented by an examination of the spores of *Physcia Clemente*. Act. which, previously to decolorization, exhibit in almost every instance a distinct dark line extending along their short diameter; but upon adding cautiously a strong solution of bleaching powder and watching in one individual Sporidium the process of decolorization, the dark line will be observed to become gradually paler along with the remaining portion of the Sporidium and finally to appear merely as a faint somewhat broad pellucid line separating the two hemispherical pieces of the Sporidium, showing the non-existence of any proper membrane's septum.

Sometimes after a spore has been decolorized a dark line appears running for a short distance in its transverse diameter, (See drawings of spores of *Physcia leucomela* fig 4 with the remarks appended thereto) but upon pressing the Sporidium, the line disappears its place being taken as in the last instance by a faint pellucid streak—

What is the Physiological import of the locule in the bipolar Sporidia (Genus *Parmelia*, notis) and the nuclei in the brown spores, with in the former the intermediate connective structure so often present, and in the latter the prominent papillae abutting against one another?

Upon this point I am unable to advance any opinion other than a conjecture that these structures must bear some important relation to the ultimate gemination of the spore.

In the following pages in my description of the sporidia I have made use of the following terms the meaning of which is best explained by the accompanying drawings.



Tab. b.

Unilocular.	Tab I. a. a.
Bitocular.	b. b.
Regularly multilocular.	c.
Binnuclear.	d.
Trinuclear.	e.
Quadriuclear.	f.
Uniseptate.	g.
Acicular.	h.
Fusiform.	Tab II. i.
Bipolar.	k.
Curved.	l.
Serpentine.	m.
Quadriocular.	n. n.

I found the arrangement of the present group of lichens to be no easy task requiring an avoidance on the one hand of the complex systems of Koerber and Marsalongo and on the other of the somewhat too sweeping arrangement of Fries, the latter modified by the sporidia being the one I have selected as the basis for the present arrangement.

I have adopted Sub Genera in many instances in which from the existence of species possessing

*[Faint, mostly illegible handwritten text at the top of the page, possibly bleed-through from the reverse side.]*

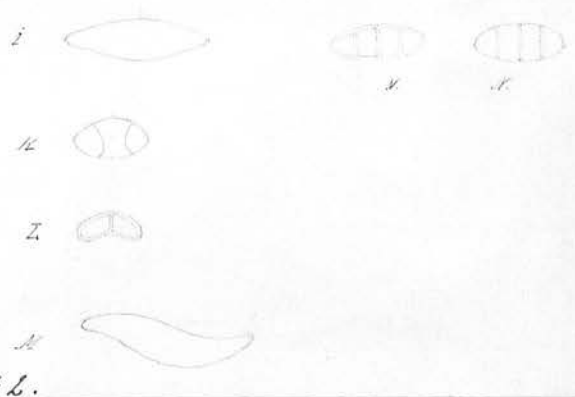
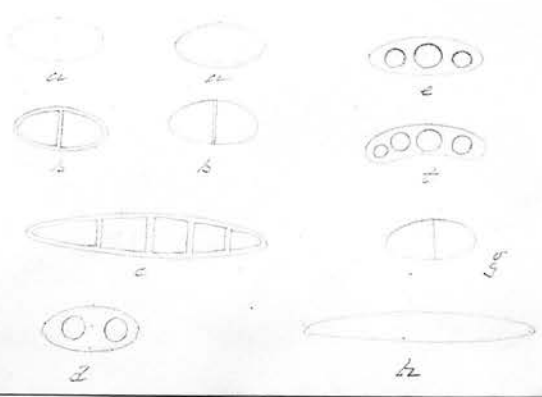


Fig. 1.

Tab. I.

Unilocular.	Tab. I. a. a.
Bitocular.	b. b.
Regularly multilocular.	c.
Bimuclear.	d.
Trinuclear.	e.
Quadriuclear.	f.
Uniseptate.	g.
Acicular.	h.
Fusiform.	Tab. II. i.
Bipolar.	k.
Curved.	l.
Serpentine.	m.
Quadriocular.	n. n.

I found the arrangement of the present group of fishes to be no easy task requiring an avoidance on the one hand of the complex systems of Bocour and Massalongo and on the other of the somewhat too sweeping arrangement of Fries, the latter modified by the Sponckia being the one I have selected as the basis for the present arrangement.

I have adopted Sub Genera in many instances in which from the existence of species possessing

intermediate characters, the formation of *Gen-  
era* would have been attended with disadvan-  
tage, thus, I have preferred rather to make  
*Aspicilia* of *Mussalongo* a Sub Genus of the  
Genus *Imbricaria*, than to form it into an inde-  
pendent Genus, because I do not consider the  
Ureolate character of the Apothecia, however well  
marked in some cases, to be a sufficiently con-  
stant character upon which to found a Genus,  
thus for example *Imbricaria emica* just as fre-  
quently presents a non-ureolate as an Ureo-  
late habit; and *Imbricaria emereo-rufescens*,  
Ach is a species exactly intermediate between  
*Mussalongo's* Genus *Aspicilia* and the Ach-  
erian Genus *hecunora* -

## Arrangement of the Families of the Nat. Order. Parmeliaceae.

### Character of the Order.

Thallus shrubby, sarnmentose, foliaceous,  
squamulose, placoid or crustaceous.  
Apothecia discoid, either of the same or of  
a different colour from the Thallus, sup-  
ported upon an exciple formed of the Thal-  
lodal substance, either orbicular or peltate,  
free or adnate, and with a border formed of the  
exciple.

### Characters of the Families or Tribes of the Order.

Thallus shrubby, vertical  
or pendulous, arising from  
a single basal point of attach-  
ment, divided into a me-  
dullary and <sup>or</sup> cortical stratum

Apothecia almost conco-  
lorous with the Thallus,  
subpeltate, subterminal,  
placed upon the filamentous  
medullary stratum, the  
margin of the Apothecia most

Tribe A. *Usnea*.

ly radiato-ciliato.  
Sporidia & in asci, pale,  
wal, monolocular.

Tribe B. Ramalinae.

Thallus erect, cartilaginous,  
rounded or compressed  
not divided into a cortical  
and medullary stratum  
rising from a single basal  
point of attachment, sub-  
lacunose or wavy, concolorous  
on both sides.

Apothecia scutellate or sub-  
peltate, variously placed  
upon the thallus, naked or  
velate by the thallus, con-  
colorous with it or black.

Sporidia bi- tri-quadri-loc-  
ular, elliptic oblong, straight  
or curved.

Tribe C. Cetrarieae.

Thallus cartilaginous, leafy  
and horizontal, or compres-  
sed, or shrubby, much or  
slightly branched.

Apothecia peltate, terminal,  
obliquely adnate to the thallus.

Sporidia & in asci, elliptic  
oblong or ovate, hyaline,  
monolocular.

Tribe D. Peltigerae.

Thallus coriaceous or sub-  
membranaceous, submono-  
phyllous, horizontal, naked  
above, venose or villous  
beneath, lobed or plaited.

Apothecia peltate adnate  
to the upper or under sur-  
face of the terminal lobes of  
the thallus or to its substance,  
naked or velate, dark red.

Sporidia & in asci, (mono-loc-  
ular) Genus *Heppia*. Not Brit

ish) quadrilocular or mul-  
tilocular, elliptic, elliptic  
long, subfusiform, radi-  
ular, straight or serpentine.  
pale or in the Genus *Solorina*  
dark brown and bilocular

Thallus leafy, membranaceous  
or sub-eriacous, leafy,  
squamulose, placoid or  
crustaceous, horizontal or  
ascending, of a different ex-  
tension upon the upper and  
under surfaces.

Tribe E. Parmeliaceae.

Apothecia orbicular, adnate  
to the thallus or substipitate,  
disk coloured, the border  
formed of the thallus and  
concolorous, the lamina  
protigera supported upon  
a thallocal exciple.

Sporidia presenting very  
various forms 1-4-8 in  
asci, pale or dark brown.

Thallus consisting either of  
distinct adpressed, contig-  
uous or scattered squama-  
lae, or avolate verrucose.

Apothecia 1 or more im-  
pressed upon each thallocal  
verruca or squamula, the  
lamina protigera supported  
upon the substance of the  
verruca or squamula  
which wraps its surface  
furnishing it with a  
thallocal border

Tribe F. Myriosporae. Hepp.

Apothecia very minute al-  
most punctiform -

Sporidia very minute co-  
lourless innumerable in  
each ascus, oval, pale.

Synopsis of the Genera of the Nat. Ord.  
Parmeliaceae.

Tribe A. Usnea.

Genus 1. *Usnea*.

Characteris same as that of  
the Tribe

Tribe B. Parmalinae

Genus 1. *Rocella*. Ach

Apothecia velate by the Thal-  
lus & consisting of a black  
lamina proligera support-  
ed upon a thallosal exci-  
ple.

Sporidia elliptic oblong, quad-  
ribocular, pale, straight or curved.  
Thallus cartilagineous, mealy  
thong like or compressed.

Genus 2. *Parmelia*. Ach

Apothecia naked never velate,  
of a colour slightly paler than  
the thallus,

Sporidia 8 in asci, bitocular  
or bi-tri. quadrimucular  
elliptic or elliptic oblong  
straight or curved, pale.

Tribe C. Cetrarieae.

Genus 1. *Cetraria*. Ach

Thallus cartilagineous, leafy,  
horizontal, the apothecia sub-  
pettate upon terminal as-  
cending thallosal lobes.  
Sporidia elliptic oblong  
hyaline.

Genus 2. *Platismma*. Hoffm <sup>var. d.</sup>

Thallus compressed, cartilag-  
inous, ascending, smooth  
or lacunose, more or less  
divided into short spur-  
like branches at the exten-  
sities of the thallosal lobes.

Apothecia peltate either ad-  
nate to the surface or exten-  
sive of the terminal thallosal  
lobes.

Sporidia as in the last Genus.

Thallus ascending, shrubby  
or wiry, cartilaginous, stiff,  
much branched and usually  
entangled.

Apothecia subpeltate, siliques-  
by adnate to the subterminal  
branches.

Sporidia 8 in asci, minute  
ovate, hyaline? Notew. A.C.M.

Genus 3. *Conicularia*. Ach.

Tribe D. *Peltigeres*.

Genus 1. *Heppia*.

British species of this group - A.C.M.

Sporidia monocular

Thallus subcoriaceous, sub-  
monophyllous, lobed and  
fimbriated at the circumpe-  
rence, with woolly ridges  
beneath.

Apothecia peltate, naked,  
of a reddish chestnut colour,  
adnate to the upper surface  
of short proper ascending  
thallosal lobules.

Sporidia 8 in asci, pale,  
elliptic fusiform or acicu-  
lar, quadilocular at  
length multilocular,  
straight or septate.

Genus 2. *Peltigera* Willd. in part

Thallus submembranaceous,  
horizontal, producing  
short proper ascending  
petiole lobes, bearing the  
reddish apothecia ad-  
nate to their under surface.  
Thallus beneath tomentose

Genus 3. *Nepproma*. Ach.

or unshed.

Sporidia 8 in asci, elliptical, quadricocular pale yellow.

Genus 4. *Solorina*. Ach

Thallus submore of *Mytilus*, leathery, plaited or lobed at the circumference, developing centrifugally. Apothecia peltate, adnate to the terminal lobes or to the substance of the thallus, dark brown, velvete.

Sporidia 4 - 8 in asci, dark brown, either simply bicocular or with each loculus containing a subquadrate nucleus.

Tribe I. *Parmeliaceae*

a. Spores 8 in asci.

\* Spores pale with the exception only of *Sticta aurata*. Sm.

Thallus branched dichotomously, compressed, the under surface canaliculate and of a different colour from the upper, composed of two cortical membranous layers with a cottony medullary one.

Apothecia substipitate discoid; lamina prothecia supported upon a thaloidal exciple.

Sporidia almost circular monolocular, pale.

Gen 1. *Evemia* - Ach -

Thallus sub coriaceous or membranaceous, ascending or horizontal, marked beneath with pale cyphellae or patches.

Gen 2. *Sticta*. Schreb.

Apothecia orbicular, marginal or scattered, formed of a colored lamina perigonia placed upon a thaloidal envelope.

Sporidia 8 in asci; fusiform or acicular, straight or serpentine, bilocular, quadrilocular or at length multilocular, pale brown or pale yellowish.

Gen 3. *Imbricaria*. Schreb. emend.

Thallus foliaceous, squamulose or crustaceous, Sporidia ovate or elliptical, many, pale or granular, straight or very slightly curved, multilocular.

Gen 4. *Parmelia*. Ach. emend.

Thallus shrubby, foliaceous, placoid, squamulose or crustaceous, horizontal or <sup>rising</sup> ascending, Sporidia bipolar

Gen 6. *Umpliciloma*. Hepp.

Thallus foliaceous or squamulose, horizontal, Sporidia when perfectly developed presenting a crenulate cell wall.

Gen 7. *Hematomma*. Mass.

Thallus crustaceous, even. Apothecia red. Sporidia many times longer than broad, serpentine or straight, quadrilocular at length multilocular and granular.

Omitted at proper place.

Thallus crustaceous or verrucose.

Apothecia normally explanate.

Gen 5. *Verrucosa*. Müll. Arg.

discoid, but in some forms  
entirely immersed in the  
thallus verrucose, ap-  
pearing externally only as  
a black papilla upon the  
summit of the thallus  
verruca.

Sporidia large pale 5-8 in  
asci formed by a double cell  
wall.

Gen 8. *Patellaria*. Hepp.

Thallus acetate or crustaceous,  
even,

Sporidia elliptical, straight  
or slightly curved, bilocular  
or quadricocular, never be-  
coming truly multilocular.

b. Spores one in ascus.

Gen 9. *Pleopsidium*. Wb.

Thallus crustaceous, uni-  
form.

Ascus containing only one  
large oval or elliptical,  
pale, uniformly granular  
sporidium.

\*\* Spores dark brown 8 in ascus.

Gen 10. *Physcia*. Schreb. emend.

Thallus cartilaginous, deeply  
divided into numerous  
linear segments, fringed  
with long filaments; or  
folioseous; or crustaceous.

Apothecia never deeply ac-  
cetate.

Sporidia 8 or more in ascus,  
bilocular or binuclear or  
with each loculus contain-  
ing a round or subglobo-  
sate nucleus.

Gen 11. *Uredinia*. Uch un u

Thallus even, continuous,  
crustaceous.

Apothecia deeply uncarate.  
Sporidia & in asci irregularly  
multilocular, ovate oblong  
or subpyriform, pale olive  
brown.

*Usnea. Ach*

Gen character. Thallus shrubby, ascending or pendulous, arising from a single basal point of attachment, usually much entangled with numerous filiform or filamentous ramuli. Structure of the Thallus consisting of a cortical cartilagineo-crustaceous stratum enclosing a dense central thread like fasciculus; or becoming in abnormal forms inflated and either empty or with a single central thread, constricted at regular intervals and usually sparingly branched. Apothecia suborbiculate consisting of a thin lamina prolifera superimposed upon a thallobial ex-ciple, their margins frequently radiato-ciliate, the disk either of a paler colour than the thallus or black.

Sporidia 8 in asci, pale, oval or sub-rotund, monolocular.

*Usnea barbata*. Fries

Spores & in asci, oval or almost circular, pale, monolocular, 1 to  $1\frac{4}{5}$  micrs long by  $\frac{3}{4}$  to  $\frac{4}{5}$  of a micrometer broad (3.5. Mackenz).

Var  $\alpha$ . *florida*. Linn

Fries. Lich. Succ. Eur. n 120

Mougeot et Nestler n 260

Hooke n 178

Schaer. Lich. Helvet. n 398!!

*Usnea barbata*.  $\alpha$ . *florida*. Fries. Sched. Cr. G. p 344

Lich. Europ. p 18

Schaer. En. Cr. p 3

Sp. 504

*Usnea florida*

Hooke. Br. Flora.

Ach. Syn. p 304

L. Urvid. p 620

Lichen

Linn

Smith. Eng. Bot. t 872

Flora Danica t 1189.

Lichen Comosus

Ach. Vet. Act. Wand. 1795. t. f 1.

Var *b. hirta*. Linn.

Fris Gms. n. 150.

Hooker n 179

Schweier. n 339!!!

*a barbata, b. hirta*. Fris. Sched. Co. 9. p 344

Lich. Europ. p 18.

Dill. Hist. Musc. 2. c. fig 12.

*a barbata, a florida, b. hirta*. Schweier. Numm. Co. p 3

Spic 505.

*a hirta*

Hoffmann. M. Lich t 307 1.

*a plicata, β hirta*

Hook. Br Fl.

Ach Syn. p 305

*β hirta*

Ach. L. U. p 623

Jayl in Fl. Hib II. p 86.

*a hirtus*

Linn

L. Bot. t 354

*a floridus β.*

Hudson.

Var *c. plicata* Friis.  
Friis Ins. n 270.  
Schuer Ins. n 401!

*ca barbata. c. plicata* Friis. Sched. Cr. G. p 34  
L. Europ. p 18.

*p plicata* Dill. Musc. t 11. f 1.  
Schuer! Enum. Antic. p 4  
Spi 506.

*ca plicata*

Hoffm.  
Ach. L. U. p 622  
Ach. Syn. p 305  
Fl. Danica t 135-7  
Jagel in Fl. Wil II. p 86.  
Linn

*ca plicatus.*

E. Bot t 257.  
Westr. Färghist. t 8.  
Ach.

*ca gracilis et filaris*

Var. *d. dasypoga*. Fries.  
 Fries Ins. n 119  
 Schær Ins. n 402! 497!

*Usnea barbata*. Ach. Syn. p 306  
 Hook. Br. Fl.  
 Hoffmann.

*Usnea barbata*. d. Fries Sched. Gr. G. p 34  
 Lich Europ p 18.  
 Dill. Hist. Musc. 712 f 6.

*Usnea barbata*  $\gamma$  *dasypoga*. Schærer Spic 506. In. Cr. p 4  
 $\gamma$  *articulata* . . . . . 507. . . . . p 4  
 $\delta$  *intestiniformis* . . . . . 507. . . . . p 4

*Lichen barbatus*. Linnæus  
 L. Bot. t 258. f. 2 - 1. forma articulata

*Usnea barbata* a. . . . . Ach. Lich. Univ. p 624  
 $\beta$  *dasypoga* . . . . .  
 $\gamma$  *articulata*. . . . . p 625  
 $\delta$  *intestiniformis*. . . . . p 625.

*Roccella*. Ach

Gen. character. Thallus arising from a single basal point; erect or pendulous; cartilaginous throughout; either rounded and thong like; or compressed and expanded laterally at various irregular intervals of its extent, the intermediate portions being rounded; much or slightly branched; of a glaucous colour and usually pulverulent externally.

Apothecia discoid, formed of a black lamina pedigeræ superimposed upon a thallocal asciple, and velate by the thallus, becoming ultimately naked.

Sporidia 8 in asci, straight or curved, elliptic oblong, quadricocular, pale.

An entirely maritime Genus.

*Roccella tinctoria*, Ach.

Sporidia 8 in asci, elliptic-oblong, rounded or gradually attenuate to the extremities, straight or curved, pale, quadrilocular, length  $2\frac{1}{2}$  mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  mic, (3.5 Mueky).

R. Brown L.L.D. in Herb Menzies ("Cape of Good Hope").

*Roccella tinctoria*. Ach. Lich. U. p 439

Syn. p 243

Fries. Lich. Europ. p 33

Hook. Br. Fl.

Schauer. En. Crit. p 7.

Ach. Meth. p 274.

Linna. sp. 1628.

Smith. Eng. Bot. p 211

Dill. Hist. Musc. p 17. f 39.

Ach. Prodr. p 221

*Parmelia*

*Lichen Roccella*

*Roccella fuciformis*. Linn.

Sporidia 8 in asci; elliptic oblong or acicular, rounded frequently at one extremity and attenuated towards the other, straight or curved, pale, quadrilocular; length 3 mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  (3.5 Macky).

Schaeur. Lich. Suec. Ins. n. 553!! (barron).  
!!R. Brown. L.L.D. in herb Menzies ("N. coast of N. Holland")

*Roccella fuciformis*. Fries. Lich. Europ. p. 33

Ach. Lich. U. p. 440

Syn. p. 244

Hooke. Br. Fl.

Schaeur!! In. Cr. p. 7

Ach. Meth. p. 258.

*Parmelia*

*Lichen fuciformis*

Linn. sp. 1614

Smith. Eng. Bot. 7428

Dill. Musc. 722 et 23. 761.

Ach. Prodomus. p. 182.

*Ramalina*. Ach

Gen. character. *Thallus* erect or pendulous; cartilaginous; glaucous; arising from a single basal point of attachment; rounded or compressed; much or slightly branched; even or lacunose; concolorous on both sides.

*Apothecia* sub-ovicular; paler than the *Thallus*; the *Lamina* proligera superimposed upon a proper *Thallosal* exciple.

*Sporidia* 8 in asci, pale, elliptical or elliptic-oblong, bilocular, or bi, tri, quadrimuclear, straight or curved.

*Ramalina calicaris*. Feis.

Spores 8 in asci, oblong, rounded at the extremities, straight or deeply <sup>curved</sup> ~~curved~~ upon one side, convex upon the other, pale coloured, the contents bilocular, at length bi-bi-nuclear.  
Length  $1\frac{1}{2}$  to 2 mic ~~long~~;  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mic broad, (3.5 Macky).

Var a. *flavinea*. Linn.

Feis. L. Succ. Ins. n 71

Hook. Cr. n 88

Mongel Matter n 158

Schoer. Ins. n 492!!

Lepp. Fleet. Europ. n 167!!

*Ramalina calicaris*. a. *flavinea*. Feis. Lich Europ. p 30  
Mik. Germ. t 36. f 1.

Dill. Hist. Musc. t 22. fig 59.

*Ramalina flavinea* a. *ampliata*. Schoer!! Spic 494

*Ramalina flavinea* . . . . . Sw. Cr. p 9.

*Ramalina flavinea* Ach. Syn. p 296

Ach. L. U. p 602

Hook. Br. Fl.

Jaym. Fl. Hib II. p 84

Hoffm. Germ. M. Lich t 18. f 1. 2.

Decand

Hoffm. Germ.

Linnaeus

Sw. Eng Bot t 1181.

H. Danica t 1187.

*Ramalina stictiformis* Schleich. Cat.

Platismia

Physcia

Lotaria

Lichen

Var. *b. fastigiata*. Pers.

Ascidia rounded or attenuate at the extremities, in other respects resembling those of the species.

Fris. Lich. Succ. Ins. n 263  
Ehmk. Cr. n 276  
Schær Ins. n 491!!

*Namalina callicaris*, *b. fastigiata*. Fris. Lich. Europ. p 30  
Vail. Bot. par 21. 72  
Dill. Hist. Musc. 62. C.  
*Namalina frasinica*  $\beta$ . *fastigiata*. Schær!! Spic 494  
Enum. Cr. p 9.

*Namalina fastigiata* Ach. Syn. p 296  
Ach. Lich. U. p 603  
Hook. Bot. Fl.  
Tayl. in Fl. Hib. II. p 85.

Physcia  
Lichen

Decand.

Persoon

Eng Bot t 890

Ach. Vel. Act. Handl 1799. 29. t 1. A.

Ach. Prodr.

*Lichen callicaris*

Hudson.

Var. *c. canaliculata*. Fries

*Spizidia* resembling those of the species.

Fries. Lich. Succ. Ins. n 72.  
Schoer. Ins. n 493!! n 494!!

*Ramalina calicaris. c. canaliculata*. Fries. Lich Europ. p 30

Column. exptm. 233<sup>y</sup>.

Mois. Hist. 3 sect. VI. 27. 75.

Dill. Hist. Musc. t 23. 762 A. B.

*Lobaria calicaris*

Hoffm.

*Ramalina fraxinea*  $\gamma$  *calicaris*. Schoer!! Spiz 495

Ins. Cr. p 9.

*Lichen calicaris*

Linm.

*Lichen fraxineus*

Linm.

Sm. Eng. Bot. 2889.

*Ramalina*

Schoer!! Spiz 496

*Lobaria*

Hoffm.

*Physcia*

Decand

*Ramalina splendens*. Schlecht

Var. *d. Thrausta*, Acharius —

This variety has not yet been noticed as British.

Fries. Lich. Succ. Ins. n 267

*Ramalina calicaris*, *d. Thrausta*. Fries. Lich Europ. p. 3.

*Ramalina fraxinea* *d. Thrausta*. Schær. In. Cr. p. 9.

*Alectoria thrausta* Ach. L. U. 596

*Ramalina pollinaria*. Ach.

Spores 8 in asci, oblong, rounded or attenuate slightly at the extremities, pale, mostly bilocular, straight or slightly bent. Length 1 to  $1\frac{1}{3}$  mic; breadth  $\frac{1}{3}$  to  $\frac{1}{2}$  a mic, (3.5 Mueh.)

Fries. Ins. n 143.  
Mouge et Nestler n 346  
Flörke Deutsch n 40  
Schauer Ins. n 393!!

*Ramalina pollinaria*. Ach. Syn. p 298

Ach. L. U. p 608

Fries. Lich. Europ. p 31

Hook. Br. Fl.

Tayl in H. Hib II. p 85

Schauer!! Spic 493

In. Crit p 8

Vaill. par. t 20 f 15

Dill. Hist. Musc. 221. 757

Ach. Vet. Act. Nardl 1796 t 11. f 2.

Ach. Prodr, p 178.

Smith. Eng Bot. t 1607

Persoon, ap. Uster. in Annal. d. Bot. St. 14. p 35.

Thynn.

Lichen

Lichen squarrosus

Lobaria

*Ramalina polymorpha*. Ach.

Spores 8 in asci, oblong, rounded & attenuate only slightly at the extremities, pale, bicellular. Length 2 mic, breadth  $\frac{1}{2}$  mic (3.5 Macky)

Fries. Lich. Succ. Ins. n 144  
Ehrh. l. n 276  
Flörke Deutsch n 40  
Schwew Ins n 394!!

*Ramalina polymorpha*. Fries. Lich. Europ. p 32  
Ach. Syn. p 295  
Ach. L. U. p 600  
Wierch. Fl. Northumberland. p 92  
Hook. Br. Fl. p 229  
Tayl in Mackay's Fl. Hib II. p 84  
*Ramalina tinctoria* Schaer!! Spic 498  
In. Brit. p 8  
*Lichen polymorphus* Ach in Vet. Act. Handl <sup>211.73</sup> 1799. p 270  
*Lichen tinctorius* Web. Spic 241  
*Lobaria* Hoffm  
*Parmelia* Ach. Meth., p 265.  
*Physcia* Decand. fr. Suppl.

*Ramalina scopulorum*. Metz.

Sporidia 8 in asci; ovate oblong or elliptical, straight or curved,  
pale, bicocular or bi, tri, multinuclear; length  $1\frac{1}{2}$  to  $2\frac{1}{3}$  mic, breadth  
 $\frac{2}{3}$  of a micrometer. (3.5 Mackenz) -

Fris. Lich. Suec. Ins. n 300

Schaerer Ins n 554!!

Hepp. Flecht. Europ. n 355!!

*Ramalina scopulorum*, Ach. L. U. p 604

Syn. p 297

Fris. Lich. Europ p 32

Hook. Br. Fl.

Tayl in Fl. Hib II. p 85

Schaerer!! Inum G. p 9.

Mois. Hist. Sect. IV. 24. f 4. 5.

Dill, musc. 217. f 38

Hudson

*Lichen siliculosus*

*scopulorum*

Metz, Prodr. ed II. 282.

Westring Färgläfv 223

*Physcia scopulorum*

Decand

*Cetraria*. Ach emend

Gen. char. Thallus cartilagineo-membranaceus, foliaceus, horizontal, usually of a different colour upon the upper and under surfaces.

Apothecia marginal, borne upon proper fertile ascending thallocal lobules, sub-peltate, obliquely acornate, the lamina prolixa supported upon a thallocal stratum.

Sporidia 8 in aeci, elliptici-strophi, hyaline.

*Cetraria glauca*. Linn.

sterile in asci, oval or elliptical, pale, rounded or slightly attenuate at the extremities, 1 to 1 1/2 mic long by about 1/2 a mic broad.

The justification of this Lichen in Great Britain, so far at least as depends upon my own observations would seem to be of very infrequent occurrence. I do not consider the Lichen fallax of Weber to be in any respect a distinct species from the present.

Fries. Lich. Suec. Ins. n 112 a & b sterilis.

Mongel & Nestler. n 156 (a. fertilis)

Schauer. Ins. n 252!! (sterilis) 253!!

*Cetraria glauca*. Ach. Lich. Univ. p 509.

Syn. p 227.

Fries. Lich. Europ. p 38.

Schauer!! Enum. Crit p 12

Spici 249.

*Cetraria fallax*

Ach. Meth. p 296

*Lichen fallax*

Weber

Dicks. Gr. Fas. I. p 13.

Smith. Eng. Bot. t 2373.

*Lichen glaucus*.

Linn et Eng Bot. t 1606

Wulfen Jacq. Coll. 4 t 1972.

Hoffm.

*Lotaria*

Decand.

*Physcia*

Hook. Br. Fl.

*Cetraria*

Say in Fl. Hib II. p 154

Hook. fil. Fl. New Zealand. Vol II. p 271

(Crypt) Fl. Ant. Vol II. p 523

A. Cunningham, Comp. Bot Mag Vol II. p 331

Montin Voy. au Pole Sud. Bot. Cr p 194

*Cetraria sepincola*. Muh.

Spores *Primasii*, almost circular, pale, 1 mic. long by about  $\frac{4}{5}$  of a mic. broad.

Fries. Lich. Succ. Exs.	n 170
Urbz. Phyt.	n 90
Schrad. Crypt.	n 122
Schweur. Exs.	n 297!!
Floerke Exs.	n 48

*Cetraria sepincola*. Schærff. Spic 251. 252

Im. Crit. p 14

Ach. Lich. U. p 507

Syn. p 227

Fries. Lich. Europ. p 39.

Floerke. Br. Fl.

Lichen

Urbz

Hedw. Strip. Crypt. 2. t 2. f 1-10

Hoffm. enum. L. t 14 f 1.

Smith. Eng. Bot. t 2386.

Hoffm. Pl. Lich. t 14. f 1.

Germ.

Platismia

Lobaria

Lichen scutatus. Wulfen Jacq. Coll. IV. t 18. f 1.

Peltigera chlorophylla. Willd

*Cetraria sepincola*

Hook. fil. Fl. New Zealand. Vol. II. p 291

Fl. Antarctica p 514

*Cetraria juniperina*. Linn.

"Spore in ascis subventricosis octona, minutissimae, sphaeroidae, monoblastae, diam. aequales, hyalinae. Hbr. Syst. L. Germ. p 48.

Funk. Crypt. n 362. 598.

Fräs. lich. Succ. Ins. n 171. 333.

Schaeur. L. Helvet. Ins n 20!! 21!!

Holow. Deutsch. lich n 71.

Sommf. Nov. n 153

Ludwig Crypt. n 194

!! Sit J. E. Smith in herb Merzies ("C. juniperina. v. pinastri")

*Cetraria juniperina* (a) Ach. Syn. p 226 et Meth. p 298  
et lich Univ. p 506

(a) Schaeur. In. Cr. p 13.

Fräs. lich. Europ. p 40

Hork. Pr. Flora

Hbr. Syst. L. Germ. p 47.

Wallr. Comp. p 523

Linne.

Lappm. In. lich. t 22 f 1.

... M. lich. t 7. f 2.

... Germ

Decand.

Scyp. Carn. 1387.

Smith! Eng. Bot t 2111.

Ach. Prodr. p 168.

*Parmelia*  
*lichen*

*Squamaria*

*Physcia*  
*lichen pinastri*

*Cetraria juniperina* β. *pinastri*. Ach. L. Univ. p 298  
Meth. p 293

Schaeur. In. Cr. L. c.

Obh. lich. Deutsch p 114

Hbr. L. c.

Fräs. L. c.

*Cetraria pinastri*

*Parmelia*

Sommf. Suppl. Lapp. p 113.

*Platisma*. Hoffman emend

Gen char. Thallus cartilaginous; compressed; ascending; deeply divided, dentate-ciliate at the margins, or with numerous spur like branches increasing in number towards the apex; the surface even, lacunose, or in some forms canaliculate beneath with a linear deeply divided Thallus.

Apothecia subpellate, marginal or terminal on short spur like Ramuli, strongly adnate to the Thallus, upon an exciple formed from which the lamina prodigera is supported. Sporidia as in the last Genus.

*Cetraria Islandica*. Linn.

Conidia 8 in asci, elliptic oblong, pale, rounded or slightly at-  
tenuate at the extremities, 1 to 1½ mic long by ½ a mic broad  
(3.5 Mackez) -

Var a. vulgaris, Schaeer!!

Fries. Lich. Suec. Exs. n 174

Schaeer Lich. Helvet. Exs. n 22!!

Hepp. Flecht. Europ. n 169!! 361!!

See H. Smith, in herb Menzies!!

*Cetraria Islandica*. Fries. Lich. Europ. p 36

Schaeer!! Spic 11. 253.

En. Brit. p 15.

Ach. Syn. p 229

Lich. Univ. p 512

Jayl in Fl. Flit. II p 155.

Hook. Bot. Fl.

Lichen

Linn. sp 1611.

Smith. Eng Bot 1330.

Hoffm. Pl. Lich. T. 9. 71.

Ach. Syn. p 229.

Hook. fil. Fl. Ant. p 523.

Lichenoid

*Cetraria platyna*

*Cetraria Islandica*

Var  $\beta$ . *crispa*. (Schauer!!) Ach.

This appears to me the only variety of this species meriting  
a distinct notice, all the other varieties of authors being  
easily reducible under this form or the preceding.

Schauer. Lich. Helvet. Ins. n 23!!

Hepp. Flecht. Europ. n 170!!

Schleich in herb Menzies!!

*Cetraria Islandica*  $\gamma$  *crispa*. Schauer!! Spic 254

$\epsilon$  In. Crit. p 16

c. Fris. Lich. Europ. p 37

var *crispa* Ach. Univ. p 513 -

*Cetraria nivalis*. Linn.

Sporidia 8 in asci, pale. Strongly elliptical rounded or very slightly attenuate at the extremities, 1 mic. long,  $\frac{5}{8}$  of a mic. broad (3.5 Nacley)

This Lichen, the fruit of which I believe has never as yet been detected in Great Britain, occurs in abundance in Norway, forming large cushion like tufts, and according to Schærer, always accompanied by the closely allied species, *Cetraria encellata*, Willd., from which however it may be distinguished by its lacunose fronds.

The Sporidia are described from a very fine fructifying specimen collected in Norway, and communicated to me by Professor Balfour — its fructification being extremely rare.

Fries. Lich. Suec. Ges. n 172  
Schærer. Hebel. Ges. n 19!!  
Lorrm. Norw. n 96  
Thos. Mysl. n. 60  
Sir J. E. Smith in herb Menzies!!

*Cetraria nivalis*. Schær!! Spri 9. 248  
Enum. Crit. p 13  
Ach. Lich. Univ. p 570  
Syn. p 228  
Fries. Lich. Europ. p 38.  
Hook. Br. Fl.  
Tuck. Syn. North American. L. p 15.  
*Lichen nivalis* Linn. sp. 1618  
Lapp. n 446. 21171.  
Smith. Eng. Bot. 21994

*Conicularia. Ach.*

Gen. char. Thallus cartilagineus; wiry or compressed; much branched and entangled; forming either rigid erect tufts, or loosely entangled, pendulous or prostrate, filiform or setaceous tufts or masses; concolorous on both sides.

Apothecia peltate, obliquely acnate to the terminal ramuli of the thallus, the lamina proligera being supported upon a thallobasal exiple.

Sporidia 8 in asci, minute, oval, hyaline.

*Conicularia jibata*. Linn.

*Sporidia* "oblong monolocular". Fide Karber. Syst. Lich. Germ. p 5.

Fries. Ins. n 264

Mougeot et Nestler. n 167.

Mrk. Cr. n 40.

Schaerch's Ins. n 495 !!

*Conicularia jibata* a. bicolor, Schaerch!! Spic 501.

In. Cr. p 5.

*Evernia jibata* a. bicolor, Fries Sched Cr. G. p 33.

Lich Europ. p 20.

*Conicularia bicolor* Ach. Syn. p 301.

Dill. Hist. Musc. t 13. f 6

Hook. Br. Fl.

Lichen bicolor

Ehrhart

Ach. Vet. Bot. Handl 1803. t 4 f 6

L. Bot. t 1853.

*Usnea bicolor*

Hoffman.

Lichen chalybeiformis, var, Wahl,

*Comicularia jibata*. Linn  
Var  $\beta$ . *chalybeiformis*. Linn.

Fries. *Insiccate*: n 266.  
Schoeur. *Ins.* n 396!!

*Comicularia jibata*  $\beta$ . *chalybeiformis*, Schar!! Spic 502  
Mum Cr. p 5.  
*Evernia jibata*.  $\beta$ . *chalybeiformis*, Fries Sched. cr. 9. p 33.  
Lich Europ. p 20.  
*Alectoria jibata* var *chalybeiformis*, Ach. Lyr. p 291.  
Hook. Pr. Fl.  
*Usnea chalybeiformis*, Hoffmann  
*Lichen jibatus*,  $\beta$ , Sm. Inq Bot. t 1880. upper fig  
*Lichen chalybeiformis*, Linn  
Dill. Hist Mus. t 13. f 10.

*Comicularia jubata*, Linn.  
Var  $\gamma$ . *prolixa*, Ach.

Fries. *Insic.* n 265  
Moug et Nestler n 261  
Schoer. *Ins.* n 397 !!

*Comicularia jubata*  $\gamma$  *prolixa* Schær!! *Spic* 502  
In. Cr. p 5.  
*Comicularia jubata* Decand.  
*Evernia jubata*, C, *mixta* Fries. *Sched. Cr.* 9. p 33  
*Lich. Europ.* p 21.  
*Alectoria jubata* Ach. *L. U.* p 592  
Ach. *Syn.* p 291  
Schrad. *Journal. Bot.* 1799. I. t. 34  
Hook. *Br. Fl.*  
Taylor in *H. Hib.* II. p 86  
*Usnea mixta*, *jubata*, *ramulosa*, Hoffm.  
*Lichen jubatus* Linn  
Ing Bot. t 1880.

*Coniularia jubata*. Linn  
Var *setacea*, Acharius.

*Evernia jubata* d. *setacea*. Fris. Sched. Cr. 9. p 33  
Lich. Europ. p 21  
*Alectoria jubata* var *setacea* (D) Ach Lich. Univ. p 594.  
*Lichen setiformis*. Urvk.

*Comicularia ochroleuca*. Ehrh.

Sporidia 4 in large saccate asci, large, ovoid oblong, monolocular, two or two and a half times longer than broad, subhyaline. Fide Koerber. Syst. L. Germ. p 6.

Var. *a. rigida*. Vill in Ach.

Fris. Lich. Succ. Exs. n 330.

Schwarz. Lich. Helvet. Exs. n 395!!

Mougeot et Nestler Cr. n 853!!

Recht. Lich n 67

Flotow. Deutsch Lich. n 7. A et B.

Dickson in herb Menzies!! ("Highlands of Scot. 1789")

*Evernia ochroleuca. a. rigida*. Fris. Lich. Europ. p 28  
*Comicularia* Schwarz. En. Brit. p 5.

*Comicularia ochroleuca* Spic. 499.  
Ach. Syn. p 89.

*Parmelia* Hook. Pr. Flora  
*Usnea* Wallr. Comp. p 530

*Pyropogon* Hoffm. Pl. Lich v. 2.  
*Lichen* p 7. t 2672 et t 68. f 5. 6. 7.  
Koerber. Syst. L. Germ. p 6

*Lichen rigidus.* Ehrh. Beitr.  
*Evernia ochroleuca* Smith. Eng. Bot t 2374  
Vill in Ach.  
Hook. Jils. H. New Zealand 269. 127

*Conocutaria ochroleuca*. Ehrh.  
Var *b. coccinellata*. Friis.

*Conocutaria ochroleuca*, *b. coccinellata*. Friis. Lich. Europ. p. 22  
Lichen sarmmentosus. Ann. Mag. Nat. Hist. Lond. 1820  
Dill. Hist. Musc. 211. f. 2  
Somm. Lap. p. 115.

*Comicularia ochroleuca*. Ehrh  
Var c. *sarmentosa*. Ach.

*Choidia* . . . . .

Fris. Lich. Succ. Ins. n 269

- Comicularia ochroleuca* γ. *sarmentosa* (Ach) Schær. Spic 499.  
Schær. In. Cr. p 6  
*Comia ochroleuca*. c. *sarmentosa*. Fris. Lich. Europ. p 28  
Mick, Nov. Gen. Pl. 239. f 2  
*Lichen sarmentosus*  
Ach in Vet. Act. Haudl. 1797. 287  
*Parmelia*, dein *Alectoria sarmentosa*, Ach.  
*Usnea dichotoma* Hoffm. Pl. Lich. 272

*Conicularia ochroleuca*. Ehrh  
Var *d. cinnalis*. Act.

Fräs. Insiccati: n 268  
Moug et Nestler n 755!!  
Schoerer. Ins n 551!!

*Conicularia ochroleuca*. *S. cinnalis*, Schauer!! Spri 500  
Enum. G. p 6  
*Svenia ochroleuca*. *d. cinnalis*. Fräs Lich. Europ p 22  
*Alectoria cinnalis* Ach. L. U. p 594

*Cornicularia aculeata*. Urb.

Spores 8 in asci, elliptic, hyaline; length  $\frac{4}{5}$  micrometers,  
breadth  $\frac{3}{5}$  mic (3.5 Mueh.)

Fries. Lich. Succ. Ins. n 261  
Floerke. Deutsch n 116-118  
Moug et Nestler n 168. 766  
Schwew. Ins n 254!! 555!!  
Hepp. Flecht. Europ. n 358!! 559!! 360!!

*Cornicularia aculeata*, Ach Syn. p 299 (a & b)

Ach. L. U. 612

Hook. Br. Fl.

Jay in Mackay. Fl. Nib II. p 86

Dill. h. m. t 17. f 31.

*Cetraria*

Fries. Sched. Cr. 9. p 32

Lich. Europ. p 35

Vail. par. t 26. f 8

Schwew!! Spic 255

En. cut. p 16

*Lichen*

Schwab. Spic. 125

(B) Lightfoot.

Smith. Eng Bot. t 452

Moth in Bot Mag. 2. t 1. f 1.

*Lichen spadicus*

*Cornicularia spadicia* & *muricata*. Ach.

*Coralloides aculeata* Hoffm. Pl. Lich t 5. f 2.

*Lotaria*

Hoffm. Germ.

*Cetraria aculeata*

Hook fils. Flora Antart. p 524

New Zealand VII. p 27

A. Cunningham. Comp. Bot. Mag VII. p 331

*Comicularia tristis*. Weber.

*Spicidia* *Smiasci*, oval or elliptic, hyaline,  $\frac{2}{3}$  to 1 mic long by  $\frac{1}{2}$  a mic broad (3.5. Kuehner).

Fries. Lich. Succ. Ins. n 329.  
Erbst. Gr. n 10  
Moug et Nestler n 646  
Schauer. Ins n 256!!

*Comicularia tristis*. Ach. L. U. p 610  
Syn. p 299.

Dill. Musc. t 14. f 37  
Hall. Hist. t 47. f 1  
Hook. Br. Fl.  
Gay in Fl. Hib II. p 86  
Hoffm. Pl. Lich t 34 f 1.

*Cetraria*

Fries. Lich. Europ. p 34

*Pannetia Faldemensis* & *tristis*. Schauer!! In. Crit. p 48  
Spic 258. 467

*Lichen tristis*

Web. Gott. t 5 f 1-3.

Smith. Eng. Bot. t 720

H. Danica. t 126 f 2

*Lichen radiatus*

Hudson

*corniculatus* Lightfoot

*juvencus*

Wulfen Jacq. Coll. 3 t 12 f 3

*Lobaria rigida*

Hoffm. Germ

*Lichen*

Wulfen Jacq. Coll 2. t 13. f 5.

Judging from the English Botany figures of the fructification  
of this plant, I prefer rather to refer it to the Genus *Physcia*  
than to the present, placing it next in arrangement to *P.*  
*leucomela*. Ach; at least until an examination of the  
Sporidia removes all doubt.

- Evemia intricata*... Fais. Lich. Europ. p 27.  
*Physcia* . . . . . Schær. In. G. . . p 11  
*Lichen* . . . . . Desf. Fl. Atl t 253. f 3.  
*Borrera Atlantica* Ach. Syn. p 233  
Lich. Univ. p 506  
Meth. Sup. p 50. (Pannetia)  
Hook. Br. Fl.  
*Lichen Atlanticus*. Sw. Inq. Bot. t 1715  
Dill. Musc. t 21. f 51.  
Mick t. 38. f 3

*Peltigera*. Willd emend.

Gen char. Thallus coriaceous, deeply divided, lobed and plaited, submonophyllous, horizontal; beneath tomentose, fibrillose or with dark or pale woolly ridges; paler than on the upper surface.

Strophia peltate; borne upon short purple ascending fertile lobules, and adnate to their upper surface; relate by a very thin thallocal membrane, at length naked; disk dark red; Lamina proliфера borne upon a thallocal exciple.

Sporidia 8 in asci, elliptic oblong or acicular, pale, straight or serpentine, quadricocular, becoming at length multilocular.

*Peltigera apthosa*. Linn.

Sporidia 8 in asci, acicular, gradually attenuated to the extremities, straight or arcuate, pale, quadrilocular. Length 6 mic, breadth  $\frac{1}{2}$  a mic (3.5 Mackez.).

Fries. Lich. Suec. Ins. n 178  
Hörki. Deutsch n. 49  
Moug et Nestler n. 251!!  
Schauer. L. H. Ins. n 29!!  
Hepp. Flecht. Europ. n 173!!

*Peltigera apthosa*. Fries. Lich. Europ. p 44  
*Eupeltigera* De Notar. v. s. s. v. sull. Crit. Peltig. Fig. III.  
P. Schauer. Spic 15. 266  
In. Crit. p 19

Lichen

Linn

H. Douc. P 464. f 1  
Smith. Eng Bot. t 1119  
Wulfen Jacq Coll IV. p 266. 217  
Dill. Musc. t 28. f 106  
Ach. Syn p 238  
Lich. Univ. p 516

Peltidea

Hook. Br. H  
Tayl in H. Hib part II. 153  
Hoffm. Pl. Lich t 6. f 1.  
Ach. Sv. Bot. t 318

Lichen verrucosus. Weber, Sric. Flora. Goett. p 273.

*Peltidea apthosa*.  $\beta$ . *verrucosa*. Ach. Lich. Univ. p 517.

*Peltigera canina*. Linn.

Sporidia 8 in asci, elongato-oblong. Straight or somewhat bent, attenuated gradually to the extremities, pale, granular. 4 to 6 mic long,  $\frac{1}{2}$  a mic head (3.5. Nactuz)  
I have described the sporidia as they occurred to myself, though Koster describes them as "4-pleioblaste" which no doubt is true of many examples.

Fries. Lich. Europ. Pars. n 111. (Lichen)  
Hörke. Deutsch. n 153  
Moug et Nestler n 154!! 1837 (P. spuria)  
Schwær Exes n 28!!  
Hepp. Flecht. Europ. n 365!!

*Peltigera canina*. Fries. Sched. Cr. 4. p 23  
Lich. Europ. p 45  
Vahl, par. t 21. f 16  
Dill. hist. musc. t 127 f 102  
Hepp.  
Sch Meth a. b. c  
Schwær!! In. Crit. p 20  
Spic 14. 265

*Peltidea* Ach. syn. p 239  
*Lichen* Ach. Lich. Univ p 517 et 518 (P. spuria)  
Smith. Eng. Bot. t 2229.

*Peltidea spuria* Wulfen Jacq. Coll. II. p 260. 214. f 1  
Ach. Meth. p 283. t 5. f 10  
Decand. Fr.  
Hook. Bor. Fl.  
*Lichen* Ach. prodr. 159.  
Smith. Eng. Bot. t 1542

*Peltigera leucorhiza*: Hörke  
*canina albescens*. Wahl. Lich. Univ.

*Peltigera canina*. var *spuria* Hook. fil. Fl. New Zealand VII. p 271

*Peltigera rufescens*. Necker.

Sporidia from asci, acicular, straight, curved or serpentine,  
pale, quadricocular (Fid. Hepp Flecht. Europ. n 366!! cum  
ione).

Fris. lich. Succ. Ins. n 110

Hook. Kew. lich. n 154

Hepp. Flechten Europas. n 366!!

*Peltigera rufescens*. Fris. l. Europ. p 46

*ulochiza*. Hooker

*Lichen rufescens*. Necker, Meth p 79.

Smith. Eng. Bot. t 2300.

*Peltigera*

Hoffm

Wörterb. Syst. Lich. Germ p 58.

*Peltidea canina*, & *crispa*. Ach. Lich. Univ. p 519

*Peltidea rufescens*. Ach. Meth. Lich p 285 excl. Var. β.

*Peltigera rufescens*. Schaer. En. Crit. p 21.

*Peltidea limbata*. Delise.

*Peltigera scutata*. Dickson !!

Sporidia 8 in asci, acicular, subfusiform or club-shaped, pale, quadrilocular, eight to ten times longer than broad.

Hepp. Flechten Europa. n 51 !! excl syn.

Moug. et Nestler. Cr. n 54.1 (cum fructu)

Dickson in Herb. Menzies !!

*Peltigera rufescens*. Wulf in Jacq. Coll. IV. p 263 t 15.

*Peltidea hymenina*, Ach. Meth.

*Peltigera horizontalis*. Var  $\beta$  *hymenina*. Ach. L. Univ. p 510

*Peltigera polydactyla*, Var  $\beta$ . Fries. Lich. Europ. p 47.

*Peltidea scutata*. Ach. Syn. p 238

*Lichen scutatus*. Dickson !! G. Fus. 3. t 18 (excl syn)

Smith. Eng. Bot. t 1834.

*Peltidea*

Hook. Br. Flora.

*Peltigera*

Koerber. Syst. L. Germ. p 60.

*Peltigera polydactyla*. Neck.

Ascidia in asci, acicular, very slightly attenuated towards the somewhat rounded extremities, straight or arcuate, pale, multilocular. Length 6 to 7 mic, breadth 2 mic, (3.5 Mackez). —

Fræs. Lich. Succ. Ins. n 109  
Flörke Deutsch. n 175. 192  
Schauer. L. Fl. Ins. n 30!!  
Mongel Nestler. n 633

- Peltigera polydactyla*. Fræs. Lich. Europ. p 46  
Flörke, Deutsch. Lich 9. p 10.  
Schauer!! Spic 15. 266  
Em. Brit. p 21 (excl viny)  
Hoffm. Pl. Lich 24 f 1.  
Necker. meth. 85  
Smith. Eng. Bot. 2.  
Hook. Br. Fl.  
Taylor in Fl. Hib II. p 154
- Peltidea curvica*. var. *rufescens*. Wahl. Succ.  
*Peltigera polydactyla*. Hook fils. Fl. New Zealand Vol. II. p 271  
*Peltidea* Fl. Antart. p 524  
Mont in Voy au Pole Sud. Cr. p 193.  
Ach. Meth. p 286  
Lich. Univ. p 519.

*Peltigera horizontalis*. Linn

Sporidia 8 in asci, fusiform, attenuate towards the extremities to a greater or less extent, usually straight, pale, quadrilocular at length becoming multilocular. length 3 to 3½ mic, breadth 1 mic, (3.5 Mackenz). —

Fris. Lich. Suec. Fas. n 209  
Schæerer's L. H. Fas. n 27!!  
Moug et Nestler Crypt. n 345  
Hotow. Deutsch. Lich. n 77

*Peltigera horizontalis*. Fris. Lich. Europ. p 40  
Schæerer!! Murr. Crit p 21  
Spic 14. 264  
Hoffm. Germ. 2. p 107  
Mick. t 44 and 12. 71.  
Dill, musc. t 25 f 104

*Peltidea*  
Ach. Syn. p 236  
Lich. Univ p 515

*Lichen*  
Linn  
Smith. Eng. Bot. t 888  
Wulfen Jacq. Coll. IV. p 263. t 15  
Fl. Danica t 533

*Peltidea muscorum*. Schleich, Cat.

*Peltigera horizontalis*. Korb. Syst. Lich. Germ. p 61.

*Peltidea*  
Hook. Fl. Antart. p 525.  
Ach. Meth. Lich. p 288.

*Peltigera venosa*. Linn.

Sporidia 8 in asci, fusiform or somewhat elliptic, pale,  
straight, quadilocular.

Length 4 to 5 mic, breadth 1 mic (3.5 mic) — .

Fries. Lich. Suec. Exs. n 176  
Erbh. Crypt. n 29  
Schwaerer, Lich. Helvet. n 26!!  
Mouget Nestler n 153!!  
Funk. Crypt n 115  
Hortow. Deutsche Lich n 79  
Recht. Lich. Ins n 40.  
Hepp. Flecht. Europ. n 172!!

*Peltigera venosa* Ach. Lich. Univ p 514  
Hoffm. Pl. Lich 1672  
Mlich. Gen. 144. und 12. 7. 3. 5.  
Dill. Musc. 128. 7109  
Fries. Lich. Europ. p 48  
Schwaerer!! Enum. Brit. p 79  
Spic 13. 264

*Peltidea* Ach. Syn. p 237  
Hook. Br. Fl.

*Lichen* Linn. sp. 1615.  
Smith. Eng. Bot. 1884  
Wulfen Jacq. Coll II. p 271  
Flora Danica. 1125 71.

*Peltigera* Koenig. Syst. lich. Germ. p 62.  
*Peltidea* Hook. Fl. Antart. p 525  
Ach. Meth. Lich. p 288.

*Nephroma. Ach.*

Gen char. Thallus submembranaceous, lobed and deeply divided; horizontal, smooth above, usually tomentose beneath.

Apothecia peltate; dark red; borne upon short proper ascending lobules, adnate to their under surface; never velate.

Sporidia 8 in asci, elliptic-oblong, of a faint yellowish brown, quadilocular.

*Peltigera resupinata*. Linn.

Sporidia 8 mic. asi. quadrilocular, elliptical, pale, 2  
mic long,  $\frac{2}{3}$  to 1 mic broad. (3.5 Mackiz.)

Fais. Lich. Suec. Exs. n 170. (a & b. papuavera Hoffm.)

Somm. Nov. 69 (a)

Mougeot et Nestler. n 252.

Schauer. Lich. Helv. Exs. n 259!!

Hepp. Flecht. Europ. n 362!! (363!! 364!! var  $\beta$  *longigata* Mull.)

*Peltigera resupinata*. Fais. Lich. Europ. p 42

Ach. Meth. p 289

Mich. Gen. t 44. Ord XIII. f 1-2

Dill. Hist. Muse. t 28. f 105

*Neprnoma*

Ach. Lich. Univ. 522

Hook. Br. Fl.

Tayl in Fl. Hib II. p 154

Schauer!! Spri 269.

Em. Crit. p 18

Lichen

Linn et Auct.

Smitth. Eng. Bot. t 305.

Fl. Dan. t 764

Wulfen Jacq. Coll. 4. t 12. f 1.

Ach. Rudornus. p 163.

*Solorina*. Ach.

Gen. char. Thallus submonophyllous; coriaceous, deeply lobed and emarginated at the circumference, horizontal, of a different colour upon the upper and under surface, beneath with ridges or fibrils. Apothecia dark red; peltate; marginal or adnate to the surface of the thallus; velate, at length naked.

Sporidia 4 - 8 in asci; dark brown; bilocular; or binuclear; or binuclear, each nucleus being enclosed in a proper loculus surrounded by a distinct membrane, the whole enclosed in the dark brown outer tunic of the Sporiidium.

*Solorina saccata*. Linn.

for description of *spicida* see next page.

Fries. Lich. Succ. Exs. n 175.  
Erbk. Crypt n 9  
Schworer. Lich. Helvet. Exs n 25!!  
Mouget Nestler Exs n 61  
Hepp. Flecht. Europ. n 171!!

*Solorina saccata*. Taylor in H. Fil. II. p 123

Ach. Syn. p 8

Lich. Univ p 149

Hort. Bor. Flora

Schworer!! Anunn. Crit p 26 lecto vivens  
furne  
excl. E.

Spic 13. 264

*Peltidea*

Ach. Meth, p 290.

*Peltigera*

Dec. Fr. 2. p 408

Mich. Gen 252. f 1.

Dill. muse. t 30 f 121

Fries. Lich. Europ. p 49

Lichen

Linn, spec 1616

Smith. Eng. Bot. t 288

Flora Danica. t 532 f 3.

*Lobaria*

Hoffm. Fl. Germ. p 147.

*Solorina saccata*, Linn.

Sporidia 4 in asci, ovate elliptical or elliptic oblong, in some cases slightly constricted in the transverse short diameter, dark brown, bilocular: length 6 micis. breadth 3, (3.5 Macky).

On decolorizing the sporidia, I find them formed of an outer dark brown firm cell wall enclosing two loculi, each loculus surrounded by a distinct proper membrane and containing a subquadrate nucleus of a pale green colour.

I examined this and the following species *Solorina crocea* specially with a view to the detection of the septate appearance figured by Kepp (Kepp. Flechten Europa. Band I) but totally failed, nor do I believe that any proper septum whatever exists in the perfectly formed sporidia, as such a structure on a carefully conducted decolorization of the sporidia must have of present become visible.

Descriptions of drawings.

Figs 1 & 2. Sporidia drawn previously to the action of any chemical reagent: fig 2 seen obliquely to the plane of the microscope giving rise to the appearance of overlapping represented in the drawing.

Figs 3, 4 & 5. Sporidia drawn after being carefully decolorized by the action of Solution of Chloride and Hypochlorite of lime, and showing well the internal structure of the loculi.

Fig 6. A sporidion loculus escaped from the dark outer tunica of the sporidium, showing its own proper cell wall and subquadrate nucleus.

Fig 7. A sporidion seen horizontally to the plane of the microscope.

Fig 8. The same seen obliquely showing in consequence an apparent overlapping of the loculi.

*Solorina crocea*. Linn

Sporidia 6 to 8 in asci, elliptical or fusiform, dark brown, bilocular; length 4 mic, breadth 1 to 1 1/2, (3.5 thick).

I believe in the present case in perfectly formed Sporidia each loculus is surrounded by a proper cell wall, but this structure was not invariable, being perhaps the most perfect state of

Fries. Lich. Succ. Eur. n 298  
Schwærer... Helvet... 24!!  
Sir J. E. Smith in Herb Menzies!!

*Solorina crocea*. Ach. syn. p 8

Lich. Univ p 149

Dill. musc. t 30 f 120

Hook. Br. Fl.

Schwærer!! Lich. Enum. G. p 22

Spic. 12. 263

Wahl. Lapp. p 44-5

Fries. Lich. Europ. Ref. p 48

Hoffm. Pl. Lich t 41. f 2-4. t 42 f 4-

Linn. spec. 1616

Flora Danica t 263

Eng. Bot. t 498

Walp. Jacq. Coll. IV. t 11. f 1-3.

*Peltigera*

*Lichen*

*Evernia*. Ach

Gen Char. Thallus pendulous or ascending; branched dichotomously; compressed; divided into two cortical, membranous layers enclosing a cottony, medullary one; usually of a different colour upon the upper and under surface.

Apothecia orbicular concave, formed of a Lemnia prolixa superimposed upon a substipitate thalloidal exciple.

Sporidia 8 in asci; subrotund or oval, pale, monocular.

*Evernia prunastri*. Linné,  
*Spicidia Prunasci*; oval, pale, monolocular; length 1 to 1½ mic.,  
 breadth  $\frac{2}{3}$  to  $\frac{4}{5}$  mic., (3.5 Mackenz). —

Fris. Lich. Succ. Ins. n 141.  
 Fries. Deutsch. n 92  
 Moug et Nestler n 355  
 Schaer. Lich. Helvet n 391!!

*Parmelia mollis*. a. *prunastri*. Schaer!! Spic 490  
*Physcia prunastri*. . . . . Enum. Cr. p. 11.  
*Evernia prunastri*. . . . . Fris. Lich. Europ. p. 25  
*Parmelia prunastri*. . . . . Ach. Mett. p. 257  
*Lotaria prunastri*. . . . . Hoffm.  
*Lichen prunastri*. . . . . Linné et Auct.  
 . . . . . Lin. Eng. Bot. t. 859.  
*Lichen stictoceros*. (forme witte *Spemagones*.) L. Bot. t. 1353.  
*Lichen arenarius*. . . . . Retz. Scand.  
*Evernia prunastri*. . . . . Ach. Lich. Univ. p. 442.

*Evernia purpuracea*. Linn.

*Spicidia Pini* var. *pinusci*; oval, pale, monolocular; length 1 to 1 $\frac{1}{10}$  mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  mic, (3.5 Mackenz) - -

Fris. Ins. n 140

Mongel Nestler. Ins. n 63.

Hörke Deutsche. n 173

Schoerer. Lich. Helvet. w 387!!

*Parmelia purpuracea*. Ach. Mette p 254

Tayl in Fl. Hel. II. p 26

*Evernia*

Fris, Lich, Europ, p 26

Mann. Lich. Boh. p 105

*Borreria*

Ach. Lich. U. p 500

Hörke. Pr. Fl.

Ach Syn. p 222

*Lotaria*

Heffm. Pl. Lich 29. 72

*Physcia*

Decand

Schoer!! Spic 485

Enum. G. p 10

*Lichen*

Linn

Sm. Eng. Bot. 2984

Dill. Musc. 21. 752

*Borreria Kamtschadalis* Ach.

*Sticta*. Schreb.

Gen. char. Thallus membranaceous or sub-coriaceous, more or less deeply divided, ascending or horizontal, lobed or sinuated, compressed or leafy, even or reticulato-lacunose; beneath villous, with naked cyphellae or bald patches.

Sporidia marginal or scattered, orbicular concave, the lamina frutigeræ placed upon a proper thallogal exciple.

Sporidia 2 in asci; light brown or pale, fusiform or acicular, bilocular, or quadrilocular becoming at length multilocular, straight or serpentine.

*Sticta aurata*. Smith

Hab. Cornwall, Mr Eagle (Rev C. Babington in Hooker's files) Fl  
of New Zealand. Vol II. p 273).

Sporidia 8 in asci, pale brown, fusiform or pyriform, round-  
ed or attenuated at one or both extremities, serpentine, quad-  
rilocular; length 3 mic, breadth  $\frac{1}{2}$  to  $\frac{2}{10}$  of a mic (3.5 Nachez).

Schoer. lich. Helvet. Ins. n 558 !!  
Hepp. Flecht. Europ. n 378 !!

Lichen auratus. Smith. Eng. Bot. t 2359.

Parmelia Eschw. Lich. Bras. t 14. f 1.

Sticta Ach. Syn. p 232

Hook. Br. Flora

Fries. lich. Europ. Ref. p 50 (each syn referring to *S. curvata*)

Schoerer. En. Crit. p 33.

Hook. fil. Fl. New Zealand Vol II. p 273.

Ach. Meth. lich. p 277

lich. Univ. p 413.

*Sticta crocata*. Linn

*Sporidia*

*Sticta crocata*. Ach. Lich. Univ. p 447

Syn. p 231

Hook. Br. Fl.

Taylor in Fl. Hib. II. p 151

*Lichen crocatus*. Linn. mant. 310

Dites. Fasc. Cr. 2 p 22

Smith. Eng. Bot. 2 2110.

*Sticta*

Schauer. Enum. Crit. p 33.

Hook. f. Fl. Antart. p 525

Fl. New Zealand. Vol. II. p 275.

*Sticta citrina*. Pers. in Freyc. Voy. Bot. p 201

*fuliginosa* Taylor in London Journ. of Bot. Vol. VII. p 646

*impressa*

*Guadichaudii*. Delise. Hist. Stict. p 80 t. VIII. p 23.

Boyd in Duperry. Voy. Bot. p 236

*Sticta macrophylla*. Fée.

- Sticta macrophylla*. Fée. Crypt. des Lorrains. Offic. t. 33 f. 1.  
*Sticta* Hook. Pr. Flora  
Taylor in Mackenzey Fl. Hib.  
Scherer. En. bot. p. 31.
- Sticta macrocarpa* Delise Mss.  
Hook. Bot. Misc. v. 1. p. 17. t. 13  
Bonier in Eng Bot. Sup. t. 2697.
- Sticta damicornis* Ach. Meth. lich. p. 276  
Hook. fil. Fl. New Zealand VII. p. 279.  
Ach. Lich. Univ. p. 446.

*Sticta fimbriata*. Taylor!! M.S.S.

Thallus submembranaceus, foliaceus, 3 or 4 inches in length  
biped, the lobes more or less incised and fimbriated at the  
edges, when dry on the upper surface of a bluish olive colour  
changing to a pale olive green when moist; of a pale  
chestnut colour beneath marked by still paler cyphellae.  
Apothecia ?

Hab. Near Pydie's cottage. Killamoy. Dr Taylor.

The above species is very distinct from any other British *Sticta*  
and may easily be recognised by the fimbriate almost lacinate  
border of the thallobial lobes.

Since the above was written, I have ascertained the spe-  
cies to be identical with the *Sticta Dufourii*. Delise; the  
synonymy will therefore stand thus.

- Sticta Dufourii*. Delise, Hist. p. 48. t. 6. f. 22
- ..... Schaeer. Enum. Crit. p. 32
- ..... *fimbriata*. Taylor. M. S. S.

Exs. Hepp. Flecht. Europ. n. 370!!

*Sticta limbata*, Smith

Spores 8 in asci, fusiform, bilocular at length the multilocular, pale or granular, straight or curved. Fide Hepp. Hecht Europ. n 369 & icones.

Schaeerer. Lich. Helvet. Exs. n 557!! (spumularia in herb n)  
Hepp. Hecht. Europ. n 369!! (non soerediate)

*Sticta limbata*, Ach. Lich. Univ. p 453.

Fries. Lich. Europ. p 52

Schaeerer!! Enum. Cr. p 32

Delise, Stict. t 4. f 24

Hook. Br. Flora

Taylor in Fl. Hib. II. p 152

Smith. Eng. Bot. t 1104

Lichen

*Sticta fuliginosa*, Dicks.

Asci 8 in asci, fusiform or straight on one side, curved on the other and, attenuated at the extremities, pale or granular, bicellular at length quadricellular, (Fide Hepp. Hecht Europ. n 371. vine fig 7). —

Moug et Nestler. Exs. n 542 ("fere *S. sylvatica ipsa*") Friis. l. c.  
Schoerer, Lich. Helvet. Exs. n 386!!  
Hepp. Hecht. Europ. n 371!!

*Sticta fuliginosa*, Ach. Syn. p 236

Lich. Univ. p 454

Friis. Lich. Europ. Ref. p 52

Schoerer!! Enum. Crit. p 32

Spic 483

Delise, Stict. t 6 f 20

Hook. Br. Fl.

Jayl in Fl. Hib. II. p 152

Dicks. crypt. I. 13.

Smith. Eng. Bot. t 1103

Hepp. Wurtzb. p 26.

Hook. fil. Fl. New Zealand VII. p 286

Lichen

*Sticta sylvatica* β.

*Sticta fuliginosa*

*Sticta sylvatica*, Linn.

Fries. Lich. Succ. Vas. n 79  
Moug et Nestler n 155.  
Schœur. L. H. Ess n 258!!

*Sticta sylvatica*, Fries, Lich. Europ. p 51.  
Ach. Syn. p 236  
Lich Univ. p 454  
Delise, Stict t 7. f 27. A.  
Hook. Br. Flora  
Taylor in Flora Hibernica II. p 152  
Pulmonaria Hoffm. Pl. Lich VI. t 4. f 2  
Peltigera Hoffm. Germ.  
Lichen Linnaeus  
Wulfen Jacq Coll. IV. t 12 f 2  
Huds. Angl II. 547.  
Smith. Eng. Bot t 2298  
Mich. Gen. t 43. Vol XI  
Dill. Hist Muse. t 27. f 101.  
Peltigera Scherer!! In. Crit. p 22  
Spici 267.

*Sticta scrobiculata*. Scop.

Spores 8 in asci; acicular; with one or both extremities rounded or attenuated; pale; bilocular, quadrilocular, at length monolocular and coarsely granular; serpentine.  
Length 7-9 mic, breadth 1 mic, (3.5 Machez).

Fries. Lich. Suec. Exs. n 78  
Moug et Nestler n 444  
Schwær. L. Fl. Exs n 490!!

*Sticta scrobiculata*, Ach. Lich. Univ p 453  
Ach. Syn. p 284  
Schwær!! Lich. Enum. Cr. p 31.  
Spic 482  
Fries. Lich. Europ. p 53.  
Jays ni Fl. Hib II. p 210  
Hook. Br. Flora  
Mich. Gen. Ord. ~~XXI~~. 249.  
Dill, muse. t 29. f 114  
Delise. Stict. t 18 f 69.  
Lichen  
Scopoli. Carn. 384  
Smith. Eng. Bot. t 497.  
Flora Danica. t 1007.

*Lichen verrucosus*. Hudson  
Walpni Jacq. Coll. II. t 18 f 2  
Roth. Bot. May. 2. t 1. f 2  
Ramm. scrobiculata Ach. Meth. p 219.  
Lobaria Decand.  
Nulmonaria verrucosa Hoffm. Pl. Lich. t 1. f 1.  
Lobaria Eisdem. Germ.

*Sticta pulmonaria*. Linn

Sporidia 8 in asci, elliptic fusiform, attenuate towards the extremities, straight or serpentine, pale, bilocular, each loculus very frequently containing a rounded nucleus. Length 3 to 4 mic long; 1 mic broad, (3.5 Machez). —

Friss. Lich. Succ. Sax. n 174.

Mougel Nestler n 62

Höck's Deutsch. n 179

Schauer. Sax n 384!!

Hepp. Hecht. Europ. n 53!! var angustata. Hepp.

*Sticta pulmonaria*. Ach. Lich. Univ. p 449  
Syn 233

Friss. Lich. Europ. p 53.

Schauer. Lich. Enum. Cr. p 30  
Spici 480.

Delise. Stict t 14760-65

Hook. Br. Flora

Taylor in H. Hib II. p 151.

Linn. spec 1612

Smith. Eng. Bot. 2572

Westr. Farglaf. t 20

Heppm. Germ.

Lobaria

*Pulmonaria reticulata* Heppm. M. Lich. t 1. f 2.

*Parmelia pulmonacea*. Ach. Meth. lich. p 220.

*Sticta glomulifera*. Light.

*Spizelia Prinsasi*; fusiform, attenuated towards the extremities, straight or serpentine, pale yellowish, bilocular; length 4 to 5 mic long, breadth 1 to 1 1/2, (3.5 Mackenz).

Fries. Lich. Suec. Exs. n 327

Mugel Nestler Exs. n 346

Schroerer. L. Fl. Exs, n. 559!!

- Sticta glomulifera*, Fries, Lich. Europ. p 54  
Delise. Stict p 129. t 15 f 54-55  
Mich. Gen. t 46 ord XVII.  
Dill Muse t 26 f 90  
Hook. Br. Flora  
Ach. Syn. p 195  
Lightfoot  
Smith. Eng. Bot. t 293  
Hoffman
- Lobaria*  
*Lichen amplissimus*. Desp. Carn. II. 386  
*Sticta*  
*Parmelia*  
Koerber. Syst. L. Germ. p 68  
Schroerer!! En. Cr. p 33  
Spic 450
- Lichen laciniatus* Hudson  
*Lichen grandis* Pers. Ann. Bot.  
*Sticta glomulifera* Hook fil's Fl. New Zealand VII. p 284

*Sticta herbacea* Hudson

Ascidia P. asi; fusiform, attenuated towards the extremities,  
straight or serpentine, pale yellow, bi or quadrilocular; length  
4 to 5 mic, breadth 1 to 1 1/2, (3.5 Michx). -

Fries. Lich. Succ. Cas. n. Fas XII

Ehrh. Crypt. n 50 (Lichen mutabilis)

Schoerer. L. H. Cas, n 560!!

*Sticta herbacea*, Fries. Lich. Europ. p 55.

Delise. Stict. p 132

Mois. Hist. III. Ser. 13. p 73.

Dill, musc. t 25. p 98

Körber. Syst. Lich. Germ. p 68

Hudson, angl. II. 254

H. Danica. t 1127.

Hoffm. Pl. Lich. t 10. p 2

Ejusdem. Germ

Ach. Syn. p 298

Hook. Pr. Flora

Taylor in H. Hist. II.

*Lichen luteovirens*, Lightfoot.

Smith. Eng. Bot. t 294

*Sticta*

Abb. L. D p 64

*Lichenoid*

Dill. h. m 195. t 25

*Parmelia*

Schoerer!! En. Cr. p 35

Spic 461. a. b.

*Lobaria*

Hobow. L. H. Sil. No 106

*Sticta herbacea*

Ravul Choix de Pl de N. Zealand p 33

Hookes fils. H. New Zealand VII. p 284

*Imbricaria. Schreb emend.*

Gen char. Thallus membranaceus or cartilagineus; foliaceus, placoid, squamose, squamulose or crustaceous.

Apothecia orbicular, formed of a lamina protigera supported upon and margined by a Thallodol exiple, either exate from the thallus or immersed in its substance.

Sporidia 4-8 in asci, pale, monocular.

Thallus membranaceus or cartilagineus, foliaceus, or incised.

- *perforata*. Ach
- *perolata*. Linn
- *sinuosa*. Sm
- *tiliacea*. Ehrh
- *Borreri*. Jun
- *saxatilis*. Linn
- *alewites*. Ach
- *hypnopta*. Ach
- *diatrypa*. Ach
- *physodes*. Linn
- *encausta*. Sm
- *acetabulum*. Neck.
- *stivacea*. Linn
- *stygia*. Linn
- *capitata*. Linn
- *confusa*. Ehrh
- *incurva*. Pers.
- *diffusa*. Web.
- *plumbea*. Lightf
- *sanicola*. Pollich
- *candicans*. Dick
- *circinata*. Pers.
- *crassa*. Hudson
- *lentigera*. Web.
- *ostreata*. Hoffm
- *canosa*. Dick
- *Hookeri*. Sm
- *pulluscus*. Linn
- *turtarea*. Linn
- *triptophylla*. Ach
- *pusulosa*. Dick

Sub Genus 1.

*Imbricaria. Schreb emend.*

Thallus placoid, effigurate.

Sub Genus 2.

*Circinaria. Ach emend.*

1. Thallus cartilagineo-squamose.

Sub Genus 3.

*Squamaria. Hoffm emend.*

Thallus cartilagineo-squamulose.

Thallus cartilagineo crustace-

ous continuous or interrupted

1. Apothecia not immersed in the thallus

Sub Genus 4.  
*Lecanora*. Ach. emend.

-	<i>subfusca</i>	Linne
-	<i>pallida</i>	Schreb
-	<i>galactina</i>	Ach
-	<i>varia</i>	Urb
-	<i>sulphurea</i>	Smith
-	<i>indida</i>	Ach
-	<i>involuta</i>	Taylor
-	<i>coarctata</i>	Smith
-	<i>radia</i>	Person
-	<i>atra</i>	Hudson
-	<i>tuberculosa</i>	Borer
-	<i>aspusa</i>	Borer

*Apothecia* intermediate between the preceding & the following Sub Genus

2. *Apothecia* immersed in the  
 Thallus not innate.

Sub Genus 5.  
*Aspicilia*. Massal.

-	<i>cinereo-rufescens</i>	Ach
-	<i>epulotica</i>	Ach
-	<i>melanophnea</i>	Fries
-	<i>cinerea</i>	Linne
-	<i>gibbosa</i>	Ach
-	<i>calcaria</i>	Linne.

*Imbricaria perforata*. Jacq.

Spores 8 micrometers saccate asci, globose-elliptical, marginated, monocular, hyaline. Fid Koerber. Syst. L. Germ. p 69

- Parmelia perforata*. Fuis. L. Europ. p 58  
Hook. Pr. Flora  
Ach. Syn. p 198  
Dill. muse. t 20 f 42. 44. t 82. f 3.  
Schaeer. En. bot. p 34  
Rabenhorst. L. Deutsch p 66  
Mass. Mem. p 54
- Imbricaria*  
Lichen  
Koerber. Syst. Lich. Germ. p 69  
Ach. Prodr  
Smith. Eng. Bot. t 24 23  
Wulfen Jacq. Coll I. p 116. t 3.  
Hoffm. N. Lich. t 13. f 1.  
Fée. Crypt. t 32. f 3
- Platismia*  
*Parm. proboscidea*  
Lichen  
Tayl in Fl. Hib II. p 143  
Scop. Fl. Carn.  
Allioni -
- Parm.*  
Hook. fil. Fl. New Zealand VII. p 284  
Taylor Lich. Antart n 64
- Parmelia perforata*  
Hook. fil. l. c. p 284

*Imbricaria perlata*, Linn.

Spores as in preceding. Fide Körber. Syst. L. Germ. p 69.

Moug et Nestler. Ess. n 253

Schoerer. Essiccati, n 360!!

*Parmelia perlata*. Fris. Lich. Europ. p 59  
Ach Syn. p 197  
Lich. Univ. p 459  
Vaill. par. t 21. f 12  
Mich Gen t 50. f 1  
Dill. nusc. t 20 f 39  
Taylor in Fl. Hib II. p 148  
Wallr. Comp. p 520  
Rbh. Lich. Deutsch p 60  
Schoerer!! En. Crit. p 34  
Spic 451

*Imbricaria*  
Lichen

Mass. Mem. p 54  
Körber. Syst. Lich. Germ. p 69  
Linn. syst. nat. ed II. 712  
Wulfen Jacq Coll II. p 273. f 10  
Smith. Eng. Bot. t 341.

Persoon. Hoffm

*Lobaria*  
*Parmelia plicata*. Persoon

*Parmelia reticulata*. Taylor in Mackay Fl Hib II. p 148  
*perlata*. Hook fil. Fl New Zealand III. p 284

Dr Taylor in the Flora Hibernica lays down the following as the diagnostic characters of *Parmelia perlata* and *reticulata* - *Parm. protoscidea* and *Parm. perforata*. -

In *Parmelia perlata* and *reticulata* the buds or soredia are in marginal powdery clusters.

In *Parm. protoscidea* the buds are on thallobial solid podetia, in other words are isidiotrophic.

In *P. perforata* again the thallus is coriaceous, reticulato-areolate, void of soredia and of isidiotrophic processes -

The learned authors of the Flora of New Zealand have made the following remarks upon the value of the soredia as a diagnostic character, which remarks from the importance and value of all opinions upon this subject I shall venture to transcribe -

"The distinctness or identity of these three lichens depends very much upon the resolution of the question: Can one and the same *Parmelia* produce sometimes pulverulent marginal soredia, sometimes scattered corulline ones and at other times show no tendency to produce either? Dr Taylor in the Flora Hibernica has all along assumed the negative, and has distinguished his species accordingly. Upon the whole we are of a contrary opinion, but have preferred to allow these plants to stand apart, as they are separated by his characters in order to attract attention to them."

I am also of the opinion that the soredia cannot be admitted as a character of importance sufficient to assign the limits of species.

Should we be justified for example, in the parallel case of the apothecia, in adducing their absence in many foliaceous lichens in certain localities as a character by which to distinguish them from futile specimens occurring in more favourable habitats.

Let us take for example one of the plants under consideration, namely, *P. perforata*, which inhabits generally speaking warmer climates than *P. perlata*, in consequence we find a greater development of the thallus and the presence of apothecia, but as we meet with more Northern forms these latter cease to be developed, and in their stead we find soredia, varying as to their situation in the

same manner as the Apothecia, and depending for  
their characters upon the situation of the plant, in  
some habitats being luxuriant, in others the reverse;  
in shady situations becoming pulverulent, in those  
more exposed, inclining to the coralline or isidiflo-  
rous condition -

*Imbricaria sinuosa*. Smith  
Var  $\alpha$ . *laevigata*. Sm.

Var  $\alpha$ . *laevigata*. Smith.  
Schuur. Lich. N. Sas. n 561.

*Parmelia sinuosa*, & *laevigata*. Scherer. *Un. Cr.* p. 43  
*Parmelia laevigata*. Ach. *Syn.* p. 212  
Hook. *Pr. Flora*  
Taylor in *H. Flib II.* p. 148  
Smith. *Eng. Bot.* t. 1852  
Lichen

*Amblicaria sinuosa*. Smith  
Var  $\beta$ . . . . .

Var  $\beta$ . *sinuosa*. Smith.

*Parm. sinuosa* (*P. relicina*). Schauer. En. Crit. p 43.

*Parm. sinuosa*. Ach. Syn. p 207

Fries. Lich. Europ. p 63.

Hooker!! Br. Flora.

Taylor in Hua Hib II. p 149.

*Amblicaria*  
Lichen

Kärber. Syst. Lich. Germ. p 84

Smith. Eng. Bot. p 2050.

*Imbricaria sinuosa*. Smith  
Var  $\gamma$ . *hypothux*. Nylander.

Thallus appressed to the rocks, foliaceous, subcoriaceous,  
pale unchangeable gray, lobate, the lobes rounded and  
smooth at the extremities, and of a remarkably sinuous  
outline; beneath olive black, somewhat bristly.  
Sporothecia?

Hab. Pine trees. Bourne-mouth. (Rev. W. A. Lighton).

Lighton. Lich. Brit. Encic. 12 202!!

Nylander. Collect. p. 4.

*Imbricaria tiliacea*. Ehrh.

*Spidia Pniasei*; oval, pale, monolocular; length 1 to 1½ mic  
breadth ½ to ¾ mic broad, (3.5 Mackez). —

- Schaeerer. Lich. Helvet. Exs. n 358!! 359!!
- Fries. L. Suec. n 169
- Moug et Nestler. n 445
- Ehrh. Crypt. n 59
- Flotow. Deutsch. Lich. n 97
- Furze, Crypt. n 141.
- Smith (Sir J. E.) in Herb. Menzies!!

- Parmelia tiliacea*, Ach. Syn. p 199
- Fries. Lich. Europ. p 59.
- Hook. Br. Flora

- Ach. Lich. Univ. p 460
- Mich. Gen. t 45. (Fig. infesta)
- Körber, Syst. L. Germ. p 70
- Ehrh.

*Imbricaria*  
Lichen

- Hoffm. Enum. Lich. t 16 f 2
- Smith. Eng. Bot. t 700

*Lobaria*  
Parrn.

- Hoffm. Germ.
- Wallr. Comp. p 500
- Rabenhorst. Lich. Deutsch p 60
- Mass. Mem. p 50

*Lichen quercifolius*  
*Parmelia*

- Wulfen Jacq. Coll. III. p 127
- Schauer!! En. Crit. p 43
- Spri 449

*Lichen quercinus*  
*Imbricaria*

- Willd. Berol. t 9. f 2
- Decand

*Lichen scorteus*

- Ach. Prodr. p 9.
- Smith. Eng. Bot. t 2065

*Parmelia*

- Ach. Syn. p 197
- Hook. Br. Flora.

*tiliacea*

- Hook. fil. Fl. New Zealand VII. p 285

*Imbricaria Borreri*, Turner.

"*Apothecia rarissima*" Koeber, Syst. L. Germanic. p 71.  
Sporidia 8 in asci; elliptical, pale, monocular; length  $1\frac{3}{4}$   
to 2 mic, breadth 1 to  $1\frac{1}{5}$ , (3.5 Mackenz).

Schauer. Lich. Helvet. Exs. n 361  
Moug et Nestler n 634  
Flotow, Deutsch Lich. n 99  
Schleich in herb Menzies !!

*Ramellia Borreri*, Turn in Linn Trans.

Ach. Lich. Univ p 461

Hook. Br. Flora

Taylor in H. Hib II. p 146

\* *Imbricaria* Koeber. Syst. L. Germ. p 71.

*Ramn scotica americana*, Ach. Syn. p 197

*reducta*. c.

Ach. l. c.

*Lichen Turneri*

Smith. Eng. Bot. t 1780

*Ramn dubia*

Schauer !! Br. Crit. p 45

Spici 453

*Lichen*

Walp in Jacq. Coll. IV. 275. t 19. f 1

\* *Ramn Borreri*

Fries. Lich. Europ. p 60

Nabentross. L. Deutsch p 60

*Imbricaria saxatilis*. Ach. Linn.

*Spordia* tri-asci; ellipticis, pale, monocular; length 2  
mic long, breadth  $1\frac{1}{2}$ , (3.5 Machez).

Fris. Lich. Succ. n 168. A. B. C.

Flotow Deutsch. L. n 98

Moug et Nestler, 349. 738

Schuur. Lich Helvet. Exs. n 362!! 363!! 364!!

*Parmelia saxatilis*. Ach. Lyn. p 203

Lich Unid. p 469

Taylorii Fl. Hib II. p 144

Hook. Pr. Flora

Schuur!! Ex. Brit. p 44

Spic 454. 455. 456

α. Fris. Lich. Europ. p 61

Kerber. Syst. Lich. Germ. p 72

Linn. sp. 1609

Smith. Eng. Bot. t 603

Dill. muse t 24 f 83

Hoffm. ex. Lich. t 15 f 2.

Wulfen Jacq. Coll. II. t 10 f 2

Westring Farglafs t 2.

Hoffm

Decand.

*Imbricaria*

Lichen

*Lobaria*

*Imbricaria tetragona*.

*Parmelia saxatilis*. Hook fil. Fl. New Zealand. III. p 285  
Flora Antarctica. p 533

*Imbricaria saxatilis*. L. Var  $\beta$ . *omphalodes*. Linn.  
Sporidia circular or elliptic, resembling in other respects  
those of *Imbricaria saxatilis*, save in the appearance in some  
specimens examined of a double cell wall, but of the presence of  
which I was unable positively to satisfy myself.

Fries. Lich. Suec. Exs. n. 108  
Moug et Nestler. n. 348  
Schoerer. L. Fl. Exs n. 488!!  
Flotow. Deutsch. L. n. 98 E  
Sommer. Gr. n. 150.

*Parmelia saxatilis*.  $\beta$ . *omphalodes*. Fries. Lich. Europ. p. 62  
*Imbricaria* Körber Syst. L. Germ. p. 72  
*Parmelia omphalodes*. Ach. Syn. p. 203.  
L. Univ. p. 469  
Hook. Pr. Flora  
Taylor in H. Hib II. p. 145  
Linn, sp. 1609  
Smith. Eng. Bot. t. 604  
Dill. musc. t. 24. f. 80  
Vall. par. t. 20. f. 10  
Mich. Gen. t. 49. f. 2  
Westr. Farngl. p. 27 (non Waltz).

Lichen

*Amblicaria alveolites*, Ach

*Sporidia* Pni asci, ovate or elliptical, pale, monolocular, length 1 mic, breadth  $\frac{2}{3}$  a mic, (3.5 Mackenz).

Fris. Lich. Succ. Eur. n, 290  
Moug et Nestler n, 739  
Schworer. L. Fl. Eur. n, 489!!  
Flotow. Deutsch. L. n 106  
Frank. Cr. n 398  
Lwackh. Lich n 574

*Parmelia alveolites*, Ach. Lich. Univ. p 484  
Syn. p 268

Fris. Lich. Europ. p 62  
Schworer! Lich. Enum. Cr. p 44  
Spri 469.

Hook. Br. Flora

*Amblicaria*

Wörterb. Syst. Lich. Germ. p 73

Lichen

Ach. Prodr. 117

Smith. Eng. Bot. t 858

Mick Gen. t 51. ord ~~XXX~~. f 2

Lichen diffusus.

Dicks. Cr. t 9. f 6

Placod

Hoffm. Pl. Lich. t 65 f 2

Lobaria

Guedern, Germ.

Lichen pallidus.

Hoffm. en, Lich t 10 f 1.

*Imbricaria hyperopta*. Ach.

Spores very slender, submicroscopic, asci, minute, lunu-  
late or falcate, monolocular, hyaline. Koerber. Syst. L. Germ. p 74.

Schaeur. Lich. Helvet. Ins. n 376!!

Flotow. Deutsch. Lich. n 119. B. G.

*Pannelia hyperopta*. Ach. Syn. p 208

*Imbricaria*

Koerber. Syst. L. Germ. p 73

*ambigua*  $\beta$  *albescens*. Flotow. Lich. Fl. Sil. No 98.

*Pannelia* . . . . .

Schaeur!! In. Brit p 47

Fries. Lich. Europ. p 71.

*diffusa* . . . . .

Rbh. L. Deutsch. p 56

$\alpha$ . *leucochroa*. Wallr. Comp.

*Imbricaria diatrypa*. Ach.

Peris 4 in longe ovate asci; large, void elliptical, broadly margined monolocular, twice as long than broad, yellowish. Fied Koerber. Syst. L. Germ p 74

Mougeot et Nestler. Crypt. n 65 !!  
Schoerer Lich. Helvet. Ens. n 365 !!  
Ludwig. Crypt n 180  
Funker Crypt n 198  
Holow. Deutsch. Lich n 103 A. B.

*Parmelia cerebrata*. Mart. Cr. Fl. Erlang.

*Imbricaria* Koerber. Syst. Lich. Germ p 74

*Lobaria* Hoffm.

*Parmelia pertusa*. Schoerer!! En. Crit. p 43

Lichens Schrank. Bau. II. n 1513

*Parmelia physodes* (monstrositas) Eschw in Mart. Fl. Bas p 203

Mont. Voy. au Pole Sud p 182

*Parmelia diatrypa* Ach. Lich. Univ. p 493

Syn p 219

Hooke!! Br. Flora

Taylor in Fl. Hib II. p 150

Hooke. fil. Fl. N. Zealand II. p 286

Flora Antarctica p 533

Lichens

Ach. Prodr.

Smith. Eng. Bot. t 1248

*Imbricaria*

DeCandolle.

*Imbricaria physodes. Linn.*

*Spindia Smiasei*; elliptical, pale, monocular; length 1 mic, breadth  $\frac{2}{3}$  a mic, (3.5 Mackenz).

Fuis. Lich. Succ. Ens. n 291.

Moug et Nestler. Ens. n 159.

Schoer. Lich. Helvet. n 366!! 367!!

Frank. Crypt. n 197 A. B.

Recht. Lich. n 65.

Flotow. Deutsch. Lich n 101. A — F, 104.

*Parm physodes. a.* Fuis. Lich. Europ. p 64

Ach Syn. p 218

Lich. Univ. p 492

Buabaum. Comm. Petrop. III. t 14 f 11.

Dill, muse. t 20. f 49.

Mich. Gen. t 50. Ord XXX. f 1.

Hook. Pr. Flora

Jaylor in Flora Hib. II. p 150.

*Imbricaria. . . . d. β. γ.* Hierber. Syst. Lich. Germ. p 75.

*Parmi ceratophylla.* Schoer!! In. Leit. p 41 (each var encrusta)

Lichenoid

Raj. Syn III. 76

*Lichen physodes.*

Linn, sp. 1610

Mulfri Jacq. Coll III. p 121. t 8

Smith. Eng. Bot. t 126

Hoffm. In. Lich t 15. f 2

Flora Danica. t 1186. f 2

Hoffm.

*Lobaria*

Decand

*Imbricaria*

Ach. Syn.

*Parm distorta*

Hook. fil. Fl. N. Zealand. p 286 Vol II.

*Parm physodes.*

*Imbricaria physodes*. Linn  
Var  $\beta$ . *enteromorpha*. Ach.

Herbarium Menzies!! (California. 1792. All)

- Parmelia enteromorpha*. Ach. Syn. p. 219  
Hook. fil. Fl. Antart. p. 532
- Parm physodes*. Var  $\beta$ . *enteromorpha*. Tuck. Syn. North Amer-  
ican Lichens. p. 28  
Hook. fil. Fl. N. Zealand VII. p. 286
- Parm physodes*.  $\beta$ . *vittata*. Mont in Voy. au Pde Sud. Co. p. 182
- Parmelia lugubris* Pers in Freyc. Voy. Bot. p. 196
- Parmelia platycarpa* Tuck. Lich. N. Eng.

*Amblicaria encausta*. Smith.

Sporeidia 8 mic; elliptical or somewhat rounded, pale,  
monocular; length 1 mic, breadth  $\frac{1}{2}$  a mic, (3.5 Mackez).

Ehrh. Crypt. n 305.  
Moug et Nestler. n 353!!  
Ludwig Crypt n 170  
Froocke. Cr. n 374  
Schauer. L. Fl. Ins n 368!!  
Flotow, Deutsch. L. n 105. A. B.  
Zwackh. Lich. n 183.  
Hepp. Flecht. Europ. n 53!!  
See J. E. Smith, in herb Menzies!!

*Parm encausta*, Ach Lym. p 206

Hook. Br. Flora

Lichen

Smith!! Traus. Linn. 7476

Eng. Bot. t 2049

*Amblicaria*

Körber, Syst. L. Germ. p 76

*Parm physodes*  $\beta$ . *encausta*. Fris. Lich. Europ. p 64

*Amblicaria*

$\epsilon$

Flotow. Lich. H. Sil. N<sup>o</sup> 88.

*Parm encausta*  $\gamma$  *condyfacta*. Ach. L. U. p 490.

*Parm eccatophylla*. var.  $\zeta$  &  $\eta$  D. Schauer!! M. Cr. p 42

Spic 459.

var.  $\beta$  et  $\gamma$ . Wallr. Comp. p 488

Lichen multipunctus Ehrh.

*Imbricaria acetabulum*. Neck.

Sporidia 8 mic, elliptical, pale, monocular, length  $1\frac{3}{4}$  mic, breadth 1 mic, (3.5 Mackenz).

Fris. Lich. Succ. Eur. n 292  
Ehrh. Crypt. n 127  
Mouge et Nestler n 256  
Schuur. L. Fl. Eur. n 547!!  
Fries. Crypt. n 596  
Hortow, Deutsch. L. n 107  
Zwatsch. Lich. n 55.  
In J. E. Smith in Herb. Menzies !!

*Pannelia acetabulum* (Neck) Fris. L. E. p 65.

Vaill. par. t 21. f 13  
Mich. Gen t 48 f 2  
Dill. Muse t 24 f 79.  
Schuur. !! En. Brit p 35  
Spic 463.

*Imbricaria*  
Lichen

Noerber. Syst. Lich. Germ. p 77  
Necker. Delic. 506  
Hoffm. En. Lich. t 18. f 2  
Wulfen Jacq. Coll. III. t 9. f 1.

*Lobaria*  
*Pannelia corrugata*

Hoffman  
Ach. Syn. p 199.  
Hook. Br. Flora  
!! Smith. Linn, Trans. Vol 1. p 83  
Eng. Bot. t 1652

Lichen

*Imbricaria olivacea*, Linn.

*Sporidia* 8 in a row, rotundate-ovate, pale, monolocular;  
length 1 to 1 1/2 mic, breadth 1 to 1 1/5, (3.5 Mackenz).

Fries. Lich. Succ. Exs. n 260.

Monge et Kestler Exs. n 161.

Schaeer. Exs. 370!! 371!!

Hepp. Flecht. Europ. n 367!! *β collematiformis*. Schleich.

*Parm olivacea*. Fries. Lich. Europ. p 66

Ach. Syn. p 200

L. Univ. p 462

Hook. Br. Flora

Taylor in Fl. Hib II. p 143

Vaill. par. t 20 f 8

Mick Gen. t 51. ord XIX.

Dill. muse. t 24. f 77-78.

Schaeer!! in. Brit. p 47.

Spic 465. (466. p. p)

Mass. Mem. p 52.

Wallroth. Comp. p 501.

Rabenhorst. L. Deutsch. p 57.

Koerber. Syst. L. Germ. p 77.

Mass. Mem p 53.

Koerber. L. c. p 78.

Linn. Sp 1610

Hoffm. in. Lich. t 13. f 3. 4. 5.

Smith. Eng. Bot. t 2180

Hoffm. Germ.

*Libaria*

*Parm collematiformis*. Schleich. Cat.

*Collima excuspatum* Ach, etc, ex. Spic. Schleich (fil. Fries)

*Lichen pullus*. Schreb.

*Parmelia olivacea*. Hook. fil. Fl. N. Zealand. Vb p 286

*imitatrix*. Taylor in London Journal. Bot Vol VII. p 161

*Imbricaria stygia*. Linn

Var a. . . . .

Spores elliptical, 8 mic ascis, pale, monolocular; length 1 mic, breadth  $\frac{2}{3}$  mic, (3.5 Nachez).

- Fries. Lich. Suec. Ins. n 166
- Mouge et Nestler n 351.
- Schaeerer. L. Fl. n 253!!
- Fischer. Crypt. n 107
- Hotow, Deutsch. Lich n 111.
- Dickson in herb Menzies!!

- Parmelia stygia*. Fries. Lich. Europ. p 67.  
Flora Danica. t 2007. f 2.
- Parmelia Fahlencensis*. *P. stygia*. Schaeerer!! En. Crit. p 48  
Nbh. Lich. Deutsch. p 57  
Mass. Mem. p 54
- Squamaria stygia*, Hoffmann. Pl. Lich. t 25 f 2  
Lichen Linn, sp. 1610.  
Hoffm. En. Lich, t 14 f 2.
- Imbricaria* Karber. Syst. L. Germ. p 79.  
\* Lichen Smith. Eng. Bot. t 2048  
*Parmelia* Ach. Syn. p 205.  
Lich. Univ. p 471.

*Imbricaria stygia*. Linn  
Var  $\beta$ . *Fahlunensis*. Linn.

*Sporidia* identical with those of the species.

Floerke. Deutsche. Lich. n 93  
Funk. Crypt. n 107  
Mouge et Nestler n 350!!  
Fries. Lich. Suec. n 335  
Hortow, Deutsch. Lich n 110  
Schwewer. Lich. Helvet. Ins. n 374!! 373  
Lwackh. Lich n 184

*Parmelia Fahlunensis*. Fries. Lich. Europ. p 66  
Wallr. Comp. p 519.  
Oth. Lich, Deutsch. p 57.  
Schwewer. En. bot. p 48 (a)  
Spic 261. 467  
Mass. mem p 54  
Hook. Br. Flora.  
Ach. Syn. p 204  
Koerber. Syst. L. Germ. p 78  
Linn, sp. 1610.  
Smith. Eng. Bot. t 653  
Dill, Musc. t 24. f 81.

*Imbricaria*  
Lichen

*Amblicaria stygia*. Linn

Var. *lanata*. Linn

*Spicidia* identical with those of the species,

Ehrh. Crypt. n 70

Moug et Nestler n 357!!

Ludwig. Crypt. n 196

Fries. Lich Suec. n 307

Schærer. L. Helvet. n 357!!

Frnk. Crypt. n 481.

Hotow. Deutsch. L. n 112

*Ramelia lanata*. Wallr. Comp. p 529

*stygia*. *B. lanata*. Fries. L. E. p 68.

*Fahlunensis*. *B.* . . . . Schærer!! En. Cit. p 48

Spic 259. 4467

*Amblicaria stygia*. (*B. lanata*) Koerber. Syst. L. Germ. p 79

*Amnicularia lanata*. Ach. Syn. p 846

Lichen Linn

Schrad. Spic. p 100. 71-76

Smith. Eng. Bot. t 846

Dill, Muse. t 13. f 8. 9. & 817. f 32

*Imbricaria caparata*. Linn.

Spordia Smiasei; elliptical, pale, unilocular; length 2 mic, breadth 1 mic, (3.5 Nachez).

Erbh. Cr. n 117.

Fries. L. Succ. Ens. n 293

Moug et Nestler. Cr. n 255

Schuerer. L. Fl. Ens. n 377!!

Hotow. Deutsch. L. n 113

*Parmelia caparata*.

Fries. Lich. Europ. p 69.

Schuerer!! Em. Brit p 34

Spic 470

Ach. Syn. p 196

Lich. Univ. p 457

Hook. Br. Flora

Taylor in Mackay. Fl. Hib II. p 146

Mich. Gen. t 48 f 1.

Dill, Hist. Musc. t 25. f 97.

*Imbricaria*

Decand

Koerber. Syst. L. Germ. p 81.

Lichen

Linn

Mulfri Jacq. Coll. IV. p 280. t 20 f 1.

Smith. Eng. Bot. t 654

Hoffm. en. Lich. t 19. f 2

Platism

..... Pl. Lich t 38 f 1 - t 39 f 1 - t 42 f 1

Lobaria

..... Germ.

*Parmelia nudecta* B.

Ach. Syn. p 197

*Imbricaria conspersa*. Ehrh.

*Spordia Priasii*; elliptic-oblong, pale, monolocular;  
length 1 mic, breadth  $\frac{1}{2}$  a mic, (3.5 Naebeq).

Feis. Lich. Succ. Ins. n 167.

Mougeot et Nestler. Cr. n 160

Floerke. Deutsch. Lich n 34

Hotow. Deutsch. Lich n 114. 115.

Schuerer. Lich. Helvet. Ins. n 379 !!

Funk. Crypt. n 109.

*Parmelia conspersa*. Ach. Lich. Univ. p 486

Syn. p 209.

Hook. Br. Flora

Taylor in Flora Hib. II. p 143

Dill. Musc. t 24 f 75.

Schuerer!! in. Crit. p 46

Spic 472

Feis. Lich. Europ. p 69

Mass. Mem. p 50

Koerber. Syst. Lich. Germ p 81.

Ehrh. Ach Prodr. p 116

Wahl. Lapp.

Smith. Eng. Bot. t 2097

Westr. Fungif. t 244

Hook. Fl. N. Zealand. Vol II. p 286

*Imbricaria*  
Lichen

*Parmelia*

*Imbricaria incurva*. Persoon.

Ascidia 8 in asci; elliptical, pale, monocular; length  $1\frac{1}{2}$  mic, breadth  $\frac{1}{2}$  a mic? (3.5 Mackenz).

Fræs. Lich. Succ. Ins. n 259

Funk. Crypt. n 539

Flotow. Deutsch. L. n 118

Schoerer. L. Helvet. Ins. n 548!! (form sore-diata sub nomine *P. Mougeotii*. Schær).

Schleicher in herb Menzies!! (*P. incurva*)

*Parm. incurva*. Fræs. Sched. Cr. 9. p 31.

Lich. Europ. p 70

Hooker!! Br. Flora.

Taylor in Flora Hib II. p 149

Ach. Lich. Succ. Prodr. p 107

*Imbricaria*

Koerber. Syst. L. Genes p 82.

*Parm.*

Schoerer In. Crit. p 47.

*Parm. centrifuga* ( $\beta$  *multifida* b. *incurva*), Schær. Spic 474

*Parmelia recurva* Ach. Lich. Univ. p 490

Flora Danica. T 2007. 71.

*Lotharia incurva*

Hoffm

Lichen

Persoon in Ust. An. III. p 24

Smith. Eng. Bot. T 1375

Lichen *multifidus*. Dicks, Cr. 3. T 9. 77.

*Parmelia Mougeotii*. Schær!! En. Cr. p 46.

*Imbricaria diffusa*. Web.

Spores 8 in asci; elliptic-oblong, pale, monolecular; length  $\frac{3}{4}$  of width; breadth  $\frac{1}{3}$ , (3.5 Naches).

Fries. Lich. Suec. Ins. n 295

Mongel Noster. Cr. n 449!!

Funk. Crypt. n 418

Schuur. L. Fl. Ins n 375!!

Hotou, Deutsch. Lich n 119. A

See W. J. Hooker in Herb. Menzies !!

*Lichen diffusus*. Weber. Spic

*Imbricaria diffusa*.  $\alpha$ : ochromatica, Koerber. Parm. p 15.

*Imbricaria diffusa*, Koerber. Syst. Lich. Germ. p 83  
ambigua. Decand.

*Parmelia*

( $\alpha$ ) Schuur!! In. Crit. p 47

Fries. Lich. Europ. p 71 ( $\alpha$ )

Mass. Mem. p 53 (pr. p.)

Ach. Lich. Univ. p 485

Syn. p 208

Hooker!! H. Scot. II. p 55

Pr. Flora

( $\alpha$ ) Rebh. Lich. Deutsch. p 56

Wulfen Jacq. Coll. II. p 239. 747

*Lichen*

*Imbricaria plumbea*, Lightf.

*Sporidia* *Priasei*, oblong, rounded or attenuated at the extremities, pale, monocular; length 2 to 2½ mic, breadth  $\frac{2}{3}$  to  $\frac{3}{4}$ , (3.5 Machuz). —

Fris. Lich. Succ. Ins. n 68

Schroter. Lich. Helvet. n 564!!

Hepp. Flecht. Europ. n 375!! 376!!

*Parmelia plumbea* Ach. Lich. Univ p 466

Syn. p 208

Fris. Lich. Europ. p 87

Schroter!! In. Brit. p 35

Reh. Lich. Deutschw. p 55

Wallr. Comp. p 436

Taylor in Flora Hib II. p 142 (each varieties)

Hooker. Br. Flora

*Placodiium*

*Pannaria*

Lichen

Koerber. Syst. Lich. Germ. p 109.

Lightfoot. Fl. Scot. p 826. 826 f 2

Smith. Eng. Bot. t 353.

Dickson.

Lichen caerulescens

*Parmelia plumbea*.

Hook fil. Fl. N. Zealand. Vol II. p 289

Taylor. Lich. Antart. n 55.

Ach. Meth. Lich. p 212.

Lichen microphyllus

Smith. Eng. Bot. t 2128.

*Imbricaria saxicola*. Pollich.

Sporidia 8 in asci; ovate oblong, pale, monolocular, sometimes coarsely granular; length  $1\frac{1}{2}$  to  $1\frac{3}{4}$  mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  (3.5 Ash.).

- Parmelia saxicola* . Fuess. lich. Europ. p 110
- Placodium* Koerber. Syst. lich. Germ. p 115
- Lecanora muralis* Scherer!! In Crit. p 66
- saxicola* Ach. lich. Univ. p 431 et Metk. p 191
- Lichen muralis* Schreb. Spic. p 130. n 1126

Var  $\alpha$ . vulgaris. Koerber.

- Scherer. lich. Helvet. Ins. n 332!!
- Moug. et Nestler. Crypt. n 67
- Fuess. lich. Succ. Ins. n 163.

- Parmelia saxicola* .  $\alpha$ . Fuess. lich. Europ. p 110
- Placodium* . . . . .  $\alpha$ . vulgare. Koerber. Syst. l. Germ p 115
- Lecanora muralis*  $\alpha$ . *saxicola*. Scherer!! In Crit. p 66
- Parmelia*  $\alpha$ . *ochroleuca*. Gussone. Spic
- Pora* Hoffmann M. lich. t 1671.
- Lobaria* Gussone. Germ
- Lecanora saxicola* Taylor in Fl. Hib. II. p 140
- Squamaria* Hook. Pr. Fl. n
- Lichen* Pollich. palat. 225
- Smith. Eng. Bot. t 1695.
- Lichen ochroleucus* Wolf in Jacq. Coll. II. p 192. t 13. f 4
- Placodium* Dicand.

var.  $\beta$  diffractum. Ach.

Spores 1 to  $1\frac{1}{2}$  micrometers long by half a mic broad, in other respects resembling those of the species.

<i>Parmelia saxicola</i>	. $\beta$ . <i>diffracta</i>	. Fuis. l. c. p 111.
<i>Platodium</i>	. $\beta$ .	. Koerber. l. c. p 115.
<i>Lucanora muralis</i>	. $\beta$ .	. Schwerer. l. c. p 66
<i>Lichen diffractus</i>		Ach. Prodr. 63
<i>Lucidea Botteana</i>		Pollini.

Var.  $\gamma$ . compactum. Koerber.

*Placodium saxicolum*.  $\gamma$ . compactum. Koerber. l.c. p. 11.

Var. *S. vesicolor*. Persoon.

Schaeerer. Lich. Helvet. Ins. n 334 !!

*Placodium saxicolum*. *S. vesicolor*. Koerber. L. c. p 115  
*Pannelia* c. Fuis. lich. Europ. p 111  
*Leanora muralis*. *L. albo-pulverulenta*. Schaeer !!! L. c. p 67.  
*Lichen vesicolor*. Persoon  
*Lobaria* Hoffmann.

*Imbricaria candidans*. Dicks.

*Sporeidia* 8 in asci, ovate oblong, pale, unilocular; length  $\frac{2}{3}$  of  
width, breadth  $\frac{1}{3}$ , (3.5  $\mu$  each).

I am rather doubtful as to the correctness of the above descrip-  
tion owing to the extreme difficulty in making out the *Spore-*  
*idia* in the specimens at my disposal.

Zwackh. Lich. n 111.

Schleich in herb Menzies !!

- |                           |                                  |
|---------------------------|----------------------------------|
| <i>Parmelia candidans</i> | Fries. Lich. Europ. p 123        |
| <i>Luana</i>              | Schaefer. En. Crit. p 59         |
| <i>Squammaria</i>         | Hooker. Br. Fl. n                |
| <i>Amphiloma</i>          | Wolfer. Syst. Lich. Germ. p 113  |
| <i>Picrasolia</i>         | Mass. Mem. p 47.                 |
| <i>Lichen</i>             | Dicks. Cr. Fas. 3. p 15. t 9. 75 |
|                           | Smith. Eng Bot. t 1778.          |

*Imbricaria circinata* Persoon.

Spores in asci: ovate or elliptical, pale, monocular;  
length  $1\frac{1}{2}$  mic, breadth  $\frac{1}{2}$  to 1, (3.5 Mackez).

- Parmelia circinata*. Fris. Lich. Europ. p 123.  
Ach. Meth. p 189.  
*Lucanora* Ach. Syn. p 184  
*Squamaria* Hook. Br. Flora  
*Placodium* Koeber. Syst. lich. Germ. p 114  
*Leoria* Flotow. L. Fl. Sil. 32. 18.  
*Patellaria* Wallr. Comp. p 388.  
Lichen Persoon in Ust. Ann. d. Bot. St VII. p 25.

Var.  $\alpha$  *radiosum* Hoffm.

- Fris. lich. Succ. Ins. n 394  
Moug et Nestler. Ins. n 454  
Schaeerer. lich. Helvet. Ins n 328!!  
Flotow. Lich. Ins. n 443.  
See J. E. Smith in herb. Merzies!! (*L. subimbricatus* Kellh.).

- Parmelia circinata*.  $\alpha$  *radiosa*. Fris. l.c. p 123  
*Placodium* Koeber. l.c. p 115  
*Lucanora radiosa*.  $\alpha$  *circinata* Schaeerer!! En. Crit. p 61.  
lichen *radiosus* Hoffm. En. 62. t 4. 75  
*Lichen circinatus*. Smith!! Eng. Bot. t 1941.  
*Lucanora psoralis* Ach. Univ. p 376. Apothecis minutis, thallo pallido <sup>conspicuo</sup>.

Var. *B. myrtilina*. Ach.  
*Sporidia* as in the species.

Schaefer. Lich. Helvet. Ins. n 329!!

*Leucanora radiosa*. *B. myrtilina*. Schaefer!! En. Cr. p 61.  
*Macodium* Koerber. L. c. p 115.  
*Leucanora myrtilina* Ach., L. Univ. p 426.

*Imbricaria crassa*. Hudson.

Aspidia pro asci; elliptici Mong. rounded or attenuated at  
the extremities, pale, monolocular; length  $1\frac{1}{2}$  to 3 mic, breadth  
 $\frac{1}{2}$  a mic, (3.5 Mackez).

Friss. lich. Succ. Ins. n 289.

Schauer. l. Helvet. Ins. n 343!!

Smith (Lich. I. E.) in herb. Menzies !!

*Parmelia crassa*, Ach. Meth. p 183

, Friss. lich. Europ. p 100

*Lecanora*

, Ach. Syn. p 190

*Squamaria*

, Hook. Pr. Flora.

*Lecanora crassa*  $\beta$  caespitosa. Schauer!! In. Brit. p 58.

*Lecanora rubra*  $\beta$ . Ach. lich. Univ. p 412

*Psoroma crassa* Kober. Syst. lich. Germ. p 120

*Lichen crassus*. Hudson

Smith. Eng. Bot. t 1893

*Lichen caespitosus*. Vill. Dauph. III. 976. t 55.

*Lichen laqueatus*. Wulfen Jacq. Coll. III. p 109. t 572

*Lobaria*

Huffman

*Imbricaria lentigera*. Web.

Spores & asci, oval or elliptic oblong, rounded or attenuated at the extremities, pale, monocular; length  $1\frac{1}{2}$  to 2 mic, breadth 1 mic, (3.5 Mackez).

Fries. Lich. Succ. Exs. n 288

Schoer. Lich. Helvet. Exs. n 484!!

Urb. Crypt. n 38

Mougeot et Kestler. Exs. n 68

See P. E. Smith in herb. Menzies!! *l. lentigerus*.

*Nannelia lentigera*, Ach Meth. p 192

Fries. Lich. Europ. p 103

*Psoroma*

Koerber. Syst. Lich. Germ. p 119

*Lucanora*

Ach. Lich. Univ. 2423

*Lucanora crassa* & *l. lentigera*. Schar!! Ex. Brit. p 58.

*Squamaria lentigera*. Hook. Br. Flora

*Satellaria*

Wallr. Comp. p 389

*Placodiura*

Hotow. Lich. Fl. Sil.

*Lichen*

Weber. Spici 192. 23

Hoffm. En. Lich. 29. 74

Flora Danica 21185. 72

Smith. Eng. Bot. 2871

*Psora*

Hoffman. Pl. Lich. 248. 71.

*Imbricaria ostreata*. Hoffm.

Sporidia 8 in asci; ovoid elliptical, rounded or attenuated towards the extremities, pale, monolocular, minute.

Fris. lich. Succ. Ins. n 155. 229

Hörke: Deutsche lich n 82

Schuer. lich. Helvet. Ins. n 467!!

Flotow. lich. Insiccati. n 243

Zwackh. lich n 77.

*Parmelia ostreata*. Fris. lich. Europ. p 95.

*Leucanora* Rebh. lich. Deutsche p 44

*Patellaria* (B) Wallr. Comp. p 394

*Psora* Hoffmann. D. Flora II. 163

Koerber. Syst. lich. Germ. p 176

*Lecidea* Schuerer!! In. Brit. p 97

*Lichum scalaris* Ach in Vet. Act. Handl. 1795. 25. 71.

Smith. Eng. Bot. 7. 1501.

*Lecidea* Ach. Syn. p 52

Sauer in Sturm. Deutsche. II. H. 246.

*Psora* Hook. Br. Flora

*Imbricaria carnososa*. Dickson.

Fris. lich. Succ. Ins. n 444  
Schuur. L. Helvet. Ins. n 482 !!  
Hotow. lich. Insiciati n 412

- Parmelia carnososa*. Schuur. In. Cit. p 53  
*Lichen carnosus*. Dicks. Cr. 2. Pl. 77  
Smith. Eng. Bot. 2 1684  
*Massalongia carnososa* Hoerber. Syst. lich. Germ. p 109  
*Biatra* Rbh. lich. Deutsche. p 91.  
*Parmelia muscorum*. Fris. lich. Europ. p 95  
*Biatra* Eysdem. V. A. H. 1822. p 276  
*Squamaria* Hooker. Pr. Flora  
*Lecanora* Taylor in Mackay. Fl. Heb II. p 139  
*Lecanora hypnorum* Ach. lich. Univ. p 417  
*Lecidea Chauvinianna* Dufour.  
*Lecidea carnososa* Somm. Lapp. p 174  
*Lichen muscorum*. Obeck.  
*Parmelia muscorum*. Hook. fil. Fl. New Zealand. VII. p 291  
*Lecanora* Ach. Syn. p 193  
Hook. fil. Fl. Antart. p 534

*Imbricaria Hookeri*. Smith.

Spores 8 mic; pale, elliptical, monocular; length  
2 mic, breadth 1, (3.5 Mackenz).

- Parmelia Hookeri*. Fries. lich. Europ. p 94  
Schwarz. En. Brit p 54  
Lichen Smith. Eng. Bot. t 2283  
*Lucanora leucolepis* Ach. Syn. p 194  
Lichen Wahl. Lapp. p 781  
*Squamaria* Hooker. Br. Fl. &c.

*Imbricaria pallescens*. Linn.

Spores in asci; elliptical or balloon shaped, pale, monocular; length 8 to 9 mic, breadth, 3 1/2 to 4, (3.5 Mackenz).

- Parmelia pallescens*. Fris. lich. Europ. p 132.
- lucanora* Schær. In. Crit. p 78
- Ochrolechia* Koerber. Syst. lich. Germ. p 149
- lichen* Linn. Spec. 1608.
- Parmelia* Hook. fil. Fl. New Zealand. Vol II. p 298

Var  $\alpha$ . *pallescens*. Linn.

- Schær. lich. Helvet. Ins. n 316!! 317!!
- Hook. lich. Ins. n 293 389.
- Fris. Lich. Suec. Ins. n 103 286 (Upsaliensis)
- Mr. D. Turner in herb. Menzies!! (L. Turneri. Eng Bot)

- Parmelia pallescens*.  $\alpha$ . Fris. l.c. p 132
- Schwlechia* vars  $\alpha$  et  $\beta$ . Koerber. l.c. p 149.
- lucanora* var  $\beta$ .  $\gamma$ .  $\delta$ . Schær.!! l.c. p 79.
- lichen albo-flavesens*. Wulfen Jacq. Coll. III. p 111. t 5. f 1.
- lichen pallescens*. . . . . III. t 5. f 3. d. d.
- Psora alabastrina* Hoffm. Germ. p 164
- lucanora Turneri* Ach, lich. Univ. p 373.
- lichen Upsaliensis* Smith. Eng. Bot. t 1634
- linn
- Dicks. Cr. II. t 7. f 7.
- lichen Turneri* Smith. Eng. Bot. t 857.
- lichen tumidulus* Pearson in Vest. Ann. d. B. XI. 18

Var. *B. Parella*. *hinn*.

*Sporidia* elliptical, or elliptical with a lateral bulging,  
in other respects resembling those of the species.

*Frös. lich. Succ. Ins. n 137.*  
*Schweier. lich. Helvet. Ins. n 570 !!*  
*Zwackh. Lich n 66.*

<i>Rammleria pallidus</i>	<i>B. parella</i>	<i>Frös. l. c. p 133</i>
<i>Lecanora</i>	<i>α.</i>	<i>Schweier !! l. c. p 78</i>
<i>Ophrolechia</i>	<i>γ.</i>	<i>Koerber. l. c. p 149</i>
<i>Lecanora parella</i>		<i>Ach. Syn. p 169</i>
		<i>Lich. Univ. p 370</i>
		<i>Hook. Br. Flora</i>
		<i>Taylor in Fl. Kil II. p 15</i>
		<i>Hoffm. M. lich t 12. f 5</i>
		<i>hinn. Mant. 132</i>
		<i>Smitth. Inq. Bot. t 727</i>
		<i>Fl. Danica. t 1946 f 1.</i>
		<i>Hook. fil. Fl. Antart. p 536</i>
<i>Patellaria</i>		
<i>lichen paellus</i>		
<i>Lecanora</i>		

*Imbricaria tartarea*. Linn.

*Sporidia* 8 in asci, elliptical, pale, monolocular; length 6 mic, breadth 3, (3.5 Machez).

*Parmelia tartarea*. Ach Meth. p 165

Fries. Lich. Europ. p 133

*lucanora*

Ach. Lich. Univ. p 371.

Hook. Br. Flora

Schoer. In. Crit. p 79.

*Ochrolechia*

Koerber. Syst. L. Germ. p 150.

*lichen*

Linn. Spec. 1688.

*Parmelia*

Hook. fil. Fl. Antart. p 536

Var. *a. tartarea*. Linn.

Fries. Lich. Succ. Ins. n 285. 254

Mougeot et Nestler. Cr. n 69.

Schoer. L. Helvet. Ins n 541!!

*Parmelia tartarea*. var *a*. Fries. L. c. p 133.

*lucanora*

var *a. saxorum*. Schoer. L. c. p 79

*β. arborea* (D. C.) . . . . . p 80

*lichen tartareus*

Smith. Eng. Bot. t 156

Sr. Bot. t 74.

*lichen saxorum*

Müller in Fl. Danica II. t 712. f 1.

Var  $\beta$ . *frigida*. Linn.

Spores ovate or elliptical, 5 to  $7\frac{1}{2}$  mic long by  $2\frac{1}{2}$  to 3 broad, in other respects resembling those of the species.

Fræs. Lich. Succ. Ins. n 255

<i>Ramellia tartarea</i>	$\beta$ . <i>frigida</i>	Ach Meth. p 168
		Fræs. Lich. Europ. p 134
<i>Luamora</i>	$\gamma$	Schær. En. Brit. p 80
<i>Lichen frigidus</i>		Linn
		Swartz. Meth. Musc. t 2 f 4
		Smith. Eng. Bot. t 1879
		Flora Danica. t 1348

*Amblicia triptophylla*. Ach.

Asci 8 in asci; ovate or elliptical, rounded or attenuated  
at the extremities, pale, monolocular; length 2 mic, breadth  
1 mic (3.5 Mackenz).

Schweur. lich. Helvet. Ins. n 159!!

<i>Parmelia triptophylla</i>	Fries. lich. Europ. p 91. (in part)
<i>Parmaria</i>	Koerber. Syst. L. Germ. p 107
<i>Lecidea</i>	Ach. lich: Univ. p 215
<i>Lecidea coronata</i>	Borrer. U.S.S.
	Hook. Pr. Fl. (in part) -
<i>Psora crenata</i>	Hoffm. M. lich. 256. f 1.

*Ambricaria fustulosa*. Dicks

Var *a. insulata*. Ramond.

Spores 8 in asci; elliptic-oblong, rounded or attenuated at the extremities, pale, monocular; length  $1\frac{1}{2}$  to 2 mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mic (3.5 Machez).

*Parmelia fustulosa*. Fries. Lich. Europ. p 141.

*Lecanora*

Ach. Lich. Univ. p 346.

Koerber. Syst. lich. Germ. p 139.

Schoer. En. Crit. p 56

Var *a. insulata*. Ramond.

*Parmelia fustulosa*, var *a* et *b*. Fries. L. c. p 141.

*Lecanora*

var *a. argopholis*. Koerber. L. c. p 139

var *a* et *b*. Scherer. L. c. p 56

*Lecanora fustulosa*. Hook. Br. Flora

*argopholis*. Ach. Lich. Univ. p 346 et Syn p 147

Greville. Flora Edmensis. p 331.

*Lichen fustulosus*

Dicks. Cr. Fas. 3. p 13. 28 710

Smith. Eng. Bot. t 2273

*Lichen insulatus*

Ramond in D.C. Franc. II. 375.

*Lichen argopholis*

Wahl.

*Lecanora ludwigii*

Ach. Syn. p 188

*Lecanora hydropbila*

Somm. Lapp. p 91.

Var.  $\beta$ . *thiodos*. Spreng.

Flotow. Lich. Ins. n 336

Zwackeh. lich. Ins. n 112

Schuer. lich. Helvet. Ins. n 478 !!

*Parmelia frustulosa* var c. Fris. l. c.

*Lecanora* var c. Schuer l. c.

var  $\beta$ . Koerber. l. c.

*Lecanora thiodos* Spreng. New. Ent. I. p 224

*Parmelia frustulosa* var *thiodos*. Hook. fil. Fl. N. Zealand Vol II. p 292

*Imbricaria subfusca*. Linn

Sporidia 8 micasci; ovate, elliptical or slightly balloon shaped pyriform, pale, monolocular, bilocular, or binuclear; length,  $1\frac{1}{3}$  to 2 mic, breadth  $\frac{1}{2}$  to 1 mic (3.5 Macky).

*Parmelia subfusca*. Fris. lich. Europ. p 136

Waller. Comp. p 456

*Lucanora*

Schaeer. En. Crit. p 78

Koerber. Syst. Lich. Germ. p 141

Hooker. Br. Flora

Ach. Lich. Univ

Lichen

Linn. spec. 1609

*Parmelia*

Hook. fil. Fl. N. Zealand Vol II. p 292

Ach. Meth. Lich. p 167

Var. *a. lignicola*. Novis.

Sporidia as in the Species.

The Thallus in this and the following variety presents certain tolerably well marked variations, due mainly to the nature of the nidus upon which it grows; thus it may be verrucose-granulate, this being its normal appearance on trees; in other instances it may be simply granulose or on smooth bark it may present a corresponding evenness of surface, its colour being in such cases usually leaden gray; or the Thallus may become in shady situations altogether agranulose and reduced to a leprous efflorescence, which may itself disappear, the Apothecia alone indicating the presence of the plant.

These latter vary in a degree corresponding to the variations of the Thallus, thus they may be either symphycaepous, somewhat crowded or widely scattered; they may be large in size or very small, their colour varying from a very pale lead colour to a pale brown, a livid flesh colour, a dark brown, or even a brownish red; their margin being either entire or crenulate, with either a plane or a convex deformed disk.

The late Reverend L. E. Schaeer, in his Enumeratio Critica has described the forms deducible from the above variations of habit, as distinct varieties, in which he has been to a certain extent followed by Koerber and Marsalongo, but I confess the only benefit I can perceive in conferring names upon so many atypical forms is to swell the number of published

specimens in the respective authors "Ensiate".

I cannot think that by giving so many varieties botanical knowledge will be increased, nay more, I think rather the contrary will be the case as the identification of so many varieties unless with the aid of authentic specimens, must necessarily be attended with difficulty and always with doubt.

Schauer. Lich. Helvet. Ins. n. 308!! 309!! 310!!

Flotow. Lich. Ensiate n. 323. 324. A. 325. 326 A. B.  
n. 327. 334. 343 A. 356.

*Luconora subfusca*. Var  $\alpha$ . vulgaris. Koerber. l.c. p. 140

$\beta$ . allophana . . . . .

$\gamma$ . caeruleata . . . . .

$\epsilon$ . variolosa . . . . .

Var  $\alpha$ . vulgaris. Schauer. l.c. p. 73.

$\beta$ . distans (Ach). . . . . p. 74.

$\gamma$ . glabrata (Ach). . . . .

$\delta$ . cateilea (Ach). . . . .

$\epsilon$ . pinastri . . . . . (!!)

*Parmelia subfusca*. Var  $\alpha$ . discolor. Fries. l.c. p. 137.

$\beta$ . distans (Ach). . . . .

$\epsilon$ . caeruleata . . . . .

*Luconora distans* Ach. lich. Univ. p. 397

*Patellaria populicola* Decand.

Var saxicola. Nobis.

Spores as in the species.

The thallus in this variety presents a corresponding series of variations to those met with in the preceding case, being either continuous or dispersed, areolate, areolate-verrucose, granular, pulverulent or altogether obliterated.

The apothecia also vary in a corresponding manner, though they are usually of a more livid colour, by which, and by the general habit rather than by any defined characters, this variety is distinguished from the preceding.

I have quoted under this variety the Lecanora Hageni. Ach. the distinguishing characters being in my opinion, insufficient to keep them separate. I do so on the strength of the examination of the specimens published under this name in Hepp's Flechten. Europ. n. 64!! - Number 65 of the same work is the lichen crenulatus of Dickson, placed by the author as a variety of Lecanora Hageni; but <sup>which</sup> I consider quite identical with the present species.

Koerber in his Syst. lich. Germ. places Lecanora Hageni as a distinct species, but states at the same time that it may possibly be a form of Lecanora subfusca, the main differences being, in the crowded and deformed apothecia, with sometimes an elegantly crenulate margin and a livid pruina.

Nylander. lich. Ins. n. 123!! (Var crenulata. Dickson)

Fries lich. Succ. Ins. n. 371.

Hepp. Flecht. Europ. n. 63!! 64!! 65!! 66!!

Lecanora subfusca. var  $\eta$ . leucopsis, Schaer. l.c. p. 74

l. campestris. . . . .

l. conferta (Duby) . . . . .

$\mu$ . crenulata (Dickson) . . . . .

var  $\delta$ . laevia (Ach) Koerber. l.c. p. 141.

var  $\eta$ . Fries. l.c. p. 140

Parmelia

Lecanora laevia

Ach. Syn.

gurgalea

Ach. Syn.

Patellaria conferta

Duby. Bot. Gall. 654

Lichen crenulatus

Dickson. Cr. III. p. 14. t. 9. f. 1. Smith, Eng. Bot.

Lecanora

Hook. Mr. Flora.

Lecanora Hageni

Ach.

Koerber. l.c. p. 143

Parmelia stellaris var caulescens, Schaer. En. Crit. p. 40.

Var  $\gamma$ . muscicola. Ntis.

*Spizidia sinasci*, elliptic-oblong, rounded or slightly attenuated at the extremities, pale, monolocular,  $1\frac{1}{2}$  to  $2\frac{1}{2}$  mic long by 1 mic broad (3.5  $\mu$ ch).

Schweiz. lich. Helvet. Ins. n 311!!—

*Lecanora suffusea*. Var v. *hypnorum* excl. b. *oculata* (Dicks). Schær. 2c. p. 7.

*Lichen hypnorum*. Wulfen Jacq. Coll. IV. 233. t. 4. f. 6.

*Natellaria*

Decand.

*Parmelia epibryon* Ach (non Wahlenberg)

*Imbricaria pallida*. Schreb.

Var *a. albella*. Persoon.

*Sporidia* Pinasci; elliptic-ovate, pale, monolocular; length  $1\frac{1}{2}$  to  $1\frac{3}{4}$  mic, breadth  $\frac{1}{2}$  to  $\frac{4}{5}$ , (3.5 Mackenz).

*Ramellia pallida*. Wallr. Comp. p 461

*Lecanora* Koerber. Syst. Lich. Germ. p 144

Schroer. En. Crit. p 78

Lichen

Schreb. Spic 133

Var. *a. albella*. Persoon.

Fries. Lich. Succ. Ins. n 249

Schroer. L. Helvet. Ins. n 315 !!

Förke. Deutsche Lich. n 88

Flotow. Lich. Ins. n 345. 346. 347

Sommf. Exs. n 64

Hepp. Flecht. Europ. n 187 !!

*Ramellia pallida* *β. albescens*. Wallr. l.c. p 461.

*Lecanora pallida* var *a. albella*. Schroer!! l.c. p 78.

Koerber. l.c. p 145.

*Ramellia subfusca*. *γ. albella*. Fries. Lich. Europ. p 139.

*Lecanora albella* var *a*. Flotow. L. H. Sil. 34. 6.

*Lecanora albella*. Hook. Br. Flora

Ash. Syn. p 168

Lichen *albellus*.

Persoon in Ust. Ann. d. B. XI. 18.

Smith. Eng. Bot. t 2154.

Var.  $\beta$ . *angulosa*. Schreb.

Spores  $\delta$  in asci; ovate, pale or granular, monolept; length  $1\frac{1}{2}$  mic, breadth 1 mic (3.5  $\mu$ chez).

Fries. lich. Succ. Ins. n 284

Schaeerer. L. Helvet. Ins. n 540!!

Flotow. lich. Ins. n 352 - 354

*Parmelia pallida*.  $\alpha$ . *carnea*. Wallr. l.c. p 461

*Lecanora albella*. var  $\beta$ . Flotow. L. Fl. Sil. 34, 6.

*Parmelia subfusca*.  $\delta$ . *angulosa*. Fries. l.c. p 139

*Lecanora pallida*. var  $\beta$ . *angulosa*. Schocur!! l.c. p 78

*Lichen angulosus*. Ach. Prodr. p 574

Schreb. Spic. 136

*Lecanora*

Ach. lich. Unid. p 364.

*Lichen pullescens*. Wulfen Jacq. Coll. III. t 5. f 3. c. c.

*Imbricaria galactina*. Ach.

Hab. Sand stone walls. Great Ayton. Cleveland. Yorkshire.  
New as a British Species.

*Sporidia* *8* in *asci*, elliptic oblong, straight or curved, pale or <sup>pale</sup> granular, monocular; length  $1\frac{3}{5}$  mic, breadth  $\frac{2}{3}$  of a mic ( $3.5$ ).

Hörke. Deutsch. Lich. n 89.

Hotow. lich. Gas. n 355.

Schauer. lich. Helvet. Gas. n 616!!

Hepp. Flechten. Europa. n 180!!

*Parmelia galactina*. Wall. Comp. p 456

Ach. Meth. p 190

*lucanosa*

Ach. Syn.

*Parmelia saxicola*. *d. galactina*. Fries. lich. Europ. p 111

*Placodium*

*δ.*

Hotow. L. Flr. Fil. 31. 18.

*Placodium albescens*. *β. murorum*? Mass. Riverch. p 25

*lucanosa muralis*. *δ. albescens*. *b.* Schær. En. Cr. p 67.

(b) Rbk. lich. Deutsch p 42

*Imbricaria varia*. Ehrh.

Sporidia 8 in asci, pale, elliptic oblong and usually attenuated towards the extremities, or pyriform, unilocular or binuclear; length 1 to 2 mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mic (3.5. Natchez).

*Parmelia varia*. Fris. Lich. Europ. p. 156.

Hook. fil. Fl. N. Zealand. Vol II. p. 298

Waller. Comp. p. 453.

*Lucanora*

Koerber. Syst. L. Germ. p. 147

Schroer. En. Crit. p. 82

Hook. Br. Flora.

Var  $\alpha$ . vulgaris. Koerber.

Schoer. lich. Hebr. Ins. n. 325!!

Holow. lich. Insulari n. 357

Fris. lich. Suec. Ins. n. 46 A

Ehrh. Crypt. n. 68

Hepp. Flecht. Europ. n. 190. a & b!!

*Lucanora varia*  $\alpha$ . vulgaris. Kbr. L. c.

*Parmelia*

Fris. L. c.

$\alpha$ . pallens. Schroer. L. c.

*Patellaria varia*

Hoffm. M. lich. t. 23 f. 4

Lichen

Ehrh. in Insulari.

Smith. Eng. Bot. t. 1666.

*Sombucaria varia*. Ehrh.  
Var  $\beta$ . *sarcopis*. Wahl.

Scharer. Lich. Helvet. Vas. n 410  
Fries. Lich. Suec. Vas. n 13

*Luarea varia*,  $\beta$ . *sarcopis*. Kbr. l. c.

Scharer. l. c

*Parmelia sarcopis*, Wahl in Ach. Meth. Sup. p 40

*Luarea*

Ach. Syn.

*Imbricaria varia*. Ehrh

Var  $\gamma$ . *deliquescens*, nobis.

Thallus absolutely granular or leprous - deliquescent, yellowish green,

Apothecia variable in size, either scattered or crowded, with an entire or sub-crenulate margin; disk at length convex of a livid greenish yellow colour in some cases inclining to a livid black.

I have united under this variety many others kept separate by authors, although almost undistinguishable from one another without the aid of authentic specimens.

Flotow. *hich. Fus.* n 358. 359. 361.

Fries. *hich. Succ.* n 68

*Lecanora varia* }  
    *apothecia*, Ach }  
    \* *sepincola*, Ach }  
    *S. betulina*, Kbr }  
    \* *sulphurea*, Ach } Kbr. *Syst. L. Germ.* p 147  
    *E. symicta*, Ach }  
    *L. cisterna*, Ach }  
*Lecanora varia* }  
    *E. sepincola*, Ach }  
    *L. maculiformis*, Ach } Schær. *En. Crit.* p 83.  
    *J. cisterna*, Ach }

*Lecidea sepincola*, Ach. *Syn* p 35

*Lecanora enpulleus*, Fries sub. *L. varia*.

*Lichen orostheus*, Smith. *Eng. Bot.* t 1549

*Patellaria lutescens*, Decand. *H. Fran* II. p 354

*Lecidea cisterna* Ach. *L. Univ.* p 178

*Lecid et Lecan.* *symicta* Ach. *Syn.* p 36. 340

*Biatona* Mass. *Murm.* p 128

*Verrucaria maculiformis* Hoffm. *D. hich* II. p 195.

*Imbricaria sulphurea*, Act. Smith.

Sporidia 8 in asci; elliptic oblong or subpyriforme, straight or slightly curved, pale, monolocular or binuclear; length  $1\frac{1}{2}$  to 2 mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mic (3.5 Mackenz).

Schuur. hich. Helvet. Ins. n 324 !! 576 !!

Flotow. hich. Insiccati: n 374

Hepp. Hecht. Europ. n 189 !!

*Lecan sulphureus*. Smith. Eng. Bot. t 1186.

Muhl. Lapp. 411.

Hook. Pr. Flora

lucida

Nocher. Syst. L. Germ. p 136

Levia

Mass. Rerich. p 13

hecansora

Hepp. Pl. hich. t 1173

Verrucaria

Parm. sordida. *B. sulphurea*. Fries: hich. Europ. p 179

Waller. Comp. p 463

hecansora univosa. c. Rbh. hich. Deutsch. p 32

polytropa S. & Schuur. En. Crit. p 82

*Imbricaria sordida*. Oed. Var. *α. glaucoma*. Ach.  
*Sporidia* Sm. usci; oval, pale or granular, monocular;  
length  $1\frac{1}{3}$  to  $1\frac{1}{2}$  mic., breadth  $\frac{3}{4}$  to  $\frac{4}{5}$  (3.5 Mackenz).

*Parmelia sordida*. Waltr. Comp. p. 462  
Fris. Lich. Europ. p. 178  
Lichen Persoon in Velt. Ann. d. Bot. III. p. 26  
*Lecanora rimosa* Schar. En. Crit. p. 71.  
Lichen Oed. B. Dan. III. t. 468. f. 3.

Var. *α. glaucoma*. Ach.

Fris. Lich. Succ. Ins. n. 263  
Kotow. Lich. Ins. n. 362. 363. 366. 364. 367  
Zwackh. Lich. n. 72  
Hörke. Deutsch. Lich. n. 44  
Mougeot et Nestler. Crypt. n. 527.

*Lecanora glaucoma*. Ach. Syn. p. 165. Lich. Univ. p. 362  
\**Patellaria* s. *Verrucaria glaucoma*. Hoffm  
Lichen *glaucoma* Smitth. Eng. Bot. t. 2156  
    *rupicola* Dickson  
    *varians* Davies in Trans. Linn. Soc. II. t. 68 f. 8.  
*Varicellaria aspergilla* Ach. (Thallus diffuse, sterile, very white,  
    dehiscing into subdisciform soredia)  
*Isidium corallinum* Ach. (Barren thallus assuming an Isidoid  
    habit)  
\**Lecanora glaucoma* Hook. Bot. Flora  
    Taylor in Mackenz. Fl. Hib. II. p. 135.

Var  $\beta$ . Swartzii, Ach -

Thallus less coherent, verrucose rugose, plicato-subeffigurate  
in the circumference.

Apothecia imbricate, with the disk coccis-pruinose, at length  
becoming convex or deformed.

Sporidia as in the species.

Hotow. Lich. Ins. n 373

Fries. Lich. Succ. Ins. n 397

Hörke. Deutsch. Lich n 32

Lichen glaucescens. Swartz.

Lichen, Parmelia, Lecanora Swartzii. Ach

Lecanora rimosa. Var  $\epsilon$ . Swartzii. Schar. In. Crit. p 72

Lecanora sordida var  $\beta$ . Swartzii. Koeber. Syst. L. Germ. p 134

var  $\gamma$ . *subcarnea*. Ach. Westr.

Thallus contiguous, areolate, dull white; the hypothallus  
in the circumference somewhat radiant.

Apothecia small, sessile, the disk plane somewhat flesh  
coloured, whitish pruinose, the margin sometimes crenulate.

Sporidia as in the species.

Flotow. Lich. Ins. n 371

Zwackh. Lich. Ins. n. 75

Fries. Lich. Succ. Ins. n 159

Lichen *subcarneus*. Westring in Nov. Act. Stockh. 1791. p 126 et  
1794. p 187. t 6 f 4  
Ach. Vet. Ac. Handl. 1796. t 6 f 4.

*Lecanora ramosa*  $\delta$ . *subcarnea*. Schar. En. Crit. p 78.

*Tenua candida*  $\gamma$ . *subcarnea*. Koerber. Syst. L. Geom. p 134

*Smblicaria involuta*. Taylor in H. Hib.  
Sporidia 8 in asci, oval, pale, monocular. (Fig in Light-  
ton's Ang. Lichens. tab XIII. fig 4).

*Leucora involuta*. Taylor in Mackay. H. Hib. II.  
Leighton. Phil. Ang. Lichens. Tab XIII. fig 4.

*Imbricaria coarctata*. Smith.

- Parmelia coarctata*. Fris. Lich. Europ. p 104  
Ach. Meth. p 362 158  
*Lecanora* Schuur. In. Crit. p 76  
Pbh. Lich. Deutsche. p 43  
Hook. Br. Flora  
*Patellaria* Wallr. Comp. p 373  
*Lecia* Koerber. Syst. Lich. Germ. p 132  
*Parmelia* Hook. fil. Fl. New Zealand. Vol II. p 291

Var. a. genuina. Koerber.

Fris. Lich. Succ. Ins. n 362. B.

- Lecia coarctata*. a. genuina. Koerber. l. c. p 132  
*Parmelia*. . . . . (Vars a. b. e.) Fris. l. c. p 104  
*Lecanora*. . . . . (Vars 2 et 7) Schuur. l. c. p 77.  
*Lecanora thapselia* Ach. (fide Fris)

Var.  $\beta$ . *contigua*. Frotow.

*Spizidia* *Prinasci*; voute. Elliptical, pale or granular, monolocular; length 2 to 2.5 mic, breadth 1 mic (3.5 Mackez).

Schweyer. Lich. Helvet. Ins. n. 313 !!

Schleicher in herb. Menzies !!

- Parmelia coarctata*: vars.  $\alpha$ ,  $\beta$  et  $\gamma$ . Fries. l. c. p. 105  
*Lecia* var  $\beta$ . *contigua* - Koeber. l. c. p. 133  
*Parmelia elacista* Ach. Meth. 159. t. 4. 74  
*Lecanora coarctata* vars.  $\alpha$ ,  $\beta$ ,  $\gamma$ !! Schweyer. l. c. p. 76  
*Lichen* Smith!! Eng. Bot. t. 534  
Turner!!! & British Authors.  
*Lecanora* Hook. Pr. Fl. n.  
*Lecanora retorrida* Chaubart. ap. Fries. l. c.  
*Lecanora tenaxea* Ach. Syn.  
*Lecidea argilliseda* Dufour. ap. Fries. l. c.

*Imbricaria badia*. Persoon

Var. *a. vulgaris*. Ubr.

Spores 8 in asci; subfusiform or subpyriform, pale, mono-ocular, length 1 to 2 mic, breadth  $\frac{1}{2}$  a mic (3.5 Machz).

*Parmelia badia*. Fries. *Sched. Cr.* p 5

*Lich. Europ.* p 148

*Lecanora*

*Sch. Syn.* p 154

*Lichen baduus*

Persoon. in: *Ust. Ann. d. 13, St. VIII.* 27

*Lecanora*

Schaer. *En. Crit.* p 68

Koerber. *Syst. lich. Germ.* p 138.

*Parmelia fuscata*

Waller. *Comp.* p 473

*Lichen*

Schand.

Var. *a. vulgaris*. Koerber.

Fries. *Lich. Suec.* Ins. n 369

Schaer. *L. Helvet.* Ins. n 301!!

Hotow. *Lich.* Ins. n 320 321.

Hepp. *Flect. Europ.* n 181!!

*Lecanora badia*. *a. vulgaris*. Koerber. *L.c.*

*a. major* Schaer!! *L.c.*

*Lichen pucius* Dicks. *Cr. Brit.* t 12. f 5.

*Pubellaria badia* Hepp. *Pl. Lich.* t 51. f 2.

Var. *β. milvina*. Wahl.

Thallus rugose plicate subgranulate

Apothecia smaller, very much crowded, more obscure, black.

Flotow. Lich. Exs. n 322

*Parmelia badii* *β. milvina*. Fries. Lich. Europ. p 148

*Lucanora*

Koerber. Syst. Lich. Germ. p 138

Schær. En. Crit. p 69

*Lucanora milvina* <sup>γ</sup>

Hook. Br. Flora

Ach. Syn. p 151 (a)

Borrer in Eng. Bot. Sup. t 2662. f 1.

*Parmelia*

Wahl in Ach. Meth. Sup. p 344

*Lichen*

Wahl. Lapp. p 410.

Var.  $\gamma$ . pallida. Flotow.

Thallus depressed, verrucoso-glebulose, cinereo-glaucous.

The spermagones and the Apothecia in an early stage imitate in the *Thalloidal verruca*.

*Lecanora badia*. var.  $\gamma$ . pallida. Korb. l. c. p. 138

Var. *S. commolita*. Fries.

Crust granulated, grey, with the disk and exiple of the  
minute apothecia brown.

*Parmelia badia*. *S. commolita*. Fries. Lich. Europ. p 149  
*lucanora* Koerber. L. c. p 138  
Schær. En. Brit. p 69.

*Smbucaria atra*. Hudson

Sporidia Peri asci; ovate or elliptical, pale or faintly granular,  
monolocular or binuclear; length  $1\frac{1}{2}$  mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$ , (3.5-4.5).

Fries. lich. Succ. Ins. n. 370 et 203

Urb. Crypt. n. 313

Moug et Nestler. Cr. n. 458!!

Schoer. L. Helvet. Ins. n. 304!!

Floerke. Deutsche. lich. n. 133. 134

Flotow. lich. Ins. n. 316. 317. 318 (forma tomentosa. Fle.)

n. 319 (form calliginosa. Ach.)

Lewach. Lich. n. 63

Hepp. Flecht. Einsp. n. 182!!

*Parmelia atra*. Ach. Meth. p. 154

Fries. lich. Europ. p. 141

*Lucanora*

Ach. lich. Univ. p. 344

Taylor in Fl. Hib. II. p. 133

Hook. Br. Flora

Schroerer!! Em. Crit. p. 72

Koerber. Syst. Lich. Germ. p. 139.

*Lichen ater*

Hudson. Angl. II. p. 530

Smithe. Eng. Bot. t. 949.

*Parmelia*

Hook. fil. Fl. N. Zealand. Vol. II. p. 292

Mont. Crypt. Cuba. p. 207.

Schoerer views this as scarcely distinct from the var  
7. *sporadica*. Scher of *Lecanora atra*. See En. Crit. p 73.  
Fries views it though with doubt, as a probable variety of  
*Lecanora rugosa*. Ach. This latter again being placed  
by Schoerer as the var  $\gamma$  *rugosa* of *Lecanora virescens*. Kd.  
(See Fries. Lich. Europ. p 182) also (Scher. En. G. p 71) —

*Lecanora tuberculosa*. Ach. Syn. p 164  
Hook. Pr. Flora  
Lichen Eng. Bot. Suppl. p 1733.

Neither Scherer, Koerber or Fuis make any mention  
of this species in their respective works upon lichens.

*Lecanora aspersa*. Borr in Eng. Bot. Sup. 12728  
Hook. Bot. Flora

*Imbricaria cinereo-rufescens*. Ach.

*Spicidia* & *niasei*; ovate-elliptical, pale, monolocular; length  $\frac{1}{2}$  to 2 mic, breadth  $\frac{3}{4}$  to 1 mic (3.5 Natchy).

Not noticed as a British species, but introduced, from its almost exactly intermediate characters between the Genera *Leccaria* Ach and *Aspicilia*, Mass, to show the inadvisability of separating the two Genera, or treating them other than as sub groups of the same primary one.

Schweur. Lich. Helvet. Exs. n 130!!!

Hotow. Lich. Exs. n 289. 290.

*Aspicilia cinereo-rufescens*. Koerb. Syst. L. Germ. p 162

*Ureolaria*

Schwer. En. Cr. p 88

\* *Parm. cinerea* var *E. cinereo-rufa*. Fries. Lich. Europ. p 145

Rbh. Lich. Deutsch.

Hotow. Lich. H. Sil. 32. 61.

\* *Ureolaria cinereo-rufescens*, Ach. Syn. p 141

*Lichen cinereo-rufus*.

Wahl. Lapp. p 407.

*Umblicaria epulotica*. Ach

Spores 4 to 8 in ascus; normally oval, but deformed by compression in ascus, pale or granular, monolocular, length 2  $\mu$ m, breadth  $1\frac{1}{2}$  (3.5  $\mu$ m).

The lower fig in Eng. Bot. t 1087 represents the true *Uccolaria epulotica*, Ach. The upper the true *U. Acharii*. Wahl, according to a specimen ex herb <sup>Dalton</sup> *Harriman* labelled "*Gyalota epulotica*. Swartz in herb *Harriman*".

Flotow. Lich. Ins. n 291.

*Aspicilia epulotica*. Kueber. Syst. Lich. Germ p 161

*Gyalota epulotica*. Scherer. En. Crit. p 93.

*Gyalota epulotica*. Ach. Swartz !! in herb *Harriman*.

Ach. Syn. p 9.

Ach. lich. Univ. p 151. t. 1. 77.

*Uccolaria Acharii*. Ach. Syn. p 137

Hook. Br. Flora

Herb. Rev W. A. Leighton !!!

Lichen

Wahl. Lapp. p 405

Smith. Eng. Bot. t 1087. (upper fig).

Westring in Ach. Prodr. 33.

*Gyalota*

Scherer. En. Crit. p 93.

Lichen lacustris Wethering.

*Parm. cinerea*. var *J. lacustris*. Fries. Lich. Europ. p 105.

*Imbricaria melanophuca*. Fries.

Sporidia *ovari* asci; pale, ovate-elliptical, monolocular; length  $1\frac{1}{3}$  to  $1\frac{1}{2}$  mic long, breadth  $\frac{1}{2}$  to 1 mic, (3.5 Mächerz).

Confounded with the true *Lecidea Oederi* of Ach, but widely separated from it by the sporidia (See Fig of sporidia of *Lecidea Oederi*. Ach.)

Schoer. Lich. Helvet. Exs. n 123 !!

Flotow Lich. Exs. n 165

*Aspicilia melanophuca*. (Fries) Koerber. Syst. L. Geom p 159

*Lecidea*

(Fr) Flotow in litt. (fid Koerber)

*Aspicilia Oederi*

Mars. Recherch. p 39.

*Uccolania*

Schoer. En. Crit. p 85

Rth. Lich. Deutsch. p 24

*Imbricaria cinerea*. Linn

Spores 5 to 8 in asci; ovate, pale or granular, monolocular;  
length 3 mic, breadth  $1\frac{1}{2}$  to 2 (3.5 Nachez).

*Aspicilia cinerea*. Koerber. Syst. L. Germ. p 164

*Parmelia*

Fries. Lich. Europ. p 142

Waller. Comp. p 447.

*Leoria*

Flotow. Lich. Fl. Sil. 32. 61.

*Uccularia*

Schroerer. En. Brit. p 86.

Rth. Lich. Deutsch. p 25.

Hook. Br. Flora. Ach. Syn. p 240

Lichen

Linn et Auct

Smith. Eng. Bot t 1751.

Wahl. Lapp. p 412

Westring. Fäy lafv. t 18.

Var *A. vulgaris*. Schuur !!  
*Sporidia* as in the species.

Schuur. Lich. Helvet. Ins. n 125!!/126!!/127!!/128!!(ochracea)  
Fris. Lich. Suec. Ins. n 366  
Hotow. Lich. Insiccati n 278 280 281.

*Aspicilia cinnerea*, Var *vulgaris*. Hbr. L.c.  
*Uroclaria* Schur. L.c.  
*Aspicilia polygonia* (Hbr.) Mass. Rivick. p 36  
*scutellaris* p 38  
*obovata* p 38

Var  $\beta$ . atro-cinerea. Schær !!

Sporidia asci; ovate elliptical, pale, monocular, sometimes slightly granular; length 3 to  $3\frac{1}{2}$  mic, breadth  $1\frac{1}{2}$  to 2 (3.5 Macky).

Schær. Lich. Helvet. Ins. n 129!! in part.

Ureolaria cinerea var  $\delta$  atro-cinerea. Schær. En. Cr. p 87. in part.  
Spic p 72 in part.

Var  $\gamma$ . *laevata*. Fries

Sporidia 8 in asci; ovate elliptical, pale or granular, monoloc-  
ular; length  $1\frac{1}{2}$  to 2 mic, breadth 1 mic (3.5  $\mu$ metres).

Sporidia diminuis hed in size in a ratio corresponding to the  
decreased size of the Apothecia.

Fries. lich. Suec. n 36<sup>y</sup>

Hotow. lich. Rus. n 279.

*Parmelia cinerea*. var  $\zeta$  *laevata*. Fries. lich. Europ. p 145

*Uromyces*  $\beta$ . *alba*.  $\delta$  *laevata*. Schær. In. Crit. p 87.

*Aspicilia* var  $\beta$ . *laevata*. Kbr. Syst. L. Germ p 164

*Lecanora graphica* Ach. L. Univ. p 348

*Uromyces cinereus* var  $\delta$ . Ach. Syn. (apothecia perfectis).

① *Gyalacta athalea* Ach. Syn. p 10

② *Lecanora cyrtaspis*. Ach. lich. Univ.

Var *S. alpina*, Smf.

Flotow. Lich. Vas. n 283.

*Parmelia cinerea*, Var *S. alpina*, Fries. Lich. Europ. p 144  
*Aspicilia*                    γ                    Utr. Syst. L. Germ p 164  
*Lucanora alpina*                               Sommerf. Lapp. p 91.

*Imbricaria gibbosa*. Ach.

Spores 4 in asci ("4 to 8" Herber); normally ovate, but deformed by compression in ascus, pale, monocular; length 2 to 3  $\mu$ , breadth 2 to 3  $\mu$  (3.5 Nachy).

Flotow. Lich. Ins. n 303. 306

Lewicki. Lichenes. n 60

*Aspicilia gibbosa*. Mr. Syst. L. Germ p 163.

*Urocladia* Ach. Syn. p 139

*fimbriata* Ach. Mett. p 145

*Leoria gibbosa* Flotow. Lich. Fl. Sil. 32. 63.

*Urocladia scurfosa*. var. *d. vulgaris*. Schur. En. Cr. p 89 (in part).

*Lichen fimbriatus* Smith. Eng. Bot. t 1739.

*Imbricaria calcarea*. Linn.

Var *a. vulgaris*.

Spores 5 to 8 in asci, not indurated-ovate, fine or granular, monolecular; length 3 to 4 mic, breadth  $2\frac{1}{2}$  to 3, (3.5 Mackenz).

*Parmelia calcarea*. Fries. Lich. Europ. p 187.

Wallr. Comp. p 448

*Uccolonia*

Schuur. En. Brit. p 91.

Rth. Lich. Deutsch. p 26

*Lecia*

Flotow. L. Fl. Sil. 32. 64

*Pachyspora*

Massal. Picerch. p 42

*Aspicilia contorta*

Korber. Syst. Lich. Germ. p 166

*Uccolonia calcarea*.

Hook. fil. Fl. Antart. p 537

Ach. Lich. Univ. p 340.

Var *a. calcarea*. Linn.

Flörke. Deutsch. Lich. n 30. 31. (No 30 var  $\beta$ . contorta.)

Schuur. L. Helvet. Ens. n 476!! 13!! var  $\beta$ . contorta

Flotow. Lich. Ens. n 295. 299. 300.

*Uccolonia calcarea*. var *a. concreta*. Schuur!! L. c. p 91

*Aspicilia contorta*. var *a. calcarea*. Korber. L. c. p 166

*Uccolonia calcarea* Hook. Br. Flora

Taylor in Fl. Flit. II. p 132

Lichen

Linn. Spec. 1607

Lichen cinereus.

Smith. Eng. Bot. t 820 (each all syn)

Lichen Hoffmanni.

Smith. Eng. Bot. t 1940

*Uccolonia*

Ach. Meth.

*Porrina fallax*

Taylor in Lond. Journ of Bot. Vol VIII. p 639.

Var. *B. contorta*. Florke.  
Sporidia identical with those of the species.

Florke. Deutsch. Lich. n 30  
Schuer. Lich. Helvet. Ins. n 131!!

*Uccolaria calcarea*. *β contorta*. Schuer!! L. c. p 91

*Uccolaria contorta*. Florke in Berlin Mag. 1810. p 121  
Taylorii Fl. Sib. II. p 132

*Verrucaria contorta et tessulata*. Hoffm. Germ.

Pl. lich. t 22. f 1-4

*Uccolaria tessulata* Ach Meth. p 142.

*Parmelia*. Ach. emend.

Gen. char. Thallus shrubby, entangled; foliaceous, and ascending or horizontal; placoid; or crustaceous.

Apothecia orbicular, with a lamina prolixa supported upon a thallosid exciple, the disk usually various tints of yellow and in some cases obscuring the true Parmelioid structure of the Apothecia as in many states of *Parmelia* *faruginea*, *luteo-alba*, &c.

Sporidia 8 in asci; pale, bipolar.

Thallus cartilaginous or membranaceous, shrubby ascending, or foliaceous horizontal.

Sub Genus 1. *Parmelia*. Ach. emend. 

<i>Parm flavicans</i>	Swartz.
<i>Parm chrysophthalma</i>	Linn.
<i>Parm parietina</i>	Linn.

Thallus placid, lobed and effigurate at the circumference.

Sub Genus 2. *Placodium*. Hill emend. 

<i>Parm fulgens</i>	Swartz.
<i>Parm gelida</i>	Linn.
<i>Parm murorum</i>	Hoffm.
<i>Parm elegans</i>	Linn.

Thallus squamulose, becoming crustaceous or leprose.

Sub Genus 3. *Candelaria*. Mussul. 

<i>Parm vitellina</i>	Ehrh.
-----------------------	-------

Thallus cartilagineo. crustaceous; Apothecia sub-lecidioid.

Sub Genus 4. *Lecidina*. nobis. 

<i>Parm aurantiaca</i>	Lightf.
<i>Parm luteo-alba</i>	Linn.
<i>Parm cirina</i>	Ehrh.
<i>Parm erythrocarpa</i>	Persoon.
<i>Parm faruginea</i>	Hudson.

*Sarmelia flavicans*. Swartz.

Sporidia 8 in asci; roundly ovate or elliptical, pale, bipolar;  
length 1 to 2 mic, breadth 1 to 1½ (3.5 Mackez).

Drawn from British specimens in herb Soc. 1307. Edmuis coll  
in Cornwall by Mr John Kalfs.

Schoerer. Lich. Helvet. Ins. n 552!!  
Swartz in herb Menzies!!

<i>Comicularia flavicans</i>	Schoer!! Em. Cr. p 6
<i>Uromia</i>	Fries. Lich. Europ. p 28
<i>Borreria</i>	Ach. Syn p 224
	Ach. Lich. U. p 504
	Hook. Pr. Fl.
<i>Sarmelia</i>	Jayl in Fl. Hib II. p 147.
<i>Lichen</i>	Smith. Inq. Bot. L 2113
	Swartz. Fl. Ind. Occid. 3. p 1908
<i>Physcia</i>	Decand
<i>Comicularia crocea</i>	Ach.
<i>Borreria pubera</i>	Ach. Lich. Univ. p 508
<i>Pemucensis</i>	Ach.

*Narmelia chrysophthalma*. Linn.

Spores 8 in asci; ovate or elliptical, rounded or tapering at each extremity, pale, bipolar; length  $1\frac{1}{2}$  to 2 mic, breadth  $\frac{4}{5}$  to 1, (3.5 *Machuz*).

Mougeot et Nestler. *Ins.* n 455!!  
Schauer. *Lich. Helvet. Ins.* n 389!!

*Narmelia chrysophthalma*. Ach. *Meth.* p 267

*contortuplicata*. Ach. *Syn.* p 210

*Borreria chrysophthalma*. Ach. *Syn.* p 224

*Floerke. Pr. Fl.*

*Physcia*

*Schauer!! Ins. Crit.* p 12

*Lichen*

*Linn. Mant.* p 311.

*Platismia armatum*

*Hoffm. Pl. Lich* t 36 f 4

*denudatum.*

t 31. f 1

*Lobaria*

*Germ*

*Physcia exilis?*

*Mich*

*Rarmelia parietina*. Linn  
*Spizelia Omicasi*; elliptical, pale. Bipolar, the poles in some  
cases slightly elongated; length  $1\frac{1}{2}$  to 2, breadth  $\frac{3}{4}$  to 1 mic  
(3.5 Naches).

*Rarmelia parietina*. Fries. Lich. Europ. p. 72  
Wallr. Comp. p. 515.  
Pbbr. Lich. Deutsche. p. 55.  
Schaeerer!! Er. Brit. p. 49  
Koeber, Parm. p. 16  
Ach. Lich Univ. p. 453.  
Hook, Pr. Flora  
Taylor in Flora Hib

*Imbricaria*  
*Physcia*  
*Lichen*

Flotow. Lich, H. Sil No 100  
Koeber. Syst. Lich. Germ. p. 91  
Linn  
Smith. Eng Bot. t. 194  
Flora Danica. t. 1005.

*a. platyphylla*. Flotow.  
Fries. Lich. Suec. Ins. n. 258  
Funkt. Crypt n. 111. 518  
Schaeerer. Lich. Helvet. Ins n. 380!!  
Flotow, Deutsche. Lich. n. 120 A-E 121 A-B.

*B. microphylla*. Flotow.

Spores identical with those of the species, *sinuata*.

Fries. Lich. Suec. Ins. n 325. 106

Hörke, Deutsche Lich n 14. 90.

Schreer. Lich., Hebet Ins. n 381!! 549!! 383!!

Flotow. Deut. Lich n. 123 A. 13.

Funk. Crypt. n 622.

Hepp. Flecht. Europ. n 373!!

*Parmelia fulgens*. Swartz.

*Sporidia* 8 in asci, elliptic Monq. pale, unilocular (bipolar in some cases. fide Flepp. Hecht. Europ. n 194!!) length  $1\frac{1}{2}$ , breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  of a mic (3.5 Muehleb.).

I place the plant in this Genus on the authority of Flepp's figure quoted above, which represents one of the *Sporidia* as bipolar.

Schaerer. Lich. Helvet. Ins. n 339!!

Flotow. lich. Europ. n 416

Zwacke. lich. n 79.

Flepp. Hecht. Europ. n 194!!

*Parmelia fulgens*. Fries. lich. Europ. p 119

*Patellaria* Wallr. Comp. p 391.

*Leoria* Flotow. L. Fl. Sil. 32. 27.

*hecantora friabilis* Schaerer!! En. Brit p 64

Rbh. lich. Deutsche. p 40

lichen Vill. Delph. 3. t 55.

*hecantora fulgens*. Ach. Syn. p 183

*Squamaria* Hooker Br. Flora

lichen Swartz in Act. Ups. IV. 246.

Smith. Eng. Bot. t 1667

*lichen hactatus* Ach. Prodr.

*Psora* Hoffm. D. Fl. II. p 169.

*lichen citrinus* Ehrhart

Hedwig. St. Cr. 2 p 60 t 20 f c.

Hoffm. M. lich. t 48 f 2.

*Psora*

Hook. fil. Fl. New Zealand Vol II. p 291.

*Parmelia fulgens*

Ach. Meth. p 192

*Parmelia gelida*. Linn.

Sporidia 8miasci, ovate or elliptical, pale, rounded or subattenuated towards the extremities, bipolar; length  $1\frac{1}{2}$  to 2 mic, breadth  $\frac{3}{4}$  to 1 mic (B. S. Mackay)

Koerber describes the sporidia of this species incorrectly.

Fris. Lich. Succ. Ins. n 361.

*Placodium gelidum*. Koerber. Syst. Lich. Germ. p 117  
*Parmelia*

Ach. Meth. p 188

Fris. Lich. Europ. p 104

Wallr. Comp. p 486

*Squamaria*

Hook.!! Br. Flora

*Leucora*

Ach. Syn. p 186

Ach. Lich. Univ. p 428

Taylor in Fl. Hib. II. p 140

Schauer. In. Crit. p 60.

Lichen

Linn, Mant. 133

Smith. Eng. Bot. t 699

Wahl. Kapf. p 415

Lichen Fleck.

Gunn - Fl. Dominica. t 470.

*Parm. gelida*.

Hook. Fils. Fl. N. Zealand. Vol II. p 191

*Leucora*

Fl. Ant. p 535

*Uccoluria macrophthalmia*. Taylor. Lich. Ant. n 36

*Lecidea marmorata*

Eisdem. n 9. (non Ach)

*Var. a vulgaris* Mairingay.

Thallus placoid, lobed and plaited at the circumference, with narrow lacinae; at the centre even or somewhat lobed, or entirely areolate-squamose with the apothecia much crowded.

Colour of the Thallus of a bright yellow, sometimes inclining to orange and of a dark orange when growing upon chalk or in maritime situations.

Apothecia of a much brighter reddish orange than the Thallus, sometimes in dark coloured varieties concolours with it.

Fris. Lich. Succ. Ins. n 391

Schaeur. L. Helvet. Ins. n 479 !!

Floerke. Deutsch. Lich. n 96

Hepp. Flecht. Europ. n 397 !! approaching *Var. E. nobis*.

*Var. β. callofisma. Ach.*

"(A) Thallus suburnose-areolate, plane, pale yellow, with an intensely yellow lobed circumference, lacinae plane, incised; disk of the Apothecia slightly convex of a somewhat tawny orange colour, with a thalldal margin entire and angular.

Hab. on walls and rocks. France, Dauphin - At the base of the mountains of Vallis de Schlieren.

(B) symphagea. Thallus subimbricated and together with the Apothecia, orange; the lobes of the circumference plane." Acharius. L. Univ. p 437.

Sporidia more frequently elongated at the poles, in other respects as in the species.

Schaeur. L. Helvet. Ins. n 337 !!

Zwacke. Lich. Ins. n 58

Hepp. Flecht. Europ. n 197 !!

*Lichen symphaycus*. Ach. lich. Prodr. p. 105  
*auriculatus*. Persoon. ap. Uster in Annal. d. Bot. St. II. p. 44  
*Lecanora callospisma*. Ach. lich. Univ. p. 437.  
 Schour. En. Brit. p. 63.  
 Rth. L. Deutsch. p. 41  
*Pannetia* Wallr. Comp. p. 518  
*Physcia* Mass. Blast. p. 57.  
*Pannetia murorum*. Var  $\gamma$ . Fris. L. Europ. p. 116  
*Lichen murorum* (excl syn) Smith. E. Bot. t. 2157.  
*Lichen elegans* (excl syn) E. Bot. t. 2181. dua fig ad sinistram.  
*Squamaria murorum*. Hook. Pr. Fl. in part.

Var  $\gamma$ . *circochroa*. Ach. Syn. p. 181.  
 Thallus in the centre beset with yellow sordida,  
 in the circumference slenderly and elegantly  
 lacinate. Apothecia minute, dark orange.  
 rare.

Schour. L. Helvet. Es. n. 480 !!  
 Hepp. Flecht. Europ. n. 398 !!

*Lecanora circochroa*. Ach. Syn. p. 181.  
*Amphiloma murorum*.  $\gamma$ . *circochroum*. Rth. L. p. 111.  
*Placodium circochroum*. Hepp !! ut supra.

Var. *S. citrina*. Ach.

"(a). Thallus leprous, granulato-pulverulent, lemon coloured. Apothecia adpressed with the disk plane, at length convex, orange, with a thin pulverulent thallocal margin. Habitat on rocks and walls of Sweden and Germany."

Ach. hich. Univ. p 402.

Sporidia 8 in asci, as in the species.

See specimens in herb now tracing this from *Parmelia murorum*.

Hepp. Flecht. Europ. n. 72 !! 394 !! our *cuticula*.

*Parmelia citrina*. Ach. Meth. hich p 179 excl var  $\gamma$   
*Lucanora* (a) Ach. L. Univ. p 402

Hook. Br. Flora.

hich

Smith. Eng. Bot. t 1793.

*Calloporisma*

Wtr. Syst. L. Germ. p 128.

*Parmelia purcitina* & *citrina*. Schær. L. G. p 51 (in part).

*Verrucaria citrina*. Hepp. D. H. II. p 198.

*Lucanora murorum*  $\gamma$ . *citrina*. Schær. L. G. p 64

Var *E. crustacea*. nobis.

Thallus, ven, crustaceous, uniform, of a lemon yellow.

Apothecia emiculous with the thallus or of a slightly orange tint.

Sporidia 8 in asci, bipolar or binucleate, 1-1 $\frac{1}{2}$  mic long by  $\frac{1}{2}$  a mic broad (3.5  $\mu$  diam).

Hab. On brick walls much exposed to the Sun.

*Lichen elegans*. Link.

*Parmelia elegans*. Link

Sporidia 8 or 10, oval, pale, bipolar; length  $1\frac{1}{3}$  micr.,  
breadth  $\frac{1}{2}$  to 1 micrometer. (3.5 Nachez).

Regarding the specific difference between this species and *P. murorum*.  $\beta$ . *miniata*. Hoffm. much doubt from the contradictory nature of the synonyms appears to exist among Botanists, the var *miniata*. Hoffm. having been generally referred to *Parm. murorum*, while the *Lichen elegans* of Link has been viewed as the type of the present species. I confess I am unable at present to see any specific botanical difference between the two forms and have therefore united them (vide spec. ex herb. Rev. W. A. Leighton under the former name and specimens in Schauer. L. Helvet. Eur. n. 338!! 481!! under the latter). Schauer in his Enum. Brit. refers n. 545!! placed in his *Exsiccata* as "*P. elegans transiens* in *P. murorum*" to *P. elegans*, but according to my copy of his *Exsicc.* one of the specimens under n. 545!! much more closely resembles *P. murorum*. var *evictroctroa*. Ach. the other possibly a state of *P. elegans*.

Is *P. elegans* a distinct species from *P. murorum*?

I view this question as being still "subjudice" although I rather incline to the opinion that they are distinct. The peculiar habit of *P. elegans*. Link. can scarcely be due to chemical differences present in its habitat, as I have gathered upon the same small surface of stone. *Parm. parietaria*, *P. elegans* and *P. murorum*.  $\beta$ . *Callospisma*. Ach. each retaining completely their respective characters.

*P. elegans* presents considerable diversity of colour, being in some habitats of a reddish orange, in others of a vermilion tint.

The English Botany figure (Tab 2181) representing this species on stone I view as a form of *P. murorum*. var *callospisma*. Ach., not only from the figure itself, but because I have searched in vain Salisbury Crags, the station from which the Eng Bot specimen was derived, for the true *P. elegans*, *P. murorum*, var *callospisma*. Ach. being the only variety met with. (For remainder of description &c see Appendix)

*Narmelia vitellina*. Ehrh.

Sporidia numerous in each ascus, ovate or elliptical, straight or slightly curved, pale, bipolar or binuclear or even at an early stage bitocular: length  $1\frac{1}{2}$  to 2 mic., breadth  $\frac{1}{2}$  to 1 mic. (3.5 Machez).

Placed by Kumber and Massalongo as a type of a new Genus depending as an essential character upon the numerous sporidia in each ascus, one which can by no means be admitted as if it were so it would separate plants otherwise very closely allied, for example *Physcia sophodes* and *enigma* &c.

Fries. lich. Suec. Ins. n 160

Flotow. lich. Exsic. n 418

Smyf. Crypt. n 66

Schwein. L. Helvet. Ins. n 450!!

Ehrh. Crypt. n 155

Mougeot et Nestler Cr. n 141!!

Hepp. Flecht. Europ. n 70!!

*Narmelia vitellina*. Fries. lich. Europ. p 162

Ach. Meth. p 176

*Lecanora*

Schwein. In. Cr. p 80

Stbh. L. Deutsch. p 36

Hook. Pr. Flora

*Lecanora*

Flotow. Lich. Flor. Sil. No 55. 66

*Candelaria*

Kumber. Syst. L. Germ. p 121

*Lichen*

Ehrh. Crypt. ut cit supra.

Smith. Ency. Bot. t 1792

*Lichen candelarius*

Turn, nec auct.

*Karmelia aurantiaca*. Lightfoot.

Var *a. salicina*. Schrad.

*Sporidia* 8 in asci, elliptical, rounded or attenuated at the extremities, pale, bipolar; length  $1\frac{1}{2}$  - 2 -  $2\frac{1}{2}$  mic breadth 1 mic (3.5 Mackenz).

*Karmelia aurantiaca*. Fris. L. Europ. p. 166

*Leucia*

Hortow. L. Heru. Sil. 32. 57.

*Calloposima*

Muss. Blust. p. 70

Kbr. Syst. L. Germ p. 130

*Biatona*

Obh. L. Deutsch. p. 89

*leucidea*

Schuer. Eu. G. p. 149

Ach. Syn. p. 50

Hook. Pr. Flora

Lichen

Lightfoot. Fl. Scot. II. p. 810.

Var *a. salicina*. Schrad.

*Sporidia* as in the species.

Schuer. L. Helvet. Ins. n. 537!!

Fris. L. Succ. Ins. n. 41.

*Calloposima aurantiaca*. *a. salicina*. Kbr. L. c.

*leucidea*

Schuer. L. c.

*leucivora salicina*, Ach. Syn. p. 175

*Patellaria* & *Verrucaria* . . . . . Steffm.

Lichen

Schrad. Spic. p. 82

Smith. Eng. Bot. t. 1305.

*Parmelia aurantiaca*. Light.

Var  $\beta$ . *flavo-viscens*. Hepp.

Spores 8-sided, subrotund or elliptical  $1\frac{1}{2}$  - 2 mic long by 1 broad, in other respects resembling those of the species.

Schuur. l. Helvet. Ins. n 223!!

Hotou. l. Encic. n 425

Zwackh. lich n 94

*Calloparia aurantiaca*  $\beta$ . *flavo-viscens*. Kbr. l.c.

Schur. l.c.

*Verrucaria flavo-viscens*. Hepp. Pl. lich. t 20 f 1.

lichen

Miljvi. Sug. Coll. II. 230 f 4. b  
et t 14. f 5 d. d.

*Lecanora erythralla*

Ach. Syn. p 175.

Ach. l. Univ. p 401.

*Parmelia*

Ach. Meth. lich. p 174

*lecanora*

Hortk. Fl. Ant. p 537.

*Parm aurantiaca*, var *erythralla*. Hook. fil. Fl. New Zealand II. p 292

*Lecidea erythralla*

Hook. Br. Flora

lichen

Smith. Sug. Bot t 1993.

*Parmelia aurantiaca*. Lightf.

Var  $\gamma$  *rubescens*. Schær !! Was 224 !!

*Spizidia Pini* asci,  $1\frac{1}{2}$  mils long by  $\frac{1}{2}$  to 1 broad, in other respects resembling those of the Genus.

Crust yellowish red or pale; on smooth stones &c. contiguous, areolate, even; on those more uneven becoming lanuginous. Apothecia sessile, intensely orange, minute, much crowded or scattered, the variation depending very much upon the nature of the rocks.

Schær. L. Helvet. Ins. n 224 !!

Flotow. L. Ins. n 426

*Leidea aurantiaca*  $\delta$ . *rubescens*. Schær. L. c. p 149

*Callopsima*  $\gamma$ . Kbr. L. c. p 130

*Leidea eufhratica*  $\gamma$ . *rubescens*. Schær. Frii 185.

*Leidea picta*. Taylor in Mackay. Fl. Hib II. (fid Schær).

Var  $\delta$ . *holocarpa*. Ehrh.

Flörke. Deutsch. Lich. n 186

Flotow. Lich. Essiccati. n 420

Ehrhart. Crypt. n 284

*Callopsima aurantiacum*.  $\delta$ . *holocarpa*. Kbr. L. c. p 130

*Leidea luteo-alba*.  $\gamma$ . *holocarpa*. Schær. En. Gr. p 147

*Parmelia vitellina*.  $\delta$ . Friis. Lich. Europ. p 162

*Lichen holocarpus*. Ehrh. Essic. n 284

*Leidea aurantiaca*. var *holocarpa*. Flörke. Ess ut cit.

*Parmelia luteo-alba*. Turn.  
Var *a. Persooniana*. Ach.  
. . . , *aurantiaca*. Urbh. non legit.

*Lecidea luteo-alba*. Schær. En. Cr. p 127  
*Calloporina* Kbr. Syst. L. Germ p 128  
*Patellaria* Wallr. Comp. p 383  
*Parm. cernia* (in part) Fris. lich. Europ. p 168  
*Lecidea* (in part) Flotow. L. Flor. Sil. 32. 56

Var *a. Persooniana*. Ach.

*Lecidea Persooniana*; elliptical, pale, bipolar; length  $1\frac{2}{3}$  mic, width 1 mic, (3.5 Machz).

Schær. L. Helvet. Ins. n 475 !!

Flotow. L. Essic. n 424

Urbh. Crypt n 28

*Calloporina luteo-alba*. Kbr. L. c.

*Lecidea a. Persooniana*. Schær. L. c.

*Parm. cernia* (b). Fris. L. c.

*Lecidea e gilva*. Flotow. L. c.

*Patellaria aurantiaca*. Du. Fl. Fran. II. p 358

*Lichen* Urbh. Crypt.

*Lichen luteo-albus*. Smith. Eng. Bot. 214 26

~~Turner in Trans. Linn Soc. Lond. III. 2873~~

*Parmelia luteo-alba*, Turn  
Var  $\beta$ . *ulmicola*, Smith

Spores: 8 in asci, ovate, pale, bipolar; length 1 mic, width  $\frac{1}{2}$  a mic (3.5  $\mu$  diam).

\* Floerke. Deutsch. Lich. n 186

\* Holow. lich. Rus. n 420

*Lecidea cirina*  $\gamma$ . *holocarpa*. Scher. l. c. in part.

\* *Calloporina aurantiaca*  $\delta$ . *holocarpa*. Kl. l. c.

*Parmelia cirina*, c. *pyracea*. Fries. l. c.

\* *Lecidea aurantiaca*. var *holocarpa*. Ak. D. l. n 186 up supra.

*Lecidea ulmicola*. Hook. Br. Flora.

Patellarii

Decand. Fl. Franc. II. p 360.

*Lichen luteo-albus*. Turn in Trans. Linn. Soc. 77. 92. 1173.

Smith. Eng. Bot. t 1426.

\* Those synonyms marked as above by a star are to be referred to *Parmelia aurantiaca*, var  $\delta$ . *holocarpa*. Echin rather than to the present variety.

*Parmelia cerina*. Ehrh.

Var  $\alpha$ . Ehrharti: Scherer

*Spizidia Piniasei*, orate elliptical, pale, bipolar, length  $1\frac{3}{8}$  mic, breadth  $\frac{4}{5}$  (3.5 Nachez).

*Parmelia cerina*. Fris. L. Europ. p. 168 (2)

Wallr. Comp. p. 471.

*Lecanora*

Reh. L. Deutsch. p. 37.

Nich. Syn. p. 173

Hook. Br. Flora.

*Callopisma*

Ubr. Syst. L. Germ. p. 427

*Lecania*

Hotow. L. Florae. Fil. 32. 56

*Lecidea*

Scherer. Eu. Crit. p. 148

Var  $\alpha$ . Ehrharti: Scherer.

Fris. lich. Succ. Ins. n. 102

Hotow. lich. Ins. n. 422. 423

Scherer. L. Helvet. Ins. n. 219!!

Ehrh. Crypt. n. 216

Zwatsch. lich. n. 96

Hepp. Flecht. Europ. n. 203!!

Swartz in herb. Menzies!! (L. cerinus. Hedwig)

*Parmelia cerina*.  $\alpha$ . Fris. l. c.

*leccidea*  $\alpha$ . Ehrharti: Scherer. l. c.

*Callopisma* Ubr. l. c.

*lichen cerinus*. Hedwig. Stirp. G. t. 2176

Smith. Eng. Bot. t. 627

Schrad. Syst. Samml.

*Patellaria cerina*  $\beta$ . cyanolepra. De. H. Fun. II. p. 360

*lichen byssinus*. Dickson. G. Fasc. II. p. 19.

Smith. Eng. Bot. t. 432

*Lecanora*

Hook. Br. Flora.

*Parmelia cerna*. Ehrh  
Var  $\beta$ . *stillicidiorum*. Old.  
*Sporidia* as in the species.

Hepp. Flecht. Europ. n 406 !!

*Callopusia cerna*  $\beta$ . *stillicidiorum*. Wtr. l. c.  
*Parmelia* Friis. l. c.  
*Leidea* Schoer. l. c.  
*Lichen stillicidiorum*. Old. H. Dan. VI. t 1063. f 3.  
*Lichen chloroleucus*. Smith. Eng. Bot. t 1373  
*Lecanora* Hook. Pr. Flora.

*Parmelia erythrocarpa*. Persoon.  
 Sporidia 8 in asci, ovate elliptical, pale, bipolar; length  
 $1\frac{1}{2}$  to  $1\frac{3}{4}$  of a mic, breadth  $\frac{1}{2}$  to  $\frac{3}{4}$  (3.5 Kuehuz).

Histor. lich. Europ. n 271. 272  
 Zwackh. Lich n 97.

<i>Parmelia erythrocarpa</i>	Fries. lich. Europ. p 119
lichen	Persoon in Ach. Univ. 205.
keideia	(a) Schaeer. En. Crit. p 145
<i>Blasenia</i>	Kuober. Syst. lich. Germ. p 183
<i>Lecanora</i>	Rth. lich. Deutsche. p 32
<i>Zenia</i>	Histor. lich. Fl. Sil. 32. 26
<i>Placodium versicolor</i>	Decand. Fr. 2. p 380
<i>Lecanora theicolyla</i>	Ach. lich. Univ. p 425
<i>Placodium</i>	Decand. Fr. 6. p 185
lichen arnariis	Persoon, in. Ust Ann. VII. 27
<i>Patellaria</i>	Hoffm. Pl. lich 258. 71.
<i>Lecanora craspedia</i> (a et b)	Ach. lich. Univ. p 391
<i>rubricosa</i>	Ach. Syn. p 162
lichen caesio. rufus.	Schrad
	Smith. Eng. Bot. t 1040
<i>Lecanora</i>	Hooker. Br. Flora

*Parmelia ferruginea*. Hudson.

The ordinary form of the apothecia of this plant would appear to ally it with the Lecideaceae, but an inspection of Fig 1 (See drawings) at once shows that the plant, as first pointed out by the accurate Fries, is a true *Parmelia*.

The Lecidea like habit of the fruit (from which character I have derived the name of the sub Genus to which this plant belongs) is due in most cases to the coloured disk of the *Lammina prodigiosa* becoming projected downwards over the thallosal enciple, thus entirely obscuring the true nature of the fructification (See Fig 1. a). —

Spores 8 in asci, ovate elliptical, pale, bipolar; length  $1\frac{1}{2}$  mic, breadth  $\frac{5}{8}$  of a mic (3.5 Mackez).

<i>Parm. ferruginea</i>	Fries. Lich. Europ. p 170
<i>Lecidea</i>	Flotow. h. Flor. Sil. 32. 58
<i>Biatorella</i>	Reh. Lich. Deutsche p 89
<i>Lecidea</i>	Schær. Eu. Crit. p 144
	Hook. Pr. Flor.
<i>Patellaria</i>	Wallr. Comp. p 379
<i>Lichen</i>	Hudson. Angl. II. p 526.
<i>Blastonia</i>	Nbr. Syst. L. Germ. p 188?
Var $\alpha$ . <i>cinereo-fusca</i> .	Web.

Schær. L. Helvet. Ins. n 583!!  
 Flotow. Lich. Ins. n 95.  
 Flepp. Flecht. Europ. n 400!!.

<i>Lecidea ferruginea</i>	$\alpha$ . <i>cinereo-fusca</i> . Schær. l.c.
<i>Blastonia</i>	$\alpha$ . <i>genuina</i> . Koerber. l.c.
<i>Lichen cinereo-fuscus</i> .	Web. Spic p 188
<i>Patellaria</i>	Flepp. Pl. Lich. t 12 f 1.
<i>Lecidea</i>	Arch. Syn. p 43.

*Nama ferruginea*. Hudson  
Var *B. festiva*. Ach.

Schweur. L. Helvet. Ins. n 449!!

*Leucidea ferruginea*.  $\gamma$ . *festiva*. Schær. Eu. Co. p 144  
*Blastenia* *B. festiva*. Mr. L. c. p 184  
 $\gamma$ . *contigua*. Mass. Blast. 105?  
*Patellaria ferruginea*. Hoffm. Pl. hieb. t 35 f 1.  
Lichen Hudson.  
Smith. Eng. Bot. t 1650

*Verrucosa*. Mangay

Gen. char. Thallus cartilagineo-tartareus, verrucosus or areolato-verrucosus, continuous or interrupted.

Apothecia normally explanate or subimbricate, assuming in some abnormal forms a Pentasacoid habit; formed of a lamina proliфера supported upon and margined by a thallosal exciple.

Spores very large, 4-8 in asci, oval or elliptic-oblong, pale, surrounded by a double cell wall.

- Typical species. 1. *Verrucosa polymorpha*. nobis.  
2. *Verrucosa macrospora*. Naeg.  
3. *Verrucosa*(?)*oculata*. Dicks!!

*Verrucosa polymorpha*. nobis

Thallus white or of a faint yellow colour, verrucose or areolate, interrupted or continuous.

Apothecia normally formed of a black lamina prolegera placed upon a proper thallocal exciple, which also forms the prominent border of the disk.

Sporidia 8 in asci, large, pale, oval, the contents surrounded by a double cell wall; length 7 mic., breadth 4 to 4.5 (3.5 thick).

Hab. On decaying mosses or sticks at a considerable elevation. Bantry, Ireland. Miss Hutchins in herb Bover. Craig Calliach, Perthshire, A.C.M. August 1856.

Var *a. vulgaris*. nobis.

Character of Thallus as above.

Apothecia explanate or subimbricate, the disk black with a prominent thallocal margin.

Sporidia as above.

Schauer. Lich. Helvet. Ins. n 133!!

Hepp. Flecht. Europ. n 193!!

*Urcularia verrucosa*. Ach. Lich. Univ. p 389

Schuer. En. Brit. p 92.

*Parmelia*

(a) Fris. Lich. Europ. p 186

*hucanora*

Lamourin Stamm. Deutsch Fl. H. 28. 29 & 21.

*Aspicilia*

Ma Kouben. Syst. L. Germ. p 167

*Pachyspora*

Massalongo. Riccerch. p 44

*Urcularia scurfosa*. g. *verrucosa*. Rth. L. Deutsch. p 27.

*Pentascia Hutchinsii*. Leighton !!! Ang. Lich. Tab. XI. f. 1.

*Thelotrema*

Hook. Br. Flora

Taylor. H. Hib. II. p 103

Bover in L. Bot. Sup. 22652.

*Verrucosa polymorpha. nobis*

Var  $\beta$ . *glomerata*.

Thallus white or yellowish, aciculate-verrucose.

Apothecia Pertusarioid, consisting of a dark nucleus enclosed in a thallocal verruca, and protruding at its apex as a black papilla.

Hab. On decaying moss, summit of Craig Calliach. Perthshire. A.C.M. August 1856.

Sporidia 4 in asci, very large, surrounded by a double cell wall, elliptic-oblong, pale; length 13-15 $\frac{1}{2}$  mic, breadth 4-5 $\frac{1}{2}$  (3.5 Macky).

Fig 4. Ascus containing homogeneous Huestema

Fig 5. The same clearing into three sporidia.

Schoerer. Lich. Helvet. Fus. n 130!!

*Parmelia verrucosa* (L.) Fries. l.c.

*Pertusaria glomerata* Nbr. op. c. p 388

Schuer. En Cr. p 230

Leighton. Brit. Arch. Lichens. Tx. 1. f 2

*Pomina*

Sch. Lich. Univ. p 310

Lichen

Schl in Ensic ut supra.

*Melotrema mammosa*. Pearson in Act. Wetterav. II. 13 610 ft.

I have therefore in allusion to the verrucose habit of the species  
contained & propose as a name for the Genus of which of Harkn.  
it is to be considered the type that of *Verrucosa*, calling the  
present species *Verrucosa polymorpha*, nobis.

In following out this arrangement, I am actuated by no desire  
to multiply the already sufficiently numerous existing  
Genera of lichens, but because I feel convinced *Verrucosa*  
*polymorpha* can neither rank with the Genus *Pertusaria*  
on account of the Parmelia-like structure (see drawings)  
of the normal form of the Apothecia; nor yet with the  
Genus *Parmelia*, if, as is now universally admitted among  
lichenists the Sporidia are to be assumed as possessing  
any value in defining the Generic characters of the lichens.  
In habit this species is most closely allied to *Uccoluccia* *scruposa*  
*B. hypophila*, but is widely separated from it and  
from the Genus *Uccoluccia* by the characters of the Sporidia.  
The *Pertusaria macrospora*, *Nägeli* *U.S. Hepp. Ficht. Europ. n*  
*424 !!*, may, in addition to *Verrucosa polymorpha*, nobis, also  
be considered as typical of the present Genus.

Thallus cartilagineo-corticatus, rugosus, irregulariter papilloso,  
glaucescens; hypothallus pale.

Apothecia sessile, convexa, the disk sulphureous, the margin  
revoluted entire, whiter than the thallus. Fries. lich. Europ. p. 134.

"Sporidies ovicellis, majusculis, episporio late emittis. Scim.  
Ang. O. 1833 usque. 1836; trans O. 1833." Massalongo, Mis-  
cellanea Lichenologica. Dec. 1856. Verona et Milano.

I have seen an authentic specimen from Dickson of the lichen  
oculatus, but it was too imperfect for more than a cursory examina-  
tion.

*Parmelia oculata*. Fries. lich. Europ. p. 134  
*Lecanidium* Mass. l. c.

*Lecanora* Ach. Syn. p. 148

lichen Dicks.!! l. 2. p. 6. 72

Smith. Eng. Bot. t. 1833

*Isidium* Hook. Br. Flora

Ach. lich. Univ. p. 576

lichen epibryon. Wahl. Lapp. p. 408 (non *Lecanora epibryon* Ach.)

*Lecanora sulfurea*. Var. v. *hypnocorum*. b. *oculata*. Schær. En. Cr. p. 75.

*Amphiloma*. Hepp in part.

Gen. char. Thallus foliaceous or squamulose,  
membranaceous, horizontal.

Apothecia orbicular, Parmelioid.

Sporidia 8 in asci; elliptical or elliptic-oblong,  
frequently sub-attenuated towards the extrem-  
ities, at length furnished with a crenulated  
cell wall.

Typical species. 1. *Amphiloma subignosa*. Ach.  
2. *Amphiloma hypnorum*. Sm.

*Amphilona rubiginosa*. Thunb.

Sporidia 8 in asci, elliptical, rounded or attenuated towards the extremities, pale, monocular, the cell wall presenting a crenulate outline. Length  $1\frac{1}{2}$  to 8  $\mu$ , breadth  $\frac{1}{2}$  to 1, (3.5 Mackenz).

- Parmelia rubiginosa*. Fries. Lich. Europ. p 88  
Ach. Meth., Lich. Univ. et Syn.  
Schw.!! in. Crit. p 36  
*Parmaria* Koerber. Syst. L. Geom. p 105.  
*Squamaria affinis* Hooker. Pr. Fl. Ind.  
Lichen DeKes. Cr. Fasc. IV. p 24. T 12. 76  
Smith. Eng. Bot. T 983  
*Parm. caerulea* Wallr. Comp. p 504  
*Anticaria* Decand.  
*Lichen rubiginosus* Thunberg. Prodr. Cap. p 176  
*Parm. plumbea*  $\beta$ . affinis, Taylor in Fl. Hib. II. p 142

Var. a. affinis. DeKes.

*Amphilona* as in the species.

- Schw. Lich. Helvet. Ins. n 569!!  
Fries. Lich. Suec. Ins. n 107

Var. b. conoplea. Ach.

Schw. Lich. Suec. Ins. n 369!!

Fries. Lich. Suec. Ins. n 75

Moug. et Nestler Crypt. n 347

Schleicher, in herb. Menzies!! (*Panoplea*. Ach.)

*Parmelia rubiginosa*  $\beta$ . caeruleo-badia: Schw.!! L. c. p 36

*Parmelia* b. conoplea. Fries. L. c. p 88

*Parmaria*  $\beta$  Koerber. L. c. p 105

*Squamaria* caeruleo-badia: Hooker. Pr. Fl. Ind.

*Amphiloma hypnorum*. Dickson -  
 Sporidia 8 in asci; elliptical, slightly attenuated towards the  
 extremities, pale or slightly granular, monolocular, the  
 cell wall with a crenulate outline. Length 3 mic, breadth  
 1½ (3.5 Nachez).

Schwarz. lich. Helvet. Ins. n 160!! 548!!  
 Fris. lich. Suec. Ins. n 256. 162.  
 Flepp. Flechten. Europ. n 174!!  
 Förlke. Deutsche. lich. n 150.  
 Dickson in herb. Menzies !! (lichen pezizoides, Mel).

<i>Parmelia hypnorum</i>	Fris. lich. Europ. p 98 Schwarz!! In. Litt. p 53. Lauer in Sturm. Deutsche Fl. II. 125 Wallr. Comp. p 475.
<i>Parmaria</i>	Koerber. Syst. L. Germ. p 108
<i>Squamaria</i>	Hook. Br. Flora
<i>Lecanora</i>	Ach. Syn. p 198
Lichen	Obh. lich. Deutsche. p 44 Flora Danica. 1956 Dickes. Gr. Fas. 3. p 14 Smith. Eng. Bot. 2740
<i>Parmelia burnnea</i>	Fris. l. c. p 93. Koerber. l. c. p 107 (excl var β)
<i>Lecanora</i>	Obh. lich. Deutsche. p 45.
<i>Leidea leptophylla</i> γ. pezizoides	Schwarz!! l. c. p 99
Lichen burnneus	Swartz et Auct Smith. Eng Bot. 21246
(?) <i>Pora pezizoides</i> .	Lauer. Sturm. Deutsche Fl. II. 143
Lichen	Dickes. Crypt. I. 2. 74
<i>Pora pezizoides et burnnea</i>	Hoffm. Germ.
Lichen pezizoides	Lighton in Litt.

? *Amphiboloma lanuginosa*, Ach.

Fris. lich. Succ. Ins. n 74  
Schoer. L. Helvet. Ins. n 378!!  
Mougeot et Nestler. Cr. n 255!!

*Parmelia lanuginosa*, Ach. lich. Univ. p 465  
Ach. Syn. p 201  
Fris. lich. Europ. p 88  
Wallr. Comp. p 504  
Hook. Fl. Scot. PII. p 53.  
Rbh. lich. Deutsch p 54  
Hook. fil. Fl. New Zealand VII. p 290  
Krober. Syst. L. Germ. p 106  
Hook. Pr. Flora  
Hotow. lich. Fl. Sil. 32. 3  
*Parm capitata*  $\beta$ . *membranacea*, Schoer. In. Cr. p 35  
*Lichen membranaceus* Dickson, Cr. Fase II. t 671.

*Parmaria*  
*Squamaria*  
*Lecia*

*Hamatommia*. Mass.

Gen char. Thallus cartilagineo crustaceus, vix  
continuus.

Apotheciis Parmelioid.

Sporidia 8 in asci, pale, acicular or club-shaped,  
quadriocular or multilocular, straight or serpen-  
tine.

*Hematommia ventosa*. Linn.

*Sporidia* *Pinasci*, acicular, much attenuated towards one extremity, rounded at the other, pale or finely granular, at length becoming multilocular, the loculi being arranged in a linear series. length 6 mic, breadth  $\frac{1}{2}$  mic (3.5 thick). Massalongo erroneously figures the *Sporidia* as septate.

*Sporidia* *Serpentini* in outline.

Fries. Lich. Suec. Ins. n 161

Schær. h. Helvet. Ins. n 320 !!

Flotow. Lich. Sas. n 384

Zwackh. Lich. n 69

Herb. Menzies !! sub nomine *L. gelidus*. Hudson.

*Parmelia ventosa*. Ach Meth p 166

Fries. Lich. Europ. p 153

*Lecanora*

Ach. Lich. Univ. p 399

Hook. Bor. Flora

Taylor in H. Flit II. p 136

Rbh. Lich. Deutsch. p 36

\* *Lecania*

Flotow. L. H. Sil. 32, 54,

*Hematommia*

Kocber. Syst. Lich. Germ. p 153

\* *Lecanora*

Schær !! En. Crit. p 84

*Lichen ventosus*

Linn. Spec. 1607

Smith. Eng. Bot. t 906

Flora Danica. t 472

*Lichen scopulorum*

Flora Danica t 712. 72.

*Hematomma coccinea*. Persoon.

Sporidia 4 or 5 ascid; elongated, rounded at one extremity, attenuated towards the other, pale or granular, serpentine, at length becoming multilocular in a linear series. Length 4 to 5 mic, breadth  $\frac{2}{3}$  to  $\frac{3}{4}$  (Mackenz).

- Fries. Lich. Succ. Ins. n 201. 200 (von Leipsuemia Ach)
- Hooke. Deutsche. Lich n 46. 60 (.....)
- Schoer. Lich. Helvet. Ins. n 523!!
- Hotow. Lich. Ins. n 385
- Zwackh. Lich. n 70
- Dickson in herb Menzies!! (L. coccineus. Dicks)

*Parmelia hematomma*.

- Fries. Lich. Europ. p 155
- Ach. Meth. Sup. p 35
- Wallr. Comp. p 468
- Schoerer!! En. Cit. p 84
- Pbh. Lich. Deutsch. p 36
- Ach. Syn. p 170
- Hooke. Br. Flora

*Lucanora*

- Ach. Lich. Univ p 388
- Taylor in Fl. Hib II. p 136

Lichen

- Hook in Hannover Magaz. 1786. p 285
- Smith. Eng Bot. 1486

*Lecania*

- Hotow. L. H. Sil. 32, 53.

*Hematomma vulgare*

- Mass. Research p 32

*coccineum*

- Koerber. Syst. L. Germ p 153

Lichen coccineus

Persoon

- Dicks. Cr. Fasc. I. p 8. Pl. 71.

Lichen porphyreus

Pers. (crust more fulvous, apothecia more obscure)

*Parm hematomma*. b. *porphyria*. Fries. L. c. p 154

*Lepraria leipsuemia*. Ach. (crust granulosa pale, hypothallus byssine)

*Parm hematomma*. c. *leipsuemia*. Fries. L. c. p 154

*Lucanora Stonei*

Ach.

*Patellaria*. Hepp

Gen. Char. Thallus crustaceous, torn, continuous  
or interrupted.

Apothecia Pannelioid.

Sporidia 8 in asci; pale, elliptical or elliptic-ob-  
long, bilocular or quadrilocular, straight or  
curved.

*Satallaria carneo-lutea*. Turner.

*Sporeidia* 8 mic, elliptical, rounded or attenuated towards the extremities, pale, quadricocular.  
Length  $1\frac{1}{2}$  to 2 mic, breadth  $\frac{1}{2}$  a mic (3.5 Mackenz).

*Parmelia carneo-lutea*. Fris. Lich. Europ. p 135

*Lecanora*

Ach. Syn. p 171

Schaer. En. Crit. p 80

Lichen

Turneri Seans. Linn Soc IX. t 12. f 2

Smith. Eng. Bot. t 2010

*Parmelia*

Huyton!! Brit Ang Lichens. Tab. XLV. fig 2.

*Patellaria caerulea*, Mudd et Mainyay. No Species.

Thallus somewhat uneven, continuous, cracked, rimose areolate, of a leaden blue colour.

Apothecia bluish black, at times pruinose, impressed upon the thallocal areolae, their margins very slightly prominent, formed by the thallus.

Sporidia pinacii, elliptical, straight or curved, rounded or attenuated at the extremities, pale, quadricocular; length 2 to 2½ mic, breadth ½ a mic (3.5 Nachez).

Hab: Sand stone walls, Marston, Cleveland. Yorkshire.

Discovered in the above habitat by my valued friend Mr W<sup>m</sup> Mudd, and examined microscopically by us both conjointly, the structure of its sporidia referring it to the Genus *Patellaria* of Kepp.

The plant at first sight much resembles a *Variolaria*, but may at once be distinguished by its sporidia and the peculiar leaden blue colour of the thallus.

*Patellaria fuscella*. Hepp.

New as a British species.

Hab. Walls &c. Stokesley. Cleveland. Yorkshire. In 1872 Mudd  
to whom is due the merit of having added this species to the  
British Flora.

Sporidia 8 in a set, elliptic-oblong, rounded or subattenuate  
at the extremities, straight or curved, pale or granular,  
monocular or quadricocular; length 2-2½ mic, breadth  
 $\frac{1}{2}$  -  $\frac{3}{4}$  of a mic, (3.5 Mackenz).

Hepp. Flechten. Europ. 1276!!

*Patellaria Rhabenhorstii*. Hepp!! Var.

Sporidia 8 in asci, variable in size and shape, subrotund, ovate or ovate elliptical, straight or curved, rounded or attenuated towards the extremities, pale or granular unilocular or bilocular, length  $1\frac{1}{3}$  -  $1\frac{1}{2}$  - 2 mic, breadth  $\frac{1}{3}$  -  $\frac{2}{4}$  - 1 mic (3.5 Mackenz).

The above variety differs from the normal form (see next page) in the larger size of its sporidia, almost equaling those of *Patellaria fuscella*, but never, so far as my observation extends, presenting the quadrilobular arrangement of the contents seen in the latter plant.

The specimens upon which the above researches were made, were collected by my self in October, 1857. on the maritime rocks in the neighbourhood of Ardyllass, Co Down. Ireland, growing in company with *Bitrona globifera*, Ach., both species being new to the British Flora.

*Patellaria Rhabenhorstii*. Hepp !!

Hab. Cleveland. Yorkshire. Feby. 1858. Mr. Wm. Mudd.  
Sporidia 8 in asci, elliptic-oblong, pale or granular, mono-  
ocular or bilocular, minute; length  $1\frac{1}{3}$  to  $1\frac{1}{2}$  mic,   
breadth  $\frac{1}{3}$  to  $\frac{1}{2}$  a mic (3.5 Nachez).  
New as a British species

Hepp. Festschen. Europa. n 75 !!

*Physecia*. Schreb. emend.

Gen. char. Thallus cartilaginous or membranaceous; either divided into numerous linear, frequently ciliated, ascending or suborbicular horizontal, irregularly branched laciniæ; foliaceus horizontal; or altogether crustaceous adnate uniform.

Apothecia black or brown, frequently puccinose, sometimes substipitate, formed of a lamina proligera superimposed upon a thallosal exiple. Spores 2 or more in asei; dark brown; void elliptical; bilocular; binuclear; or bilocular, each loculus containing a subquadrate usually papillate nucleus.

Thallus cartilaginous, deeply divided into numerous ascending or horizontal, branched, frequently ciliate laciniæ; or membranaceous, foliaceus, horizontal.

	<i>Physecia ciliaris</i>	Linm.
	<i>Physecia leucomela</i>	Linm.
	<i>Physecia? intricata</i>	Desfont.
	<i>Physecia aquila</i>	Ach.
	<i>Physecia speciosa</i>	Wulf.
Sub Genus 1. <i>Physecia</i> . Schreb. emend.	<i>Physecia fulvovulenta</i>	Urk.
	<i>Physecia obscura</i>	Urk.
	<i>Physecia stellaris</i>	Fries.
	<i>Physecia cesia</i>	Hoffm.
	<i>Physecia astroidea</i>	Clement.
	<i>Physecia tribacia</i>	Ach.

Thallus crustaceous, adnate, uniform.

	<i>Physecia atro-cinerea</i>	Dicks.
Sub Genus 2.	<i>Physecia metabolica</i>	Ach.
<i>Rinodina</i> . Ach. emend.	<i>Physecia aiprosipila</i>	(Urk.) Wahl.
	<i>Physecia polytricha</i>	Wahl.

*Physcia ciliaris*. Kunn.

descriptio of sporidia see next page.

- Fries. Lich. Succ. Ins. n 139.  
Flörke, Deutsche Lich n 152  
Mougeot et Nestler Cr. n 64!!  
Recht. L. n 38  
Funk. Crypt n 161  
Schauer. Lich Herb. Ins n 388!!  
Desmaz. Ins. n 40  
Hepp. Flecht. Europ. n 168!!

- Parmelia ciliaris* Ach. Meth. p 255 et Fries. L. Europ. p 77  
Bonura Syn. p 220  
Hook. Pr. Flora  
Lichen Kunn. sp. 1612  
Moris, Hist. IX. t 4. 76  
Journ. I. R. H. t 325. f. C. D.  
Vail. par. t 20. 74  
Flora Dominica t 411  
Smith. Eng. Bot. t 1352  
Hedwig. Thes. Cr. t 32  
Wulfen Jacq. Coll. II. p 244 t 13 f 1.  
Decand  
Schauer!! Du. Cit. p 10.  
Anaptychia Koerber. Syst. Lich. Germ p. 48  
Lichnoides Hoffm. Pl. Lich t 3. 74  
Lobaria Giessem. Germ  
Bonura crinalis Schlecht !! in herb. Menzies.

Deser. B. crinalis as var. B. of P. ciliaris -

*Physcia ciliaris*. Linn.

Sporidia dark olive brown, 8 in asci, elliptic-oblong,  $3\frac{1}{2}$  - 5 mic long by  $2 - 2\frac{1}{2}$  broad (3.5 Mackey), bicellular or binuclear, aseptate.

The nuclei under the microscope are frequently seen overlapping one another, indicating the absence of any septum between them.

Sporidia in development elongating at the poles (See drawing. Appendix).

*Physcia leucomela*. Kunze.

Sporidia 8 in asci, ovate elliptical, dark brown, when young bicellular containing  
length 2 or more large subquadrate nuclei. In some sporidia there is an appen-  
dix of a dark line crossing their transverse diameter, but this, on the sporidia being  
treated with Sol of Chloride of Lime becomes much fainter and on pressing the sporidia  
under the field of the microscope, disappears, its place being taken by a faint  
transverse line (See Fig 4). Length of sporidia 5 mic, breadth 3, (3.5 Mackenz).

Stored at Nestler: C. Vosges. n 941!!

*Parmelia leucomelas*, Ach. Meth. p 256

Borrera

Syn. p 222

Hook!! Pr. Flora

*Physcia*

Mitt

Schauer. En. Crit. p 11

Lichen

Smith, Eng. Bot. t 2548

Lim

Dill. Musc. t 21. f 50

Swartz. Obs. Bot t 11. f 3.

*Parmelia*

Hook. fil. Fl. N. Zealand. Vol II. p 288

Taylor. Lich. Antart. n 62

*Physcia aquila*. Ach.

description of *sporidica* see next page.

Schoer. Lich. Succ. Ins. n 565!!  
Fries. Lich. Succ. Ins. n 208.  
Mougeot et Nestler. Ins. n 1049.

*Parmelia aquila*. Ach. Lich. Univ. p 488  
Syn. p 205  
Fries. Lich. Europ. p 78  
Taylor in Mackay. Fl. Hib II. p 145  
Hook. Br. Flora  
Koeber. Syst. Lich. Germ. p 89.  
\* *Anaptychia* Mass. Mem. p 36  
Lichen Ach. Prodr. p 109  
Smith. Eng. Bot. t 988  
..... *fuscus*. Hudson — Dickson  
*pullus* Lightfoot.  
*obscurus*. Withering  
\* *Parm aquila* Schær. Em!!bit p 49.

*Physcia aquila*. Ach.

Sporidia 8 in asci, elliptic-oblong, dark olive brown, binuclear or bicocular each loculus containing a sub-quadrata nucleus, on the opposing sides of each of which a papilla becomes ultimately developed. Length of spores 3-4½ mic; breadth 2-2½ (3.5 Nackey). Spores developed from a nucleated cell.

Explanation of drawings.

- Fig 1. Simple primary nucleated cell. 1 mic in diameter.
- Fig 2. The same slightly elongated and together with the nucleus of increased size. 1¾ by 1½ micrometers (3.5 Nackey).
- Fig 3. The same become together with the nucleus elliptic-oblong and much larger. 2½ by 1¾ mic (3.5 Nackey)
- Fig 4. The same still further enlarged to 3 by 2 mic
- Fig 5. The same with the nucleus increased in size (3x2 mic)
- Fig 6. Eight spores represented in ascus about the same size as the preceding, but with a symmetrical cleavage of the elliptic-oblong nucleus the hemispheres of which remain in apposition.
- Fig 7. An elliptic-oblong spore with the nuclear hemispheres quite separate, (3 mic by 2. 3.5 Nackey)
- Fig 8. Another form presenting the same developmental characters as the preceding.
- Fig 9. Another form with the developed nuclei unequal in size & subrotund. 3x2 mic.
- Fig 10. A spore nearly at its full size with the nuclei becoming imbedded in an elliptic-oblong mass of homogeneous cytotlastema. (3½x2 mic)
- Fig 11. A spore fully grown with the nuclei completely surrounded by an elliptic-oblong homogeneous mass of cytotlastema ~~and~~ presenting the initial stage of cleavage into the future loculi of the spore. The nuclei present in the present case each a papilla on their opposing surfaces.
- Fig 12. The spore having reached its full development now presents the two subquadrata and papillate nuclei imbedded each in a proper loculus, the whole surrounded by the outer cell wall of the spore.
- Fig 13. A spore with the loculi overlapping.
- Fig 14. The natural appearance of the sporidia previous to the use of any chemical reagent.

All the above drawings are drawn to the same scale, the same power of the microscope, viz. 3.5 Nackey, being used throughout.

*Physcia speciosa*. Wulf.

"Sporidia 8 in elongate clavate asci, large, biscuitiform, sometimes incurved, bilocular, two or two and a half times longer than their diameter." Translated from Koerber Syst. Lich. Germ. p 89.

I have examined authentic British specimens of this plant collected by Sir Wm J. Hooker, but they were unfortunately barren, nor do I think apothecia have been yet noticed in Britain.

Schoerer. Lich. Helvet. Ex. n 357!!

Mougeot et Nestler. Crypt n 605.

*Parmelia speciosa*. Koerber. Syst. Lich. Germ p 89.

Hooker!!! Br. Fl. n

Schoerer!! En. Crit. p 39

Sch. Syn. p 221

Mass. Mem p 36

Wulfen Jacq Coll. III. 119. t 7

Smith. Eng. Bot. t 1979.

Hook. Fl. N. Zealand. Vol II. p 288

*Anaptychia*

Lichens

*Parmelia*

*Physcia pulverulenta*. Schreb.

Sporidia 8 micasci, ovate oblong, rounded or attenuated at the extremities, sometimes plane-convex in outline; when viewed transversely to the action of any chemical reagent, of a dark brown colour, apparently bilocular, each loculus containing a sub-quadrate nucleus; when treated by a decolorizing solution of Chloride of lime, the colourless sporidium exhibits its interior almost entirely occupied by two pale-green sub-quadrate nuclei frequently abutting against one another by two papillae (see Fig 2. b) with no appearance of septa <sup>+</sup> or a bilocular structure - <sup>+</sup> length of sporidia  $3\frac{1}{2}$  to 4 mic, breadth 2 (3.5 Mackenz).  
The specimens examined.

- Parmelia pulverulenta*. Koerber. Syst. Lich. Germ. p. 86  
Fries. Lich. Europ. p. 49  
Schwartz!! In. Crit. p. 38  
Hook. Pr. Fl.  
Taylor in Fl. Hib. II. p. 141  
Ach. Lich. Univ. p. 473  
Syn. p. 214  
*Parm. allochroa*. Wallr. Comp. p. 480  
*Anaptichia*. Mass. Mem. p. 36.  
*Lichen pulverulentus*. Schreb. Spic. 128.  
*Parmelia* Hook. fil. Fl. N. Zealand. Vol. II. p. 287.

*a. vulgaris*. Koerber.

- Ludwig. Crypt. n. 173.  
Fries. Lich. Suec. Ins. n. 76  
Ehrh. Crypt. n. 187  
Mouge et Nestler. Cr. n. 162!!  
Flörke. Deutsche. Lich. n. 172  
Funk. Crypt. n. 110  
Schwartz. Lich. Helvet. n. 376!!  
Hortow. Deutsche. Lich. n. 85. 86.

*Parmelia pulverulenta* a. *allochroa*. Schauer!! In. Cr. p 38

*Squamaria*

Hoffm. Pl. Lich. t 8 f 2

Lichen

Smith. Eng. Bot. t 2063

Flora Danica. t 1719

*Parmelia pulverulenta* a. *vulgaris*. Koeber. Syst. L. Geom. p 86

*Parmelia pulverulenta* a. *allochroa*, b. *muscigena*. Schauer!! c. p 38

Var  $\beta$ . *angustata*. Hoffman.

Ascidia *Sm. asci*, on being decolorized by Sol of Chloride of lime showing a bilocular or simply binuclear structure. In the former case each loculus contains a sub-quadrate nucleus.

*Parmelia pulverulenta*  $\beta$  *angustata*. Schær. In. Cr. p 38

Lichen *angustatus*. Hoffm. In. 71. t 11. f 2.

Var  $\gamma$ . *grisea*. Lamour.

Ascidia as in the species, bilocular & at the same time binuclear.

Mauges et Kestler. Cr. n 352.

Fries. Lich. Suec. Ins. n 105, 204 (P. farroa, Ach)

Höbke. Deutsche Lich. n 47

Recht. Lich. n 87

Schauer. Lich. H. Ins. n 487!!

Hotow. Deutsche Lich. n 87.

Zwackh. Lich. n 186.

Schlicher, in herb Menzies!! (P. pityruca)

*Parmelia pulverulenta*  $\beta$ . *pityroea*. Fries. *Lich. Europ.* p. 79

*Parm. pulverulenta*  $\gamma$  *grisea* et  $\delta$  *formicata*. Koerber, *Syst. L. Germ.* p. 8

*Parm. pulverulenta*  $\gamma$  *grisea*, Schauer. *Wn. Crit.* p. 38

*Parm. pityroea*.

Ach. *Syn.* p. 201

Hook. *Pr. Flora*

Ach. *Lich. Univ.* p. 483

- - - - - p. 475

*Parm. farrea*.  $\alpha$

*Lichen pulverulentus*

*Lichen lanuginosus*

*Lotaria pulveracea*

*Lichen griseus*

*Imbricaria*

*Lichen pityreus*

*Lepraria farinosa*

Ehrh.

Hoffman, *Lich.* 710. f. 4.

Germ

Lamour, *Dict.* III. 480.

Decand

Ach. *Prodr.* p. 124

Smitth. *Eng. Bot.* 2064

Ach.

*Physcia obscura*. Ehrh.

*Sporidia* Piciasei, oval or ovate elliptical with sometimes a lateral bulging, dark brown, when viewed without the use of chemical reagents, with monocular or septate contents in both instances & large subquadrate nuclei. On decolorizing the *Sporidia* of both kinds appears revealing a bilocular arrangement of the spore contents, each nucleus as before cont. a single large subquadrate nucleus; in the case of the monocular *Sporidia* chemical reagents reveal no change of structure.

*Parmelia obscura*. Fries. lich. Europ. p 84  
Koeber. Syst. Lich. Germ. p 88  
Schauer!! In. Brit. p 36

Lichen Ehrh. Crypt. 177.

*Anaptychia* Mass. Mem. p 38.

Var *a. orbicularis*. Neck.

*Sporidia* 2 1/2 - 3 mic long by 1 mic broad (3.5 Mackey) in other respects as above described.

Schauer. Lich. Helvet. Ins. n 353!! 354!!

Flotow. Deutsche. Lich n 92. A.B.G.

*Parm obscura a. orbicularis*. Fries. l.c. p 84

γ . . . . . Schauer!! In. Brit. p 37

*a chloantha*

*Bomusicola*

*a. orbicularis* - Koeber. Syst. Lich. Germ p 88

*Parm chloantha* Ach. Syn. p 217

Lichen orbicularis. Neck. Meth. 88.

Hoffm. En. lich. 79. 71

Macoderm

Hoffm. Pl. Lich. 66 71.

Lobaria

Epiderm. Germ.

*Parm obscura b. chloantha*. Fries. l.c.

*Parm chloantha* Ach. Syn. p 217

Mich. Gen. 51. Oed 29.

Var.  $\beta$ . *cycloselis*. Ach.

*Pannicellia* *Smiasci*; elliptical, rounded or attenuate at the extremities,  
sometimes slightly curved, or with a lateral bulging, dark brown, monocular  
or quadrately binuclear, with no change of structure on the addition of Chloride of lime.

Fries. Lich. Suec. Ins. n 205. 138.

Schweur. Lich. Helvet. Ins. n 355!! 485!!

Sommf. Crypt. N. n 68

Flotow. Deutsche. Lich n 92. F. 93.

Flinke. n 94

Funk. Crypt. n 498

Mougeot et Nestler. G. Ins. n 448!! (*P. ulothrix*. Ach.)

Schleich in herb Menzies!! (*P. ulothrix*).

*Pannicellia obscura*.  $\epsilon$ . *cycloselis*, Schweur!! N. G. p 37

*obicularis*.  $\delta$ . *cycloselis*. Kbr. J. L. Gym p 88

*Pannicellia cycloselis*. Ach. Syn. p 216

Hook. Br. Flora

Lichen

Ach. Prodr p 113.

Smith. Eng. Bot. t 194 r

*Pann obscura*.  $\epsilon$  *cycloselis*.  $\delta$  *ciliata*. Schær!! L. c.

*Pann. ulothrix* Ach. L. U. p 481 et Meth. p 200.

Lichen *ciliatus*. Hoffm. Im. 69. t 14 f 1.

*P. obscura*.  $\alpha$ . *obicularis*.  $\delta$ . *cycloselis*. \* *ulothrix*. Kbr. L. c.

*Pann obscura*  $\beta$ . *ulothrix*. Fries. L. c.

Var  $\gamma$ . *adscendens*. Flotow

*Sporidia* sometimes slightly constricted in the short diameter,  
or attenuated at both extremities, in other respects resembling  
those of the species.

Flotow. Deutsche. Lich. n 94

*Parm. obscura*.  $\beta$ . *adscendens*. Koerber. l. c. p 88.

1. *fornicata* (Wallr.) Koerber. l. c.

2. *viella* (Ach.)

3. *nigricans* (Flk.)

*Lecanora nigricans*. Flörke

*Lichen viellus* Ach. Prodr. p 108

\* *Parmelia obscura*  $\gamma$  *viella*. Schaer. En. Cr. p 37.

*Parm. viella* Hook. Br. Flora

\* *Lichen viellus* Smith. Eng. Bot. t 1696

*Lichen elaeinus* Smith. Eng. Bot. t 2158 (non Wahlb.)

*Squamaria* Hook. Br. Fl. (excl. all syn.)

Var *S. adglutinata*. Hönke  
*Sporidia* as in the species.

Hönke. Deutsche. Lich. n 68. 91?  
Mougeot et Nestler. Cr. n 523!!  
Hötow. Deutsche. Lich n 92, D.  
Hepp. Flecht. Europ. n 374!!

*Parm. obscura*  $\alpha$ . *obicularis*. *S. adglutinata*. Kbr. L.c.

*Leucanora adglutinata*. Hönke. D. L. II. p. 7. Annuek. 2.

*Parmelia lepraformis*. Giesbom.

*Parmelia obscura* *S. adglutinata*. Schær. Im. Cr. p. 37

$\gamma$  *leprosa* . . . . . p. 38

(?) *S. caesiella* . . . . . p. 38

(?) *Leucanora caesiella* Hönke in N. Entdeck. II. 97

*Physcia stellaris*. Fués.

*Uridia Pni asci*, ovate; oliv. brown; bilocular, each loculus containing a rounded or subquadrate nucleus; or simply bilocular. Length  $2\frac{1}{2}$  mic., breadth 1 mic. (3.5 Mackenz).

- Parmelia homochroa*. Wallr. Comp. p 479  
*Anaptychia* Mass. Mem. p 37 excl. S. & G.  
*Parmelia stellaris* Fués. Lich. Europ. p 82  
Hbr. Syst. L. Germ. p 85  
Schauer. En. Crit. p 39  
Hook. Pr. Flora  
Hook. fib. Fl. N. Zealand. Vol II. p 288  
Flora Antart. p 534

Var  $\alpha$ . *aipolia*. Ehrh. Hart.

*Uridia* as in the species.

- Hörke. Deutsche. Lich. n 135  
Funtke. Crypt. n 475  
Fués. Lich. Suec. n 307  
Schauer. Lich. Helvet. n 350!!  
Hortow. Deutsche. Lich. n 89  
Ehrh. Crypt. n 197. 207  
Schleich in herb. Menzies!!! (*P. aipolia*)

- Parmelia stellaris*.  $\alpha$ . *aipolia* Schauer!!! l. c. p 39.  
Koeber l. c. p 85  
*Lichen aipolius* Dill. Hist. Mus. Pl. 770  
*Parmelia aipolia* Ach. Meth. Lich. p 209  
Lich. Univ. p 477.

Var.  $\beta$ . *ambigua*. Eickh  
*Meridia* as in the species.

Fries. Lich. Succ. n 206 A  
Recht. Lich. n 86 A  
Schworer. Lich. Helvet. n 351!!  
Hortow. Deutsche. Lich. n 88

*Parmelia stellaris*.  $\beta$ . *ambigua*. Koeber. L. c. p 85  
Lichen *stellaris* Schorer. H. c. p 39  
Hoffm. En. t 13. f 1. c.

Var.  $\gamma$ . *adscendens*. Hortow.  
*Meridia* 2 mic long by 1 broad rounded or attenuated at the  
extremities in other respects resembling those of the species.

Ludwig. Crypt. n 179  
Höck. D. Lich. n 73  
Fries. Lich. Succ. Ins. n 206. B.  
Recht. Lich. n 37 et 86. B.  
Schworer. Lich. Helvet. Ins. n 562 !! 352 !!  
Hortow. Deutsche. Lich. n 90. A. B.

*Parmelia stellaris*.  $\gamma$ . *adscendens*. Kbr. L. c. p 85  
 $\gamma$  et  $\delta$ . Schorer. H. c. p 40  
*b. hispida* Fries. Lich. Europ. p 82  
Lichen *hispidus* Auctores plura.

<i>Lichen hispidus.</i>	Wulf in Jacq. Coll. IV. 26. f d Flora Danica. t 1186. 71.
<i>Lobaria</i>	Hoffm. Germ
<i>Lichen tenellus</i>	Scop. Carn. II. 394 Smith. Eng. 1307. t 1351
<i>Borrera</i>	(Var α) Ach. Syn. p 221 Hook. Br. Flora
<i>Physcia</i>	Decandolle.

*Physcia caesia*. Hoffm.

Ascidia 8 in asci, ovate oblong, pale brown, bicocular each  
loculus containing a rounded nucleus: length 2 to 2 1/2 mic, and  
breadth 1 mic (3.5 Mackay).

*Parmelia caesia*. Fries. lich. Europ. p 83.

Ach. lich. Univ. p 479

Hoerber. Syst. lich. Germ. p 86

*Squammaria* Hook. Pr. Flora

lichen Hoffm. En. lich. t 12. f 1

*Parmelia pulchella*. Schaeer. En. Crit. p 40

Abh. lich. Deutsche. p 62

*Anaptychia stellata* S et E. Mass. Mem. p 57.

Var  $\alpha$ . *caesia*. Hoffm.

*Ascidia aspi* species.

Schaeer. lich. Helvet. Ins. n 348!! 347!!

Fries. lich. Suec. Ins. n 323

Hörk. Deutsche lich n 71. 72.

Mougeot et Nestler. Crypt. n 447

*Parmelia pulchella*.  $\alpha$ . *caesia*. Schaeer!! En. Crit. p 41

.....  $\beta$ . *dubia* .....

*Parmelia caesia*  $\alpha$ . *caesia*. Hoerber. Syst. L. Germ p 86

$\beta$ . *albinea*

*Parmelia caesia*.  $\alpha$ . Fries. lich. Europ. p 83

Lichen caesiis Smith. Eng. Bot. t 1052

Psora Hoffm. Pl. lich. t 8. f 1

Loberia Epistemon. Germ.

*Amblicaria caesia* . . . . . Decandolle  
*Parmelia albinea* Ach. (larger, non sorediated)  
*Parmelia dubia* Hoffm (with more narrow lacinae)  
*Lichen pulchellus* Mulf in Jacq. Coll. II. p. 199. t. 16.

Var.  $\beta$ . *atrocinerea*. Schær.

*Uridia* as in the species.

*Parmelia caesia*, var  $\delta$ . *atrocinerea*. Schær. *En. Crit.* p. 41  
 var c. Kbr. *L. c.* p. 86

Var  $\gamma$ . *adscendens*. Flotow.

*Uridia* *P. ni* asci, ovate or elliptic along, straight or slightly curved,  
 brown, bilocular each lobe containing a rounded or sub-  
 quadrate nucleus: length  $1\frac{1}{4}$  to 2 mic, breadth 1 mic (3.5 *Maiky*).

Schær. *Lich. Helvet. Exs.* n. 349!!

Funtk. *Crypt.* n. 417

Fris. *Lich. Suec. Exs.* n. 298.

*Parmelia pulchella*.  $\gamma$ . *semipinnata*. Schær. *En. Cr.* p. 41

*Lobaria semipinnata*. Hoffm. *Deutsche. Fl.* II. 151.

*Parmelia caesia*.  $\delta$ . *adscendens*. Kbr. *L. c.* p. 86

*Parm. tenella*. var  $\beta$ . Ach. *Syn.*

*Physcia asteroidea*. Clement.

For description of *spruicida* see next page.

Mougeot et Nestler. Crypt. n 737  
Schaeerer. Lich. Helvet. Vas. n 610!!

*Parmelia asteroidea*, Clement. ens. in. add. 302.

Fries. Lich. Europ. p 81.

Schaeerer. En. Crit. p 40.

*P. caricæ*. Schaeerer!! l. c. (*forma sorediata*)

*Parmelia*

Koerber. Syst. Lich. Germ. p 89.

*Parmelia Clementi*: Turner!! in Trans. Linn. Soc. IX. t. 13. f. 1.

*Squamaria*

Koerber. Pr. Flora

*Parmelia Caricæ*. Clement. l. c.

*Lecanora*

Ach. Syn. p 201 188

*Parmelia Clementiana* Ach. Syn. p 201

*Lichen Clementi*: Smith. Eng. Bot. t 1779.

*Physcia asteroidea*. Clement.

Sporidia in asci, ovate elliptical, rounded or slightly attenuated towards the extremities, sometimes slightly constricted in their short diameter, dark brown, binuclear and bilocular; length 2 mic, breadth 1 mic (3.5 Mackez). On examining the sporidia in their natural condition they present the appearance of a very distinct septum being what Koerber terms "septato-dyblastae"; but on decolorizing them and watching carefully the stages of the process the dark septum is seen to become gradually paler, until at last its place is taken by a faint pellucid line dividing the two hemispheres of the sporidium (Fig 1. a. b) showing by its disappearance in this manner that it is merely due to the two loculi of the sporidia abutting against each other and thus giving rise to the dark line, the latter not being due to any septum hence the term "septato-dyblastae" as applied to this structure by Koerber is inaccurate.

*Physcia tribacia*. Ach.

A doubtful species, being probably a variety of some  
of the preceding.

*Parmelia tribacia*. Schær. En. Crit. p 39.

*Lecanora*

Ach. Lich. Univ. p 415

Syn. p 141

Hook. Br. Flou.

*Var. b. isidioides. Schær.*

*Parmelia tritacea. var b. isidioides. Schær. l.c. p 39*

*Parmelia columnaris. Taylor in Mackay. Fl. Hib II. p 144.*

*Physcia atro-eminea*. Dicks.

"Sporae in ascis clavatis octonae, angustulae, bisectiformes, dyblastae, diam. 2 - 2½ plo longiores, fusca." Koeber  
Syst. Lich. Germaniae. p 125.

Zwackh. Lich. Fas. n 68 a.

Hepp. Flecht. Europ. n 412 !!

*Rinodina atro-cinerea*. Koeber. Syst. L. Germ p 125

*Parmelia*

Fris. Lich. Europ. p 151

*Lecanora*

Rth. Lich. Deutsch. p 36

Flotow. Lich. Fl. Sil. 34. 16.

*Lecidea*

Hook. Br. Flora

Lichens

Dicks. Cr. Fas. 3. p 14. t 2. f 2

Smith. Eng. Bot. t 2096

*Physcia (Enigsea) metabolica*. Ach. amund.

Var  $\alpha$ . *vulgaris* rebis.

Sporidia  $\beta$  niasei, ovate elliptical or elliptical oblong, sometimes with a slight lateral bulging, pale brown, bilocular, each loculus containing a subquadrate nucleus, or simply binuclear, the nuclei frequently abutting against one another by elongated papillae (see Fig 3. c). Length of sporidia varying in different specimens from  $1\frac{1}{2}$  to 3 mic, breadth 1 to  $1\frac{1}{2}$  mic (3.5 Mackenz).

By much the most frequent form of the plant and recognisable by the large size of the sporidia in relation to the other varieties.

Schuur. L. Helvet. Ins. n 569!!

Hepp. Flecht. Europ. n 207!!

*Parmelia sophodes*. var  $\alpha$ . *exigua*. Fries. Lich. Europ. p 149

Lichen exiguus Ach. Vet. Acad. Handl. 1795. 75 76.

Smith. Eng. Bot. t 1849

*Lecanora atra*  $\beta$ . *exigua*. Schuur!! En. Brit. p 72.

*Lecanora exigua*. Hook. Br. Fl.

Taylor in Fl. Helv. II. p 133

*Rinodina*

Mussal. Riebeck. p 19

*Rinodina metabolica* Korbter. Syst. Lich. Germ. p 123.

*Parmelia sophodes*. var *exigua*. Hook. fil. Fl. N. Zealand VII. p 292

Fl. Antart. p 536

*Lecanora exigua*. Taylor. Lich. Antart. n 38.

*Lecanora puiden*.  $\alpha$ . *exigua*. Ach. lich. Univ. p 356.

*Physcia metabolica*. Ach. Amund.

Var  $\beta$ . *octospora*. nobis

*Sporeidia* *P. niasei*, 1 to  $1\frac{1}{2}$  mic long by  $\frac{1}{2}$  to  $\frac{3}{4}$   $\mu$  wide  
road (3.5 Natchy.) in other respects resembling those  
of the species.

*Rhyssia metabolica*. Ach. Emend.

Var  $\gamma$ . *sophodes*. Ach

*Rhyssia* 12 <sup>620</sup> in asci, 1 to 1 1/3 mic long by 1/2 to 3/4 of a mic broad, in  
the respects resembling on a small scale those of the  
species.

Schauer. L. Collect. Ins. n 314 !! (left hand specimen).

*Parmelia sophodes*. Ach. Meth. p 155. in part.

Fris. lich. Europ. p 149 in part.

*Leucanora*

Ach. Syn. p 153 in part.

Hook. Br. Flora in part.

Schauer. L. Em. Crit. p 80 70. in part.

Reh. lich. Deutsche. p 34 in part.

Flotow. lich. Fl. Sib. 32. 14 in part.

*Rhinodina*

Koerber. Syst. Lich. Germ. p 122

*Lichen*

Ach. Prodr. p 67 in part.

Smitth. Eng Bot. t 1791. in part.

*Physcia? aipospila*. Wahl.

- Parmelia aipospila*. Wahl in Ach. Meth. Suppl. p 36  
Fris. lich. Europ. p 109  
*Lecanora* Ach. Syn. p 155  
Boner in Eng. Bot. Sup. t 2262  
Hook. Br. Flora  
Schærer. In. lit. p 62  
*Lichen aipospilus* Wahl. Lapp. n 764. t 27. pl.

*Physcia poliophoea*. Wahl.

- Parmelia poliophoea*. Wahl in Ach. Meth. Suppl. p 38  
Fries. Lich. Europ. p 146
- Lucanora* Ach. Lich. Univ. p 398.  
Schuerer. In. Crit. p 61.
- Lichen* Wahl. Lapp. p 410. t 27. f 3.
- Lichen defraudans* Olfafs St. Isl. app. p 17
- Isidium* Ach. Prodr.
- Parmelia spodiophoea* Wahl in Ach. Meth. Sup. p 37. (Var. obscu-  
rior, subiculo obsoleto).
- Parm. poliophoea* var b. Fries. l. c.
- Lucan* var b. Schuer. l. c.
- Lucanoria spodiophoea* Ach. Syn. p 155  
Bonur in Eng. Bot. Sup. t 2662. f 3.  
Hook. Bot. Flora

*Urcularia*. Ach. emend.

Genus. Thallus cartilagineo crustaceus, uni-  
form, sometimes cartilagineo-verrucose or alto-  
gether leprous.

Apothecia immersed in the Thallus consisting of a  
Lamina prothigera superimposed upon a carbonaceous  
exciple the latter surrounded by a proper thallocal  
exciple.

Sporidia 8 in asci, ovoid elliptical or subpyriform,  
irregularly multilocular, pale olive brown.

The structure of the Apothecia exhibits a greater affinity  
with the Nat Order Gyalestaceae than with the present.

*Urceolaria scruposa*. Linn.

Uromyces Pini asci, ovate or elliptic elong or pyriform, dull olive brown, irregularly multilocular the loculi being rarely arranged linearly; length 3 to 4 1/2 mic, breadth 1 1/2 to 1 3/4 (3.5 Mackenz).

*Parmelia scruposa*. Fris. lich. Europ. p 190

*Urceolaria*

Ach. Syn. p 143

Lich. Univ. p 338

Schoerer. En. Lich. p 89

Hoerber. Syst. lich. Germ. p 168

Taylor in Fl. Hib II. p 132

Var. *a. vulgaris*. Schær.

Uromyces as above.

Schær. Lich. Helvet. Ins. n 289 !! 501 !! 132 !! 292 !! 291 !! —

Flotow. lich. Ins. n 301 . 307 . 308<sup>var. B.</sup> . 309 . 312<sup>isidoid</sup> . 315<sup>leprosus</sup>

Zwackh. lich. Ins. n 76

Fris. lich. Succ. Ins. n 398 , 128 (Isidium)

*Urceolaria scruposa*. Hooker. Br. Flora

Lichen

Linn. Mant 231.

Hepp. En. lich. t 671.

Smith. Eng. Bot. t 266 (ad succedens)

*Urceolaria*

var. *a. vulgaris*. . . excl. synonyms.

*β auraria*

*γ verrucosa* } Schær. En. Cr. p 89, 90.

*ε. cretacea*

*ζ. diacapsis*

*Gyalacta cretacea*

Ach. Syn. p 10

*Urceolaria diacapsis*. Ach. lich. Univ. p 339

Lichen

Smith. Eng. Bot. t 1954

*Urceolaria scruposa* var. *a. β. δ.* Hoerber. Syst. lich. Germ. p 168.

Var  $\beta$ . *bryophilus*. Ehrh.

Sporidia  $2\frac{1}{2}$  -  $3\frac{1}{2}$  mic long by  $1\frac{1}{2}$  broad, in other respects resembling those of the species.

Fr. lich. Succ. Ins. n 282

Ehrh. Crypt n 236

Mougeot et Nestler Cr. n 170

Schaer. lich. Helvet. Ins. n 290 !!

Hepp. Flecht. Europ. n 210 !!

*Parmelia scarpus*. Var  $\beta$ . *bryophilus*. Fr. lich. Europ. p 191

*Uccularia bryophila*. Ach. lich. Univ. p 341.

Flora Danica. T 1351. f 2

*Uccularia scarpus*. var  $\delta$ . *bryophilus*. Schaer. In. Crit p 90

$\gamma$ .

Hoerber. Syst. L. Germ p 168

*Lichen bryophilus*. Ehrh.

*muscorum*. Scop

*impressus* Swartz

*excavatus* Roth.

*Gyalicta bryophila* Ach. Syn.

*Pleopsidium*. Koerber.

Gen char. Thallus cartilagineo-crustaceus, radio so-  
plicate in the circumference, or continuous uniform.

Apothecia consisting of a hamula proligata supported  
upon a proper thallosal exciple, sometimes of a  
leucoid appearance and substipitate.

Sporidia single in each ascus, very large, ovoid ellip-  
tical or ovoid, monocular, entirely filled with a  
pale grey granular Blastema.

Typical species.

1. *Pleopsidium flavum*. Bell. Schær. Ins. 335!!
2. *Pleopsidium fuscoluteum*. Dickes.

*Pleopsidium fuscum-luteum*, Dicks. - non Hepp!!  
*Camina prodigiosa* of the Apothecia dark waxy brown, sup-  
 ported in an exciple entirely formed of the Thallus.  
 Sporidia single in each ascus variously shaped, as ellip-  
 tical with or without a central constriction or ovate, of a dull  
 grey and finely granular; length 8 to 10 mic, breadth 4  
 (3.5 Mackenz).

Hepp in the Flechten Europ. n 404!! publishes as the pre-  
 sent species, a totally different plant, resembling it  
 somewhat in habit, but with bipolar spores, 8 in  
 each ascus. That the species I have above described is  
 the true lichen *fuscum-luteum*, Dickson I have not the  
 slightest doubt. Hepp's species resembles a moss form  
 of *Parmelia ferruginea*. Huds.

*Parmelia fuscum-luteum*. Ach. Meth.

hecidea

(?) Schær. En. Cr. p. 147

Hook. Br. Flora

Ach. Syn. p. 42

Patellaria

? Hepp. Pl. lich. t. 61 f. 1.

lichen

Dicks. Cr. Fasc. II. t. 6 f. 2

Smith. Eng. Bot. t. 1007

*Parm. ferruginea*. Var. ? Fries. lich. Europ. p. 170.

*hecidea fuscum-luteum* ? A. Flöke. H. Dan. t. 1541.

Genus *Myriospora*. Hepp.

Gen. character. Thallus consisting of either foliaceous, closely adpressed, small, discrete or continuous scales; or of discrete or continuous areolate verrucose masses.

Apothecia forming minute, punctate, immersed, rarely protuberant, uncolate depressions in the Thallus, one, two or three rarely more, being present in each thallobial scale or verruca. Spores very numerous in each ascus, pale, round or oblong very minute.

I am unable to coincide in the opinion of those botanists who include all the forms of the present Genus as varieties of the same species, on the contrary, I think they are derivable from several distinct types.

Hepp's name as applied to this Genus is very expressive and I think to be preferred to that of *Scarospora* proposed by Massalongo. The species composing it have no affinity, except in some cases in the Endocaroid habit of the Thallus, with the *Angiocarpus* lichens, among which they have been placed by the Rev. W. A. Leighton in his work upon the British species of the group.

*Myriospora rufo-virescens*. Taylor.

Thallus squamulose, closely adnate or appressed, of a livid chestnut brown colour, presenting the following modifications of habit; scales discrete or continuous tessellated; Thallus acutate verrucose at the centre, simply squamulose at the circumference; or converted entirely into a continuous, tectate, acutate verrucose, minutely squamulose crust.

Apothecia forming dark brown, minute, punctiform, immersed, rarely protuberant depressions in the Thallus. one or more being present upon each acuta or scale.

Sporidia numerous in each ascus, very minute round or oval, pale,  $\frac{1}{3}$  to  $\frac{1}{2}$  a micrometer in diameter.

I prefer the specific name used above for this plant to the older one of *Smacagdula*, as expressing better the peculiar colour of the Thallus.

*Acronia curvina*. Schaeer. In. Cit. p. 55 (in part)

*Parmelia* Fris. hich. Europ. p. 127 (in part)

*Acarospora sinopica*. Kocler. Syst. L. Germ. p. 156

*Smacagdula*. Mass. Kocler. p. 29.

Var  $\alpha$ . rufo-virescens. Taylor.  
Characteres those of the species.

Schauer. Lich. Relict. Ins. n 117!!  
Hepp. Flecht. Europ. n 179!!

*Endocarpus rufo-virescens*. Taylor in Fl. Hib.

*Endocarpus smaragdulinus*. var  $\gamma$ . rufo-virescens. Leighton. Pr. Angl. Hib.

*Endocarpus smaragdulinus*. Wahl in Ach. Meth. Sup. p 29

Hook. Br. Flora

Taylor in Fl. Hib

(Var  $\alpha$ ) Leighton!! L. c.

*Acarospora sinopica*.  $\beta$  smaragdula. Kuntze. L. c. p 156

*Acarospora smaragdula* (var  $\alpha$ ) Mass. L. c. p 29

*Leucania cewina*.  $\beta$  Beustonia.  $\gamma$  smaragdula. Schær. L. c. p 55.

*Lichen smaragdulus*. Smith. Eng. Bot. t 1512

Var  $\beta$ . *castanea*. Schær!!

Thallus squamulose, adpressed, the scales either discrete or continuous, of a bright chestnut brown colour, white and pulvulent at the margins.

Sporidia numerous in asci, pale, elliptic oblong,  $\frac{2}{3}$  a mic long by  $\frac{1}{5}$  a mic broad (3.5  $\mu$  long).

On reconsideration, I feel more inclined to place this as the var  $\beta$  of *Myriospora glaucocarpa* Wahl. (Hepp. Flecht. Europ. n 377!!) than as a variety of the present species.

Schær. Lich. Helvet. Ins. n 341!! 613!!

Hepp. Flechten. Europas. n 378!!

*Lecanora curvina*  $\beta$ . *castanea*.  $\alpha$ . *dissecta*. Schær. l.c. p 55.  
b. *contigua* . . . . .

*Lichen castaneus*. Ram in D.C. H. Frau. II. p 371.

*squamulosus*. Smith. Eng Bot. t 284

*Lecanora halophrea* Ach.

*Lecanora squamulosa*. Herb. Rev. J. Salwey. (fid Schær)

*Urcularia rufescens* . . . . .

*Lecanora curvina*.  $\gamma$  *purpurea*. Schær. l.c. p 56

*Luidia purpurea*. Ach. Syn. p 29.

Var  $\gamma$ . *sinopica*. Wahl.

*Aspidia* as in the species.

Schweiz. Ins. n 116 !!

Sommerf. Crypt. Nov. n 143

*Endocarpum sinopicum*. Wahl in Ach. Meth. Sup. p 30

Ach. Syn. p 98

Hort. Pr. Flora

Waller. Comp. p 316

*Lecania*

Flotow. h. Fl. Sil. 32, 21.

*Lichen*

Schnitt. Eng. Bot. t 1776

*Endocarpum smacogdulum*. var  $\beta$  *sinopicum*. Lightow. l.c.

*Acarospora*. . . . . Mass. l.c. p 29

*Lecanora curvina*  $\beta$ . *castanea*. d. *sinopica*. Schær. l.c. p 56

*Acarospora sinopica* var *A. vulgaris*. Wahl. l.c. p 156.

Var *S. pallida*. *Abbis.*

Thallus consisting of tessellated, pale mouse coloured,  
discrete or contiguous, minute scales, with two or  
three rarely more apothecia impressed upon each.

Apothecia <sup>of a</sup> dark sooty colour.

Spores as in the species.

Hab. Shady crevices of rock. Ardglass. Co. Down.  
Near Cheddar. Somersetshire.

*Myriospora rufo-oviscens*. Taylor. *Ann. & Privigna*. Ach.

*Myriospora privigna*. Ach.

Thallus consisting of discrete, scattered, solitary, dark brown areolae, impressed with two or three Apothecia.

Apothecia urceolate, deep chestnut brown, with a deep thallosidal margin.

Sporidia minute, pale,  $\frac{2}{3}$  micrometers in diameter.

This plant from its habitat on very coarse or much exposed and very hard stones as flint or coarse sand stone can scarcely be considered as likely to present normal characters. It is viewed by the Rev W. A. Leighton in his *British Angiocarpous lichens* as a state of *Myriospora rufo-oviscens*. Tayl., but I am scarcely prepared to admit it as a variety of that species, without further observation.

I have examined authentic specimens from the Rev. W. Harriman collected in Fesdale "on coarse white sandstone" (See Hooker. *Br. Flora*) and find them precisely identical with specimens collected on exposed flint rocks at Great Ayton. Cleveland. Yorkshire.

In the absence of all positive evidence to the contrary I am constrained to admit this plant to the rank of a species, future investigation alone being able to determine whether it be the typical form or not.

Since the above was written further observation has assured me of the correctness of the Rev W. A. Leighton's opinion regarding this plant as a variety of *Myriospora rufo-oviscens*. Taylor.  
Leighton. *Brit. Lich. Ins.* 2

*Lecidea privigna*. Ach. *Meth.* p. 49

*Lecanora milvina*  $\beta$ . *privigna*. Ach. *Syn.* p. 151.

*Endocarpus emaculatus*. *Ann. & privigna*. Leight !! *Ang. Lich.*

*Lecidea privigna* Harriman !!! in Hooker. *Br. Flora*

*Lichen simplex*. Smith *Eng. Bot.* t. 2152. (fig. <sup>very bad.</sup> sand stone.)

*Myriospora rufescens*. Borrer.

Sporidia very numerous in each ascus, subulate-ovate, pale,  
 $\frac{3}{4}$  of a micronetto in diameter.

Hepp. Flecht. Europ. p. 56 !!

Schær. Lich. Helvet. Mus. 12483 !!

*Leidea rufescens*. Borrer in Eng Bot Sup. t. 265<sup>m</sup>

*Leucana coccinea*. *S. rufescens*. Schær. Mus. Nr. p. 56

*S. protuberans* . . . . .

*Pyrenula areolata*. Schb.

*Sagedia rufescens*. Ach. Lich. Univ. p. 329.

*Endocarpus smacagdulorum*, var. *S. rufescens*. Knight Brit Mus. L. p. 16.

*Gyalacta rubra*. Ach.

For remarks upon the arrangement of this species, see next page.

- Fries. lich. Suec. Ins. n 47  
Mougeot et Nestler Crypt. n 459!!  
Scharer. lich. Helvet. Ins. n 319!!  
Holow. lich. Ins. n 386  
Zwackh. lich. n 67. 191. (var saxicola)  
Hepp. Flechten. Europ. n 205!!

- Parmelia rubra*. Fries. lich. Europ. p 134  
Wallr. Comp. p 467  
Ach. Meth. p 170  
*Lecanora* Ach. lich. Univ. p 389  
Hook. Br. Flora  
Scharer!! In. Crit. p 84  
Rth. lich. Deutsch. n 35  
*Lecia* Holow. h. Fl. Scd. 32, 52,  
*Gyalacta* Mass. Research. p 146  
*Patellaria* Hepp. in l. c. supra.  
*Lichen Ulmi* Swartz  
Eng Bot. t 2218

*Gyalacta rubra*. Ach.

This species has been ranked by many botanists with the Natural Order Parmeliaceae, from which however it is most distinctly separated by the presence of a proper waxy coloured exciple supporting the laminae prolifera of the Apothecia, which are quite identical in structure with those of the Genus *Gyalacta* as it is at present constituted, with which Genus the *Sporidia* also of the present species agree.

I view the Genus *Gyalacta* as a Sub Order of the Natural Order Lecideaceae and distinguished essentially by the laminae prolifera being supported upon a proper waxy coloured exciple, with an accessory, in most instances at least the wavy, undulate, marginal margin.

*Diplotomma periclea*. Ach.

Placed by Acharius and Hooker (Ach. Syn p 250. d. Hook  
Br. Flora) in the Genus *Lucanora*, on account of the thallosal  
border to the Apothecia, an appearance due merely to the  
latter in their development carrying upwards a portion  
of the pulverulent white thallus, and thus in a measure  
masking the proper carbonaceous exciple; the presence  
of which at once removes the plant from the Natural Order  
Carneliaceae.

The structure of the Apothecia and the Sporidia (See my Figs)  
refer the plant to the Genus *Diplotomma* of Hottow.

*Lichen escharoides*. Smith.

The structure of the apothecia of this species as well as the form of the sporidia allies it rather to the Genus *Bi-atra* (Fries) than to the Natural Order *Parmeliaceae*. See drawing of Apothecia, and sporidia.

Schaeer. Lich. Helvet. Pars. n 161!!

Fries. Lich. Suec. Pars. n 158

- Parmelia micropHYlla*. Fries. Lich. Europ. p 90  
*Parmaria* Koerber. Syst. lich. Germ. p 106  
*Lecidea* Schaeer!! En. Crit. p 98  
*Lichen* S. Swartzii. Schaeer. Spic. III. 191.  
Swartz in Ad. Holm. 1791. p 301.  
Ach. Videm. 1795. p 131. t 5. f 3.  
*Lichen leucophaeus* Dickson.  
*Lichen escharoides*. Smith. Eng. Bot. t 1247.

*Biatora* (*Imbricaria*) *polytrapa*. Ehrh.

Sporidia 8 in asci; elliptic-oblong, pale, monolocular, length  $1\frac{1}{2}$  mic, breadth  $\frac{1}{2}$  mic (3.5 Mackez).

Border of the Apothecia slightly waxy, subthalloidal, the base of the Apothecia formed of the thallus which as it ascends upwards towards the crown of the Apothecia becomes gradually waxy and inseparable from the lamina prolixa.

A species, in the structure of the Apothecia, identical with the genus *Biatora* of Fries to which therefore it must be for the present referred.

*Species inquirendae.*

- 1. *Vaurolaria constellata*. Taylor in Fl. Hil p 113
- 2. *Vaurolaria corallina* (Wed) Taylor . . . . .
- 3. *Vaurolaria polythecia* Taylor . . . . . p 114
- 4. *Vaurolaria torta* Taylor . . . . .
- 5. *Vaurolaria chlorothecia* Taylor . . . . .
- 6. *Vaurolaria terricola* Taylor . . . . .

*Parmelia elegans*. Link (Appendix)

Continued from body of the work.

I have however met with the true *elegans* though in no very great abundance on sand stone walls about a mile South of Edinburgh almost invariably growing upon that aspect of the wall most exposed to the influence of the Sun.

Schauer. L. Helvet. Ins. n 338!! 481!! 545?!!  
Flotow. lich. Russi. n 403!!  
Hepp. Flecht. Europ. n 195!!

*Lichen elegans*. Link.

*Parmelia*

Schauer. In. Brit. p 51

Fries. lich. Europ. p 114

*Lecanora*

Ach. Lich. Univ. p 435.

*Amphiloma*

Kbr. Sust. L. Germ. p 111.

*Lichen*

Smith. L. Bot. t 2181. Fig ad dextram.

*Lichen cinnabarinus*. Bellardi

*Lichen fulvus*. Dicks. Gr. 3. p 16.

*Parm murorum*. *β. minutum*. Hoffm. Ex herb Leighton.

Fries. l. c. p 116

*Amphiloma*

Kbr. l. c. p 112

*Psora micinata* Hoffm. Pl. lich. t 60 f 1.

*Lobaria*

H. Germ. p 158

*Lichen*

Enum. lich. p 62

*Parmelia*

Ach. Meth. lich. p 194

*Lecanora*

lich. Univ. p 434

Synopsis. p 182

Wmich. Fl. Northumb & Durham. p 88.

*Squamaria*

Hook. Pr. Flora.