



# Bodleian Libraries

UNIVERSITY OF OXFORD

This book is part of the collection held by the Bodleian Libraries and scanned by Google, Inc. for the Google Books Library Project.

For more information see:

<http://www.bodleian.ox.ac.uk/dbooks>



This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 2.0 UK: England & Wales (CC BY-NC-SA 2.0) licence.





600036371Q











# ENGLISH BOTANY;

OR,

COLOURED FIGURES

OF

## BRITISH PLANTS,

WITH THEIR

ESSENTIAL CHARACTERS, SYNONYMS, AND PLACES OF  
GROWTH.

BY

SIR JAMES EDWARD SMITH, M.D. F.R.S. 20

PRESIDENT OF THE LINNÆAN SOCIETY, ETC. ETC.

THE FIGURES BY

JAMES SOWERBY, F.L.S. G.S., &c.

“..... quos ipsa volentia rura  
Sponte tulere sua ....” VIRGIL.

THE SECOND EDITION,

ARRANGED ACCORDING TO THE LINNÆAN METHOD;  
WITH THE DESCRIPTIONS SHORTENED, AND OCCASIONAL REMARKS.

By CHARLES JOHNSON,

LECTURER ON BOTANY, GUY'S HOSPITAL.

VOL. X.



LONDON:

PRINTED BY RICHARD AND JOHN E. TAYLOR, RED LION COURT, FLEET STREET,

FOR THE PROPRIETOR, C. E. SOWERBY,

3 MEAD PLACE, WESTMINSTER ROAD.

M.DCCC.XLIII.

C.

19113.

E.

15





# ENGLISH BOTANY.

---

## CLASS XXIV. CRYPTOGAMIA.

### ORDER VIII. LICHENES. LICHENS.

**THIS** order, comprising the lowest grades of aërial vegetation, the *Fungi* excepted, is of vast extent, and presents so many diversities of form and structure, that it is difficult, nay impossible, to define its limits by a written character. The species are all perennial, generally of a dry texture, and very tenacious of life: some grow upon the earth in arid situations, others upon rocks and stones that afford not a trace of soil on which vegetables of higher organization could establish themselves; while a third series clings to the trunks and branches of trees, or upon dead, though, with a few exceptions, not upon decaying woods. The green hue, so predominant in all the higher orders of vegetation, is seldom met with in these; indeed, when the colour in question occurs in a lichen, it usually partakes more or less of the tint of a mineral or metallic oxide: black, white, grey of various shades and combinations, yellow, orange, and even red, contribute to the diversity of appearance which characters the individuals of this extensive family.

The term *frond*, from the Latin *frondeo*, to grow or sprout, applied to designate a plant in which the organs of growth are confounded, or inseparable into stem, leaves, &c., is, in speaking of a lichen, always substituted by *thallus*, derived from a Greek word of similar signification. The *Thallus* in some species spreads horizontally, in others it grows erect or pendent; it is either pulverulent, crustaceous, membranaceous, coriaceous, filamentous, or gelatinous, and more or less lobed and divided. Its substance is either cellular or fibro-cellular.

In the simpler forms of the Lichens the *thallus* can scarcely be said to exist, the cellules not cohering, and appearing to possess individually the faculty of propagation; such are the

different species of *Lepraria*. The thallus in the higher grades consists of an external cellular membrane, investing a gelatinous, more or less fibrous, or cellular substance: in those species which grow horizontally, the upper and lower membranes differ considerably in texture, having different functions to perform; in which case the outer or upper surface-membrane is denominated the *epithallus*, the interior mass the *mesothallus*, and the lower cellular membrane the *hypothallus*: in the erect, shrub-like, or pendent species this difference does not occur, their substance being only divisible into *cortical* and *medullary tissue*.

It is in the medullary tissue that the sporules of the Lichens originate, apparently in all cases where the office of reproduction is independent of that of simple growth. The fructiferous mass eventually breaks through the epithallus or cortical layer, distorting its surface and producing elevations upon it of various forms, usually called *apothecia*. The forms of the *apothecia* seem to be dependent upon the degree of development of the internal reproductive masses, which sometimes remain imbedded in the thallus, or only slightly elevate the upper membrane, through which an aperture is formed to admit of the dispersion of the sporules, as in *Endocarpon*: where the centrifugal or vital force of the plants is greater, *tubercula* are formed upon the surface, as in *Verrucaria*; while in a farther progressed organization the sporuliferous substance becomes elevated with the surrounding portion of the thallus; such are the *scutellæ*, or shields of *Parmelia*: sometimes, as in *Scyphophorus*, that portion of the thallus which develops the fructification is elevated greatly above the rest, which extends horizontally; the erect part is then called a *podetium*, and the apothecia, being forced outwards in a convex form, have received the name of *cephalodia*, or knobs: other forms are peculiar to those Lichens which assume an arborescent or branched habit; such are the *cistulæ*, or cellules of *Sphærophoron*, and the *orbillæ*, or round flat shields of *Usnea*. In addition to the foregoing, and more or less modifications of them, we may note the *mycinæ*, or fungus-like processes of *Bæomyces*; the *pilidia*, or goblets, of *Calicium*; the *lirellæ*, or clefts, of *Opegrapha*; the *patellulæ*, or spangles, of *Lecidea*; the *variolæ*, or pustules, of *Variolaria*; the *pulvinuli*, or masses of naked sporules in *Spiloma*.

The sporules are ordinarily included in little, oblong, membranous cases, or thecæ, which are imbedded in the surface of the apothecia in a layer of medullary matter of a somewhat waxy consistence, denominated the *lamina prolifera*.

Besides the normal fructification, many of the Lichens are

propagated by a powdery substance, either scattered over the surface of the thallus or collected into masses of various but indeterminate character, in either case apparently formed by separation of the cellules of the medullary tissue. It is occasionally met with on the same plant which bears apothecia, but more generally on those which grow in shady situations, or aspects otherwise unfavourable to the development of the latter.

Although many of the Lichens are attached to the medium on which they vegetate by root-like processes, it is very doubtful whether these are at all concerned in conveying nutriment to the plant, which indeed is generally considered to be derived chiefly by absorption from the atmosphere. This habit is of vast utility in the scheme of nature, the Lichens being thus fitted to vegetate in places where no other plant could exist: the pulverulent species find a residence on the hardest and smoothest rock, and by their successive growth and decay form a thin stratum of soil, on which certain crustaceous and foliaceous kinds follow in their order, whose place is afterwards occupied, first by mosses, and eventually by plants of higher organization: it is thus that newly raised islands, rocks, and fields of lava are covered with their primæval vegetation. It is not only by the decay of the Lichens that soil is formed, but by the decomposition of the rocks themselves, which are gradually abraded by their growth. Many of the crustaceous species abound in oxalic acid, by means of which they work their way gradually into the substance even of the vitrified rock, so that when the plant is removed its form remains imprinted in the stone to which it adhered.

The distribution of the Lichens is less affected by temperature than even that of the Mosses; hence, in the vicinity of the poles and on mountains, beyond the limits of perpetual frost, far above the line at which the latter disappear, the Lichens give a tint to the perpendicular sides and crevices of the rocks.

Of the number of known species of this varied and obscure family it is very difficult to form an estimate approaching to correctness; according to Fée, those found in herbaria, and described in books, amount to about 2400; but not more than half that number seem to have been accurately examined, and of those many are doubtless mere varieties of well-authenticated species in different stages of development.

Many of the Lichens afford valuable dyes, and they contain generally a considerable proportion of nutritive matter that in cold climates renders them useful articles of subsistence.

The three great natural families which occupy the lowest

grade in vegetable organization, *Lichenes*, *Algæ*, and *Fungi*, are rather to be regarded as parallel than descending series. Mutually diverging from the simplest possible forms of vitality to structures comparatively complicated, they differ more in habit than in essential characters; a difference that many philosophers do not hesitate to consider as spontaneous rather than primordial; as resulting from the medium in which they severally develop, rather than from any peculiar law of organization; in other words, that the same organic elements, the same sporules, that vegetating exposed to the atmosphere produce *Lichenes*, would develop under water as *Algæ*, or, growing on deceased or decomposing animal or vegetable matter, become *Fungi*. Hence in a structural arrangement it is difficult to assign their relative position; but the *Fungi* not being included in this work, the *Lichenes*, as aerial plants, have precedence of the *Algæ*.

The arrangement of the genera is the same with that adopted by Sir W. J. Hooker in the 'British Flora,' or with very slight alteration.

#### Pseudo-Lichenes.

*Thallus adherent, crustaceous, amorphous.*

### FAMILY I. BÆOMYCEÆ.

Apothecia (*mycinæ*) more or less stipitate, rounded, fleshy; the stipes solid.

GENUS DLXVI. BÆOMYCES. *Bæomyces*. *Mushroom Lichen*.

GEN. CHAR. *Thallus* crustaceous, spreading, adnate. *Apothecia* (*mycinæ*) orbicular, convex, capituliform; *stipes* solid.

The fructification of these plants very much resembles minute *Fungi*, and they have a similar odour to some of that family. The presence of the crustaceous *thallus* alone has occasioned them to be associated with the *Lichens*, to no genus of which do they seem to bear any near affinity.

The name, from *βαίος*, *small*, and *μούκῆς*, a *mushroom*, is expressive of the general habit.

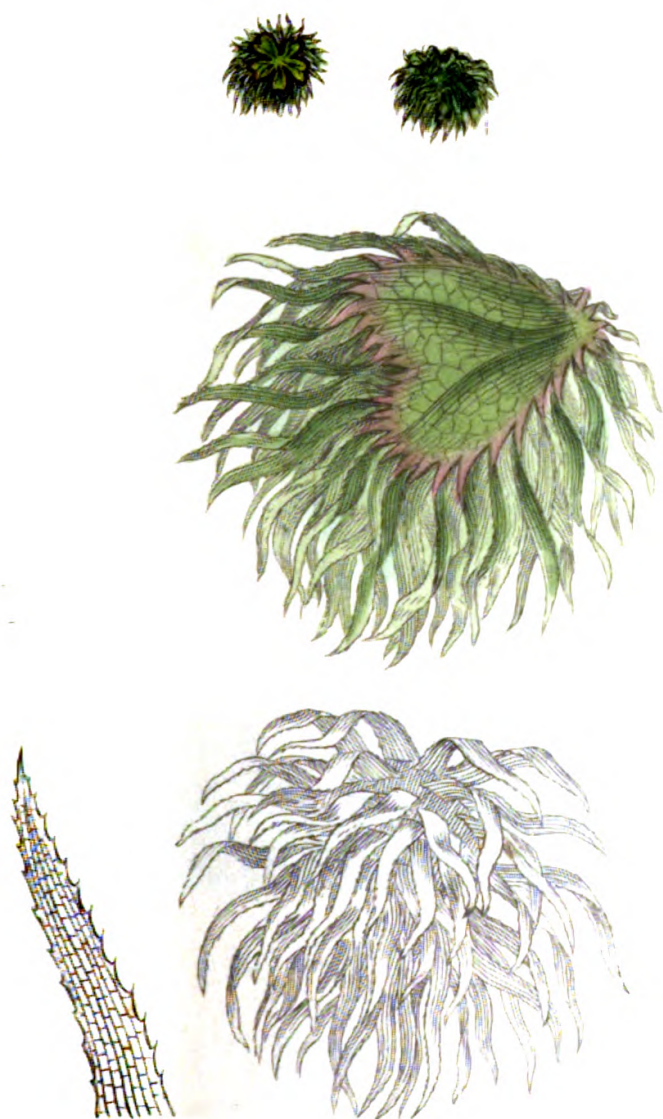
1891

1891



*Riccia fluitans.*





*Riccia natans*





3/4  
1893



*Baeomyces roseus.*

*In 1892. Published by the American Museum of Natural History.*



37  
1894



*Baeomyces rufus.*

97. *Baeomyces rufus* (L.) Berk.



**BÆOMYCES ROSEUS.** *Rose-coloured Mushroom Lichen.* TAB. 1893.

Thallus uniform, granulated, greenish-white. Stipes very short, cylindrical. Apothecia subglobose, wrinkled, pale flesh-coloured.

Lichen Bæomyces, *Linn. E. B.* 374. Bæomyces roseus, *Persoon. Hooker Crypt. Part 1.* 137. *Acharius Syn.* 280.

Far from unfrequent on heaths and moors, growing upon the ground. The greenish-grey or whitish thallus forms conspicuous patches of various extent. The apothecia are often sessile, but generally elevated on a short, thick, solid stipes, with the substance of which they are continuous; they are roundish, but irregular in their outline, more or less wrinkled on the surface, and occasionally lobed: their whole appearance, texture and odour are such, that, apart from the thallus, they might readily be mistaken for some minute species of *Helvella*.

**BÆOMYCES RUFUS.** *Brown Mushroom Lichen.* TAB. 1894.

Thallus uniform, granulated and pulverulent, greenish-white. Stipes short, subcompressed. Apothecia orbicular, flattish, reddish-brown, sometimes conglomerate.

Lichen byssoides, *Linn. E. B.* 373. Bæomyces rufus, *Wahlenberg. Hooker Crypt. Part 1.* 137. *Acharius Syn.* 280. Lichen rufus, *Hudson.*

Occasionally met with growing upon the ground, on sandy heaths, more frequently upon rocks and walls in subalpine districts. Thallus more pulverulent than in *B. roseus*; stipes more slender. Apothecia scarcely wrinkled, orbicular, regular, resembling the pileus of an *Agaricus* or *Boletus*; brown, or reddish.

**BÆOMYCES PLACOPHYLLUS.** *Thick-crustcd Bæomyces.*

“Thallus orbicular, wrinkled and plicate, subimbricated, whitish and glaucescent; formed in the circumference into rounded lobes and crenated. Stipes a little swollen, compressed. Apothecia slightly convex, simple, red-brown.”—*Hooker.*

Bæomyces placophyllus, *Wahlenberg. Hooker Crypt. Part 1.* 137. *Acharius Syn.* 281.

Found on wall-tops in some places in Scotland.

## FAMILY II. CALICIOIDEÆ.

Apothecia (*pilidia*) hollow, more or less goblet-shaped; sessile or stipitate.

### GENUS DLXVII. CALICIUM. *Calicium.*

GEN. CHAR. *Thallus* crustaceous, spreading, adnate, uniform.

*Apothecia (pilidia)* goblet-shaped, more or less stipitate, filled with a compact pulverulent mass of sporules, which constitutes the disc, and is either plane or subglobular.

The name, from *καλύκιον*, a little cup, alludes to the form of the apothecia.

The plants of this curious genus grow chiefly on dead wood, but occasionally on the bark of trees, very rarely upon the ground. The apothecia resemble small *Fungi*, and *C. sessile*, in which the thallus is absent, is parasitic, and scarcely distinguishable from a *Sphæria*.

\* *Apothecia subsessile.*

**CALICIUM SESSILE.** *Parasitic sessile Calicium.* TAB. 1895.

Thallus absent. Pilidium subsessile, pyriform, black, glossy; with a thick inflexed border. Sporules black.

Calicium sessile, *Persoon.* *E. B.* 2520. *Hooker Crypt. Part 1.* 138.

*C. stigonellum*, *Acharius.* *C. turbinatum*, *Acharius Syn.* 56. Lichen gelasinatum, *Withering 4. 8. tab. 31. fig. 1.* *Sphæria sphincterica*, *Sowerby Fung. tab. 386. fig. 1.*

Frequent as a parasite, growing in the cracks and hollows of the thallus of *Pertusaria communis*. Pilidia very minute, resembling to the naked eye small grains of gunpowder; they are black, pear-shaped, highly polished at first, convex above, with a minute depressed dot in the centre, which gradually enlarges until it becomes a sort of cup with a thick, inflexed border.

The absence of the thallus renders it very doubtful whether this plant ought to occupy a place among the Lichens, although the fructification is undoubtedly that of a *Calicium*; the genus, however, is by some referred to the *Fungi*.

The pilidia, if such they be, so nearly resemble those of the following species, that they have been suspected to belong to the same plant.

**CALICIUM MICROCEPHALUM.** *Minute pin-headed Calicium.* TAB. 1896.

Thallus granulated, tartareous, rugulose, olive-coloured. Pilidia subpyriform, contracted below into a short stipes, black, glossy; with a thick, inflexed border. Sporules black.

Lichen microcephalus, *E. B.* 1865. *Calicium microcephalum*, *Smith. Hooker Crypt. Part 1.* 138.

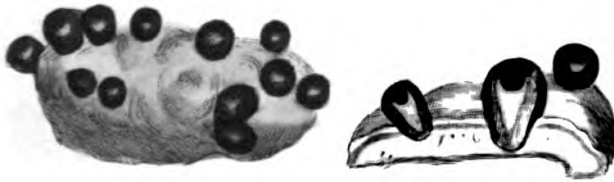
Found by Mr. W. Borrer on oak-rails by the sea, at Caister, near Yarmouth. Thallus spreading, olive-coloured, brownish or greenish, very rough and rugged. Pilidia springing from the crust, smaller than those of *C. sessile*, and more decidedly stipitate.

**CALICIUM TIGILLARE.** *Yellow sessile Calicium.* TAB. 1897.

Thallus granulated, tartareous, bright greenish-yellow, with large



2520.  
1805



*Calicium sessile.*

*As published by J. Sowerby, London.*







1865

1896

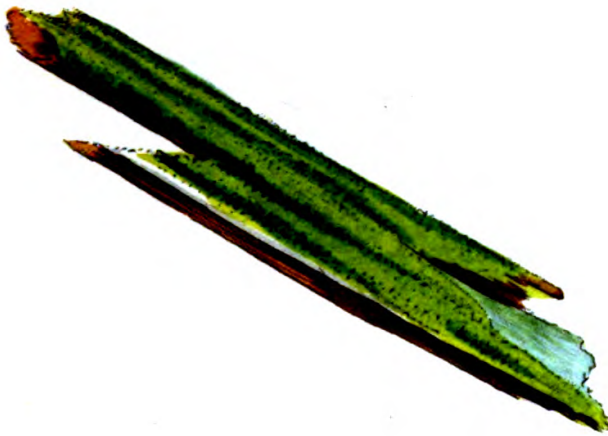


*Calicium microcephalon.*

Mar. 1865. Published by J. & S. Sowerby, London.



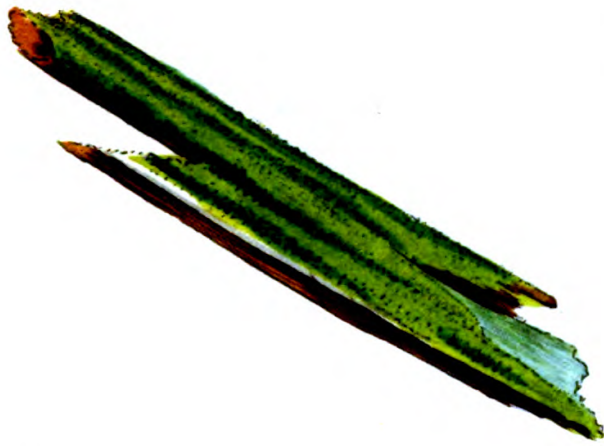
1630  
1897.



*Calycium tigillare.*

*Nov. 1. 1808. Published by Jas. Sowerby, London.*





1630

1897.

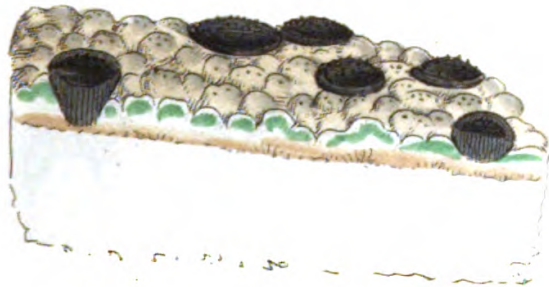


*Calicium tigillare.*

*Tab. 1. 1805. Published by J. Sowerby, London.*



810  
1898



*Calicium tympanellum.*

Oct 1. 1800 Published by Jas Sowerby London.





2473.  
1899.

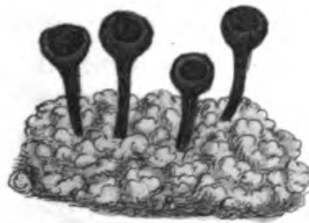
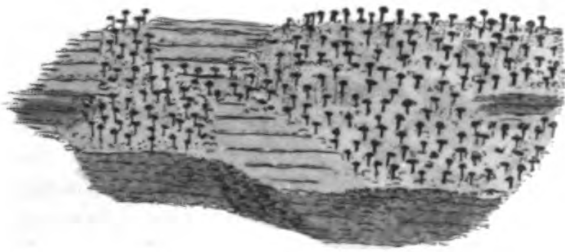


*Calicium ferrugineum.*

*Spores published by J. S. Hooley-London.*



1465  
1900

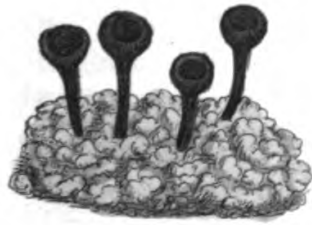
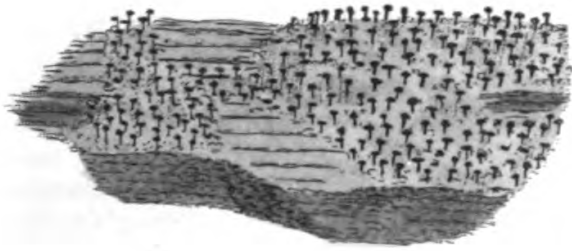


*Calicium clavellum.*

*June 1. 1895. Published by Jnl. Sowerby, London.*



1465  
1900



*Calicium clavellum.*

*June 1. 1905. Published by J. Sowerby, London.*



scattered warts. *Pilidia sessile*, partly immersed in the warts, plano-convex, black; with an elevated, tumid border. Sporules black. *Lichen tigillaris*, *Acharius Meth. E. B.* 1530. *Calicium tigillare*, *Persoon. Hooker Crypt. Part 1.* 139. *Acharius Syn.* 55.

Not unfrequent on rails, posts, and old paling, and occasionally on the trunks of trees in the eastern counties of England. The bright yellow-green thallus renders it very conspicuous. *Pilidia* very minute, generally so far immersed as to appear like openings in the warty surface; though according to *Acharius* they are sometimes elevated above it.

**CALICIUM TYMPANELLUM.** *Sooty-fruited Calicium.* TAB. 1898.

Thallus granulated, tartareous, greyish-white. *Pilidia* turbinate, sessile, more or less immersed; with a thin, erect, pale border. Sporules blackish, pruinose.

*Lichen iniquans*, *E. B.* 810. *Calicium tympanellum*, *Acharius Syn.* 56. *Hooker Crypt. Part 1.* 139.

Not uncommon on pales, gates, and especially on the tops of old posts, "transversely with the grain of the wood;" though perhaps this latter habitat is rather in consequence of its preference for a horizontal position. Thallus remarkably granulated. *Pilidia* copious, irregularly scattered. Sporules staining the fingers like soot on the slightest touch, "so that on the application of the finger an impression is received of as many apothecia as have been covered by it."

**CALICIUM FERRUGINEUM.** *Rusty Calicium.* TAB. 1899.

Thallus thin, granulated, tartareous, whitish, with rust-coloured spots. *Pilidia* shortly stipitate, subturbinate. Sporules rust-coloured.

*Calicium ferrugineum*, *Turner and Borrer. E. B.* 2473. *Hooker Crypt. Part 1.* 139.

Thallus formed of loosely coherent, greyish granules, extending over old paling, gates, &c., in the eastern counties of England chiefly. *Pilidia* blackish, with a rust-coloured disc; not unfrequently confluent.

\* \* *Apothecia obviously stipitate.*

**CALICIUM CLAVELLUM.** *Grey crusted Calicium.* TAB. 1900.

Thallus granulated, tartareous, greyish-white. *Pilidia* stipitate, blackish; the capitulum turbinate, cæsious beneath and on the thin elevated border. Sporules black.

*Lichen clavellus*, *E. B.* 1465. *Calicium claviculare*, *Acharius Syn.* 57. *C. clavellum*, *Turner and Borrer. Hooker Crypt. Part 1.* 139.

Frequent on barns and other boarded buildings in England, on which the greyish-white thallus forms wide, more or less interrupted patches. The apothecia spring plentifully from between the granulations of the surface, supported upon straight, moderately elongated stalks.



**CALICIUM HYPERELLUM.** *Yellow stipitate Calicium.* TAB. 1901.

Thallus granulated, tessellated, bright yellowish-green. Pilidia stipitate; the capitulum nearly hemispherical, brownish-black. Sporules fuliginous, covering the border.

Lichen hyperellus, *Acharius*. *E. B.* 1832. *Calicium hyperellum*, *Acharius Syn.* 59. *Hooker Crypt. Part 1.* 140.

The bright yellow-green thallus forms conspicuous patches on the bark of old oaks and some other trees, chiefly in the eastern and southern counties of England. Pilidia abundant, on slender black stalks: disc convex, nearly hemispherical: border smooth, eventually reflexed.

**CALICIUM CHRYSOCEPHALUM.** *Gold-headed Calicium.* TAB. 1902.

Thallus granulated, bright greenish-yellow. Pilidia obconical, stipitate; the capitulum slightly convex, blackish, with a thin, elevated yellow border. Sporules orange-brown.

*Calicium chrysocephalum*, *Acharius Syn.* 60. *E. B.* 2501. *Hooker Crypt. Part 1.* 140.

Grows on old paling, gates and posts, in the eastern and southern counties of England. Thallus conspicuous, composed of globose granulations, forming oblong patches. Pilidia plentifully produced from between the granulations, pear-shaped, sometimes confluent; brownish-black below, as is likewise the slender stipes, bright yellow above, especially the margin. Disc flat, dull orange-brown.

**CALICIUM PHÆOCEPHALUM.** *Brown-headed Calicium.* TAB. 1903.

Thallus granulated, brown. Pilidia shortly stipitate; the capitulum plano-convex, blackish-brown, dotted with yellow pruina, particularly at the thin, erect border. Sporules dark brown.

Lichen trabinellus, *E. B.* 1540. *Calicium phæocephalum*, *Turner and Borrer.* *Hooker Crypt. Part 1.* 140.

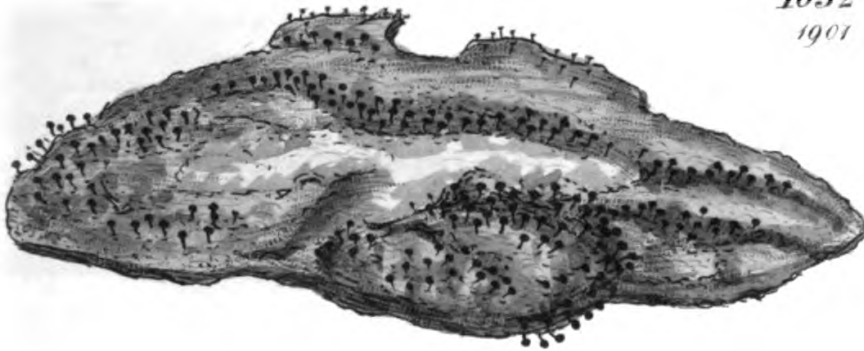
Found abundantly on boarded buildings in several places in the eastern and southern counties, as on barns at Bruisyard, Suffolk, Lakenham, near Norwich, and at Hurst Pierpoint, and Albourn, Sussex. Thallus pale olive-brown, forming large patches. Pilidia on short, cylindrical, glossy, blackish stalks: capitulum plano-convex, somewhat flattened, bright greenish-yellow externally, especially on the margin, the hue arising from a kind of bloom (*pruina*) on the surface, and beautifully contrasting with the dark brown, sporuliferous disc.

**CALICIUM CHLORELLUM.** *Small greenish-headed Calicium.* TAB. 1904.

Thallus filmy, very thin, pale greenish-grey. Pilidia stipitate; the capitulum obconical, covered with a yellow-green pruina. Sporules olive-brown, covering the border.

Lichen acicularis, *E. B.* 2385. *Calicium chlorellum*, *Acharius Syn.* 60. *Hooker Crypt. Part 1.* 140.

1832  
1901



*Calicium*

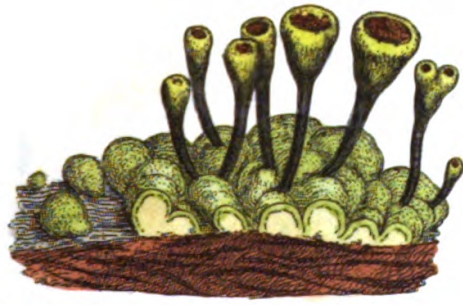
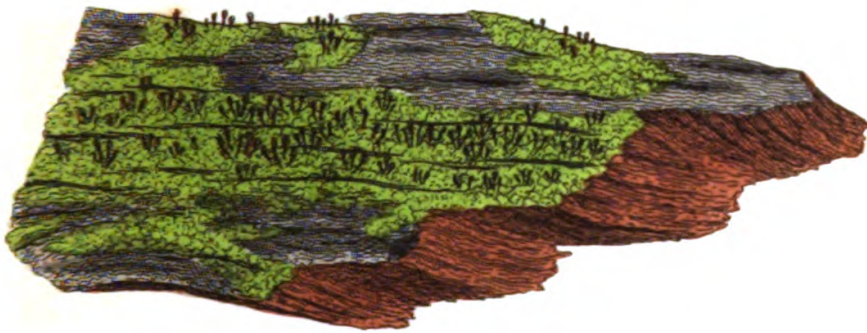


*hyperellum.*

*Jan. 1. 1809. Published by J. Sowerby, London.*



2501  
1902

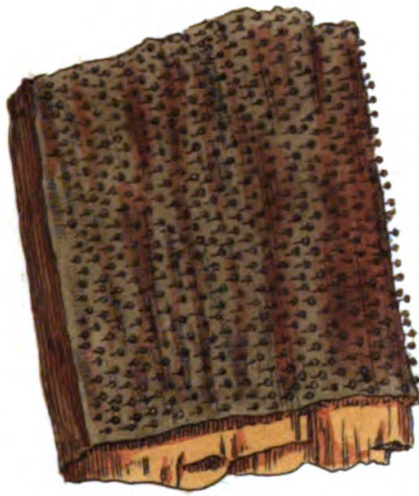


*Calicium chrysocephalum.*

*Jan. 1. 1902 published by J. & S. Sponby London*



1540  
1903

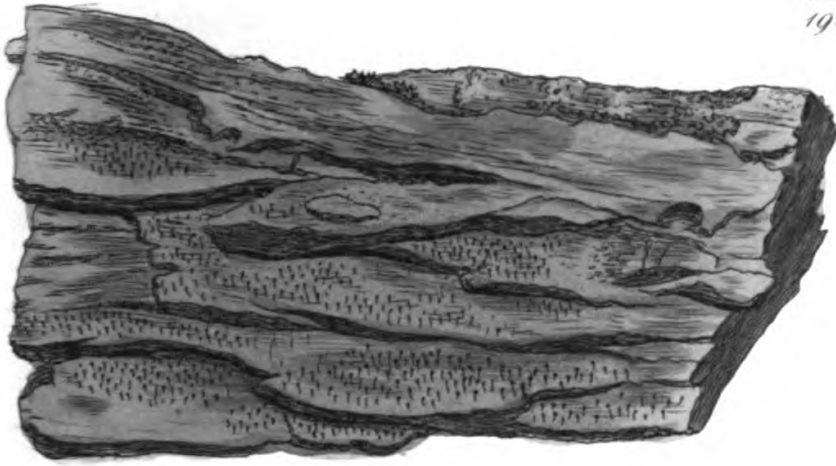


*Calicium phaeocephalum.*

*Dec. 1. 1805. Published by J. Sowerby, London.*



2385.  
1904



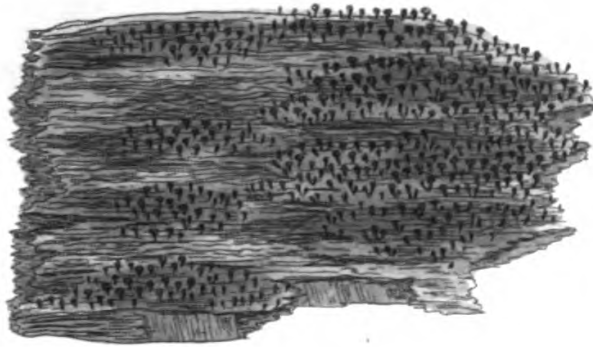
Reprinted by J. S. L. Co.

*Calicium chlorellum.*





2503  
1905

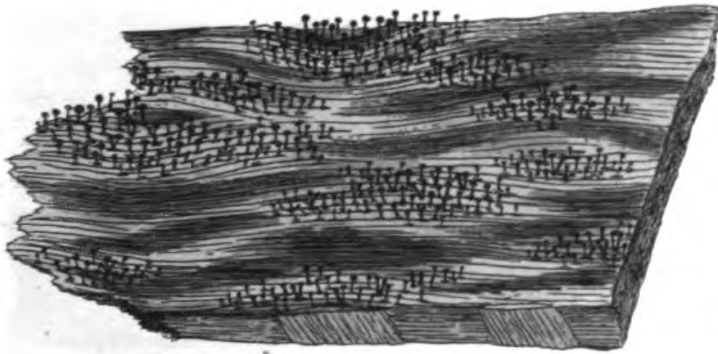


*Calicium curtum.*

*From a drawing published by J. S. L. in London.*

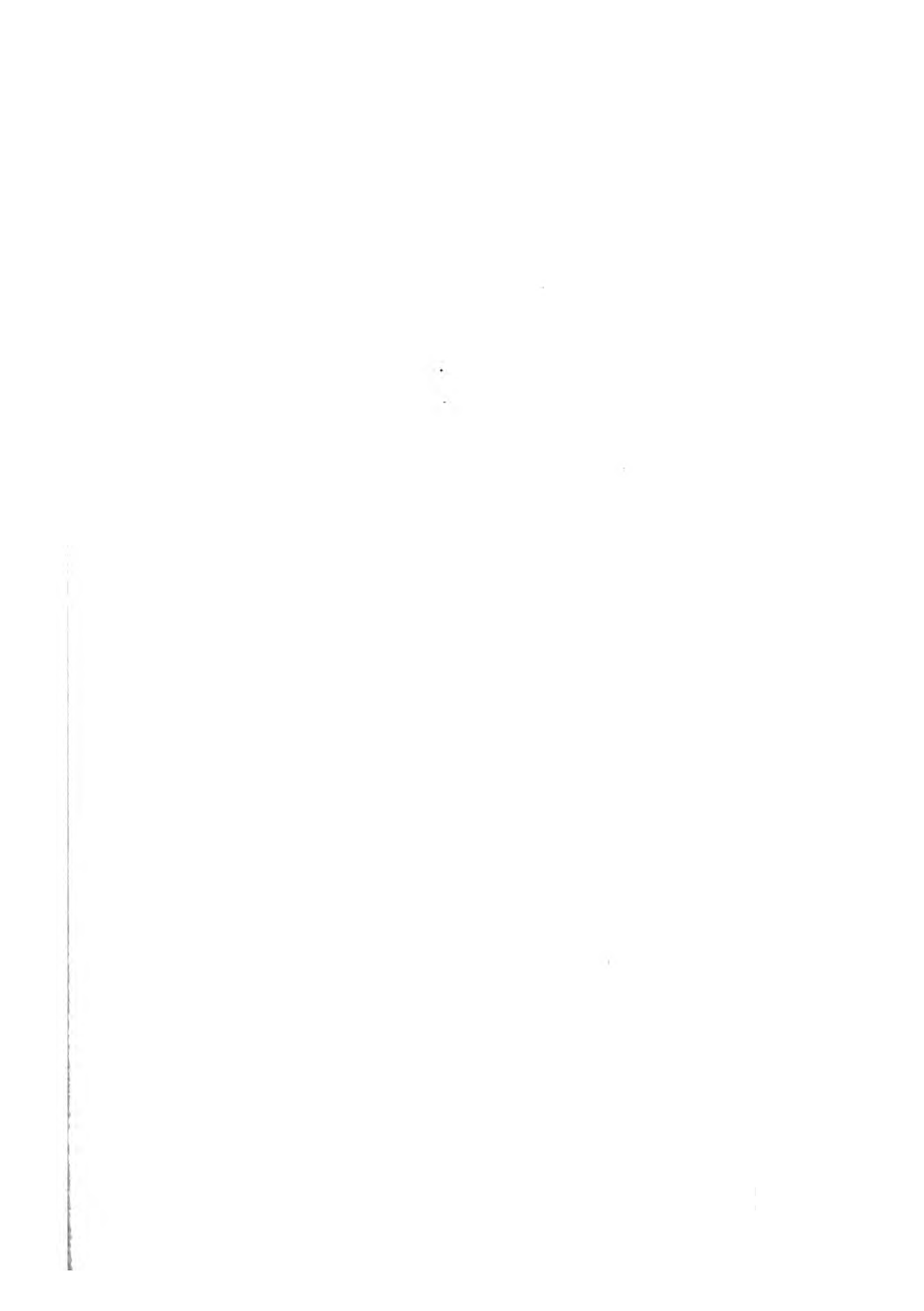


2462  
1906

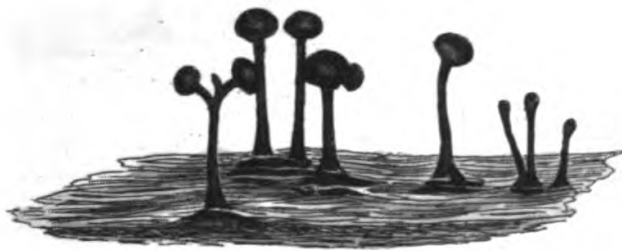
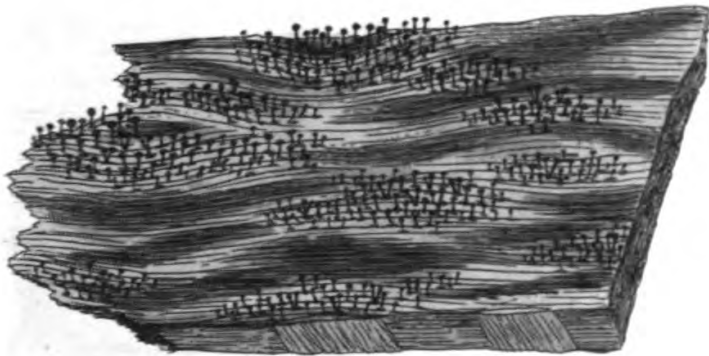


*Calicium debile.*

*Sp. was published by J. Sowerby London.*



2462  
1906

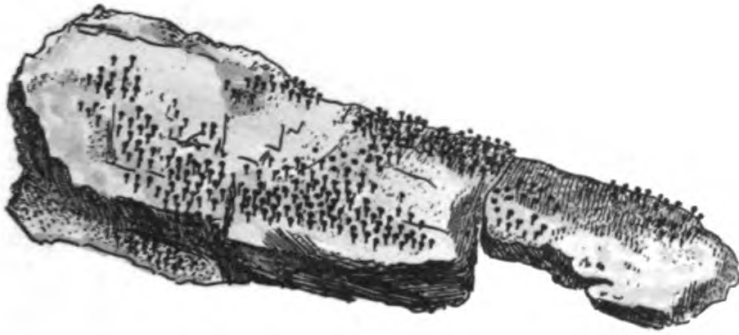


*Calicium debile.*

*In a vase of putrid flesh by J. S. Smith & Co. London.*



414.  
1907



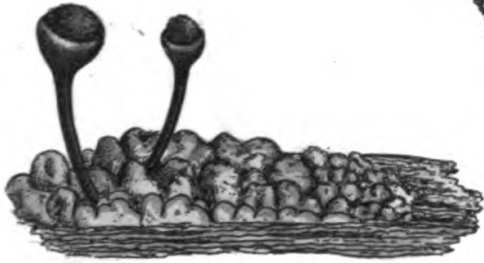
*Calicium sphærocephalum.*

July 1797 Published by J. J. Smith, London.





2502.  
1908



*Calicium ceruginosum.*

*from a 1817 postcard by J. A. Sowerby London.*



Met with growing on the bark of the oak, elm, and Scotch fir, especially in Surrey, Sussex, and Suffolk. Thallus pale-coloured or whitish. Pilidia very small, more or less covered with a yellowish-green bloom, beneath which they are of a dark brown colour.

**CALICIUM CURTUM.** *Short-stalked Calicium.* TAB. 1905.

Thallus filmy, very thin, whitish. Pilidia stipitate. Stipes thickish, erect. Capitulum obovate or hemispherical, black. Sporules black, forming a loose prominent mass and covering the border.

*Calicium curtum*, *Turner and Borrer.* E. B. 2503. *Hooker Crypt. Part 1.* 140.

Frequent upon decaying wood in shady situations, and one of the most common of its genus. In general appearance it is very like *C. chlorellum*, but the stipes is shorter and thicker, and, as well as the capitulum, of a deep black hue; the latter is very variable in figure, being sometimes nearly cylindrical; the sporuliferous disc, too, is much more prominent, that of the cylindrical and obovate specimens being often so extended as with the cohering sporules to resemble a little brush.

A variety found on poplars at Killarney, Ireland, has the stipes more slender, the capitulum plano-convex, and the disc only slightly convex.

**CALICIUM DEBILE.** *Slender Calicium.* TAB. 1906.

Thallus filmy, very thin, white. Pilidia stipitate. Stipes elongated, slender, flexuose. Capitulum plano-convex, black, with a recurved margin. Sporules black, forming a compact, slightly convex disc.

*Lichen debilis*, E. B. 2462. *Calicium debile*, *Turner and Borrer.* *Hooker Crypt. Part 1.* 141.

Found on old timber, especially under the eaves of thatched buildings, where its thin, white, filmy thallus often spreads widely. Pilidia copious, resembling minute *Agarici*, black; the stipes thick at the base, often forked at the top, and bearing 2 or 3 capitula.

**CALICIUM SPHÆROCEPHALUM.** *Round-headed Calicium.* TAB. 1907.

Thallus filmy, very thin, greyish; sprinkled irregularly with a yellowish-grey powder. Pilidia stipitate. Capitulum subglobose, rusty brown, with a narrow, somewhat inflexed border. Sporules black.

*Lichen sphærocephalus*, *Weber.* E. B. 414. *Calicium sphærocephalum*, *Acharius Syn.* 57. *Hooker Crypt. Part 1.* 141.

Grows on the bark and in the hollows of old trees, especially oaks, often on old dead wood. Thallus more or less coloured by a yellowish-grey or greenish powder, which is occasionally so thick as to form a crust upon the surface.

This and the three preceding species are very nearly allied.

**CALICIUM ÆRUGINOSUM.** *Verdigris Calicium.* TAB. 1908.

Thallus filmy, very thin, whitish; covered with powdery granulations

of a verdigris-grey colour. *Pilidia stipitate*. Capitulum hemispherical, pruinose, with a thin erect border. Sporules blackish-brown.

*Calicium æruginosum*, *Turner and Borrer. E. B. 2502. Hooker Crypt. Part 1. 141.*

Found by Mr. Turner on the boards of a hovel near Cuckfield, Sussex; likewise on old pales near Bury, Suffolk. Thallus continuous, very thin, the bluish-grey granulations more or less tumid, white within. Capitula hemispherical, but including the disc subglobose.

It somewhat resembles *C. clavellum*.

**CALICIUM PERONELLUM.** *Cinnamon-headed Calicium.* TAB. 1909.

Thallus filmy, very thin, white, powdery. *Pilidia stipitate*, white. Capitulum plano-convex. Sporules cinnamon- or flesh-colour, covering the border.

*Calicium cantharellum*, *Acharius Syn. 61. E. B. 2557. C. peronellum*, *Ach. Meth. 96. Hooker Crypt. Part 1. 141. C. pallidum*, *Persoon.*

Found on decayed wood near Egglestone, Durham. Very distinct from the other indigenous species of the genus. The thallus is white, powdery, or, as Persoon observes, downy, but very thin and evanescent. Stipes ascending, not very slender, of a light red-brown, clothed with white, deciduous powder. Capitulum convex above and below, but not globose; the disc of a light reddish-brown or pale cinnamon colour, clothed at first with a copious, dense, white powder, which after awhile disappears.

**CALICIUM FURFURACEUM.** *Sulphureous Calicium.* TAB. 1910.

Thallus powdery, greenish-yellow. *Pilidia stipitate*. Capitulum globose, yellow at first; eventually covered by the brown sporules.

*Lichen capitatus*, *Schreber. E. B. 1539. Calicium furfuraceum*, *Persoon. Hooker Crypt. Part 1. 142. C. capitellatum*, *Acharius Syn. 61. Mucor furfuraceus*, *Linn. Trichia furfuracea*, *Withering.*

Met with in various parts of England, occasionally on decaying wood, but more frequently growing on the ground and about the roots of trees in a sandy soil. Thallus forming conspicuous, powdery patches, of a sulphur colour, more or less inclining to green. Capitula globular, at first of the same hue as the thallus, eventually bursting at the summit, and becoming brown by the discharge of the sporules, the disc appearing to occupy the whole surface.

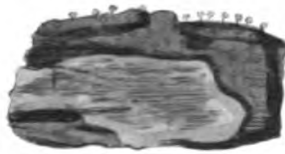
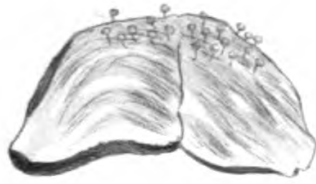
A very beautiful and well-marked species.

### FAMILY III. GRAPHIDEÆ.

Apothecia (*lirellæ*) sessile or immersed, more or less linear.

In this family and the following the reproductive apparatus

2557  
1909.

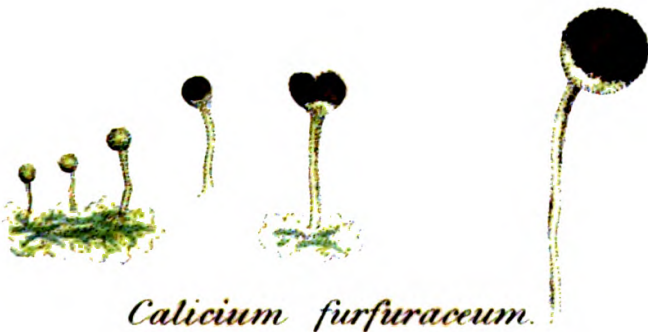


*Calicium peronellum.*

*Specimen published by J. A. S. G. London.*



1539  
1910.



*Calicium furfuraceum.*

*Dec. 1. 1910. Published by J. C. Sowerby, London.*



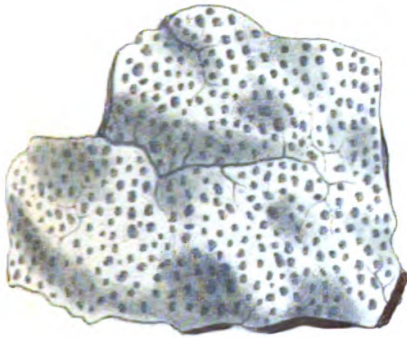
Vertical line on the left side of the page.



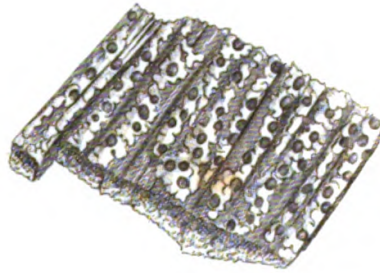
*Fig. 2.*



*Arthonia lurida.*



*a*



*b*

*Fig. 1.*

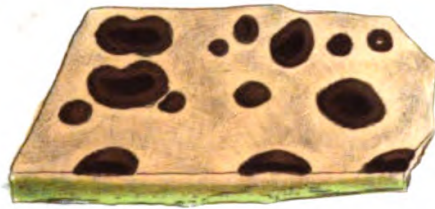


*Arthonia impolita.*

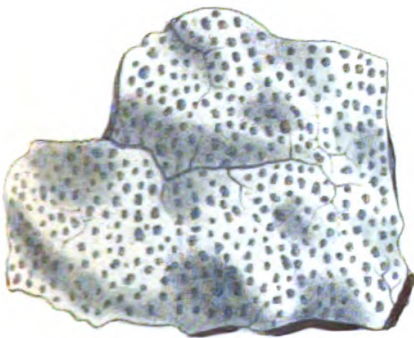




*Fig. 2.*



*Arthonia lurida.*



*a*



*b*

*Fig. 1.*



*Arthonia impolita.*



is evidently a modification of certain parts of the substance of the plants, instead of resembling, as in the preceding, minute funguses growing upon the thallus of a lichen.

GENUS DLXVIII. ARTHONIA. *Arthonia*.

GEN. CHAR. *Thallus* crustaceous, spreading, adnate, uniform, cartilagineo-membranaceous. *Apothecia* innately sessile, roundish, rarely elongated, nearly plane, without a border, covered by a subcartilaginous membrane; subgelatinous within.

The natural habitat of all the species seems to be the bark of trees, but they are occasionally found growing on dead wood.

The proper name, as observed by Fée, would be *Ardonia*, derived from ἀρδω, *to sprinkle*, the surface of the thallus being speckled all over with the apothecia.

The fructification is very variable in form, even on the same plant, but is readily distinguished from that of the next genus by the absence of the proper border by which the true *lirellæ* are surrounded.

ARTHONIA IMPOLITA. *Pruinose Arthonia*. TAB. 1911. fig. 1.

*Thallus* somewhat tartareous, thin, cracked, uneven, white. *Apothecia* immersed, flat, confluent, brownish lead-coloured, pruinose.

*Arthonia impolita*, *Borrer in E. B. Supp.* 2692. *Hooker Crypt. Part 1.* 143. *A. pruinosa*, *Acharius Lich. Univ.* 147. *tab. 1. fig. 3. et Syn. 7.*

*Lichen impolitus*, *Ehrhart*, not of *E. B.* 981, "probably taken from a common appearance of *Spiloma gregaria*." *Verrucaria impolita*, *Hoffmann*. *Parmelia impolita*, *Ach. Meth.* 160.

Of frequent occurrence on boarded buildings and on the rugged bark of old oaks. *Thallus* when young with a narrow border of cob-web-like fibres; eventually cracked and uneven, somewhat tartareous, but mostly thinner than the shell of a hen's egg. *Apothecia* immersed, irregularly rounded or oblong, usually confluent, and often so numerous as to obliterate great part of the crust; their surface pruinose, of a glaucous or dull lead-colour, sometimes bare and blackish, or reddish-brown. On old timber the thallus is sometimes broken into irregular tumid warts, upon and among which the apothecia are found variously undulate and flexuose.

ARTHONIA LURIDA. *Lurid Arthonia*. TAB. 1911. fig. 2.

*Thallus* obsolete, continuous, smooth, dull lead-coloured or brownish.

*Apothecia* sessile, roundish, slightly convex, reddish-black.

*Arthonia lurida*, *Acharius Lich. Univ.* 143. *et Syn. 7.* *E. B. Supp.*

2692. *Hooker Crypt. Part 1.* 143. *Spiloma paradoxum*, *Ach. Syn.* 3.

Probably not rare on the bark of trees in shady situations. Thallus, if present, a smooth film, so extremely thin as to be but doubtfully distinguishable from the surface of the bark, upon which the plant spreads widely and irregularly, imparting a pale brownish, or a dark lead-grey tinge. Apothecia numerous, minute, purplish-black or deep blood-red, often clustered and confluent.

Its claim to rank among the Lichens seems to be doubted by Mr. Borrer, and depends upon the fact, whether what has been taken for its thallus be so in reality, or nothing more than a discoloration of the bark.

ARTHONIA SWARTZIANA. *Swartzian Arthonia*. TAB. 1912.

Thallus cartilagineo-membranaceous, thin, cracked, cream-coloured.

Apothecia roundish, repand, wavy, depressed, uneven, black, sometimes confluent.

*Arthonia Swartziana*, *Acharius Syn.* 5. *E. B.* 2079. *Hooker Crypt. Part 1.* 143.

Not unfrequent on the smooth bark of trees in Sussex and other parts of the south of England. Thallus thin, circumscribed, of a dirty or yellowish-white, cracked, and scaling off elastically in places. Apothecia very indeterminate as to figure, black, pale within.

The species upon which the genus was founded by Acharius.

## GENUS DLXIX. OPEGRAPHA. *Opegrapha*.

GEN. CHAR. *Thallus* crustaceous, membranaceous or leprose, spreading, adnate, uniform. *Apothecia* (*lirellæ*) elongated, simple or branched, sessile or immersed; the disc narrow, with a proper border, and sometimes with an additional one derived from the thallus.

The linear or elongated form of the apothecia, and more especially their raised proper border leaving a depressed line along the middle of each, distinguish this genus from *Arthonia*. The name is compounded from the Greek *ὄπη*, *hollow*, and *γραφή*, *writing*, in allusion to the resemblance of the *lirellæ* in certain species to inscribed characters.

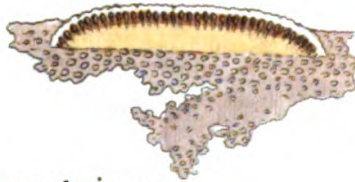
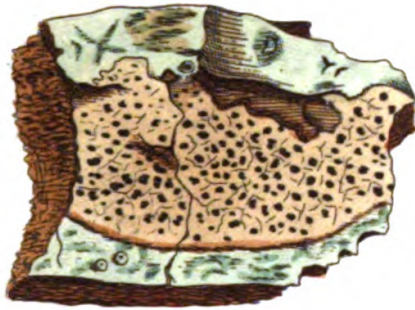
The different characters of the border render the species divisible into 3 sections or subgenera.

### SUBGENUS I. OPEGRAPHA *vera*.

Apothecia destitute of an accessory border.

2079

1912

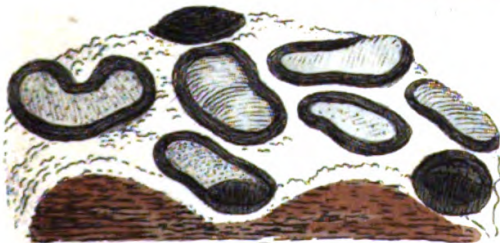
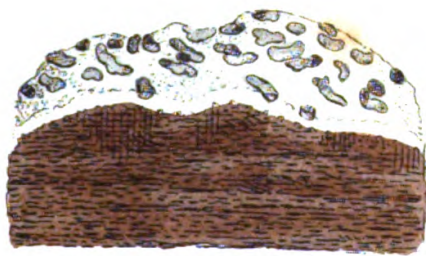
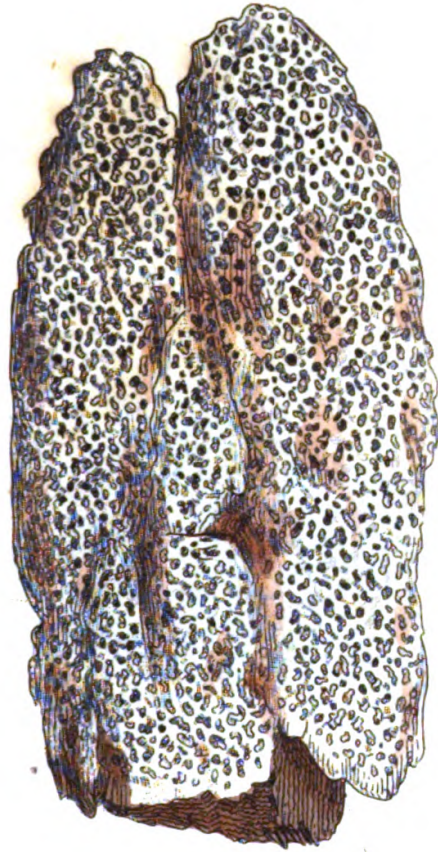


*Arthonia Swartziana.*

*Monog. published by J. Swarthy London*







*Opegrapha lyncea?*  
Oct. 1. 1800. Published by Jas Sowerby, London.

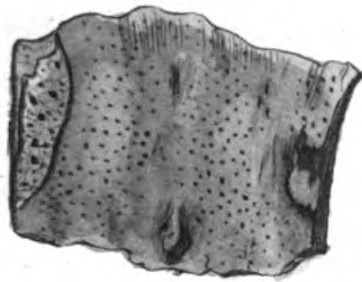
100

100



1828

1914

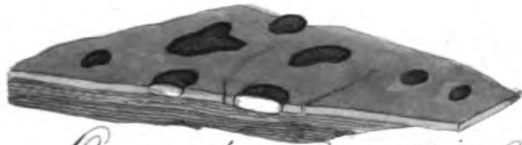
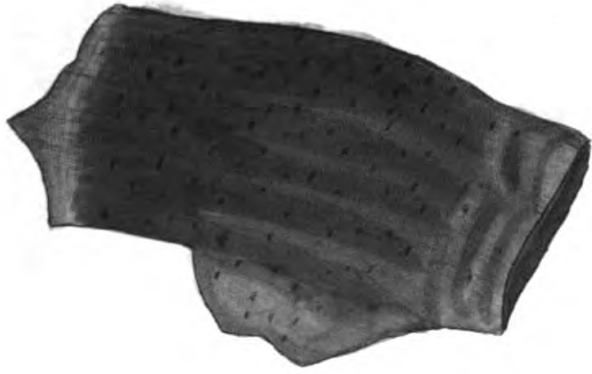


*Opegrapha epipastal*

Described by J. S. Sowerby, London.



1911  
1915



*Opegrapha microscopica*  
July 1868. Published by Jas. Sowerby London.





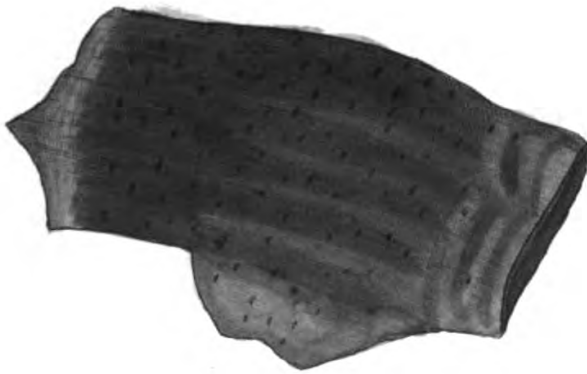
11-11-11







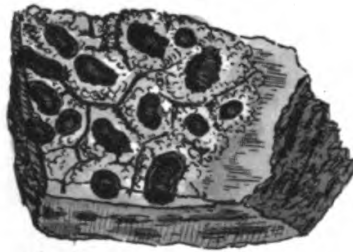
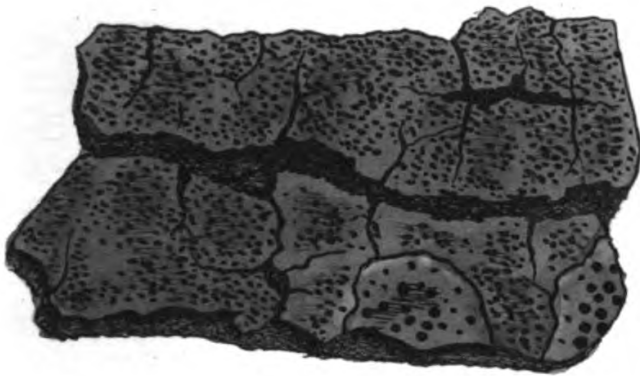
1911  
1915



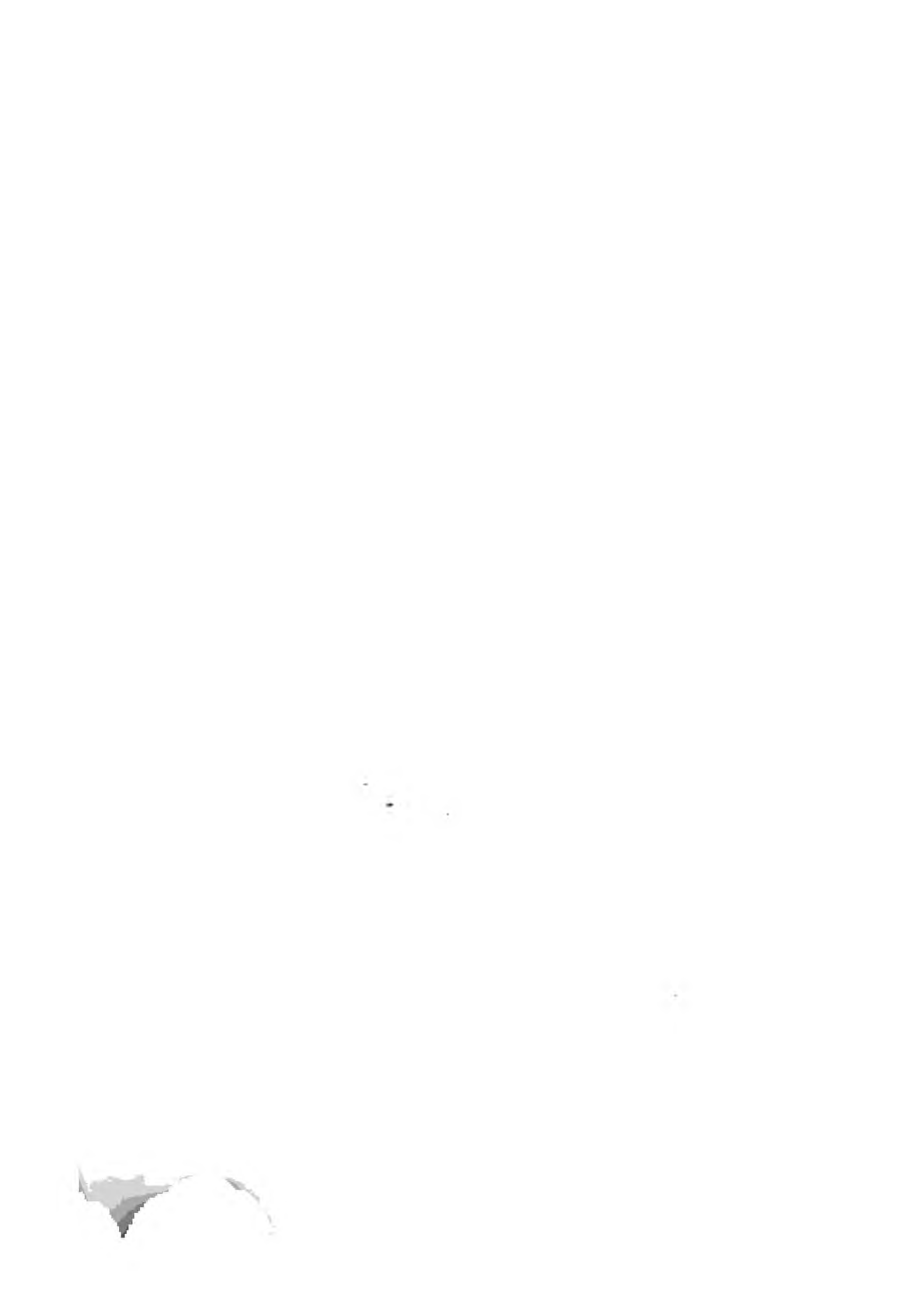
*Opegrapha microscopica*  
July 1868. Published by J. S. Sowerby London.



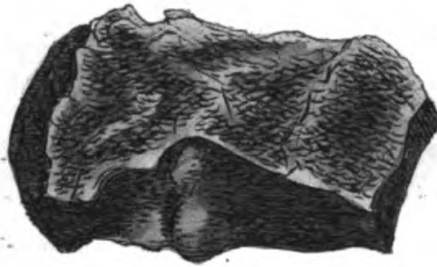
2347.  
1916



*Cpegrapha rubella?*  
How. 1881 published by J. S. Sowerby London.



1789  
1917



*Cepographa rufescens.*

Sept. 28, 1807, Published by J. G. Sowerby, London.



**OPEGRAPHA LYNCEA.** *Grey speckled Opegrapha.* TAB. 1913.

Thallus white, subtartareous, even, uniform. Apothecia numerous, depressed, oblong, curved, rounded at each end, partly immersed, pruinose, grey, with a black border.

Lichen lynceus, *E. B.* 809. *Opegrapha lyncea*, *Borrer. Hooker Crypt. Part 1.* 144. *Arthonia lyncea*, *Acharius Syn.* 7. *Lecidea lyncea*, *Ach. Meth.*

It forms patches, often of large size, on the rugged bark of old oaks. Thallus thin, white or greyish. Lirellæ abundant, giving a speckled appearance to the white surface, oblong, rounded at the extremities, often more or less curved or kidney-shaped, greyish, with a black, little raised border, which becomes imperceptible by age.

**OPEGRAPHA EPIPASTA.** *Smooth dotted Opegrapha.* TAB. 1914 and 1915.

Thallus very thin, irregularly circumscribed, smooth, more or less shining, varying from a grey to a pale copper colour. Apothecia minute, innate, somewhat parallel, slightly convex, oblong or roundish, mostly simple, with a narrow black margin.

*Opegrapha epipasta*, *Acharius Syn.* 74. *E. B.* 1828. *Hooker Crypt. Part 1.* 144.

Common on the smooth bark of trees, especially of young oaks. The thallus forms roundish patches, is exceedingly thin and smooth, and generally of a whitish-grey or glaucous hue. Apothecia very minute, scattered, but in a somewhat parallel manner.

*O. microscopica*, *E. B.* 1911, differs only in the colour of the thallus and in the tendency of the lirellæ to become compound or branched; it is the *Graphis microscopica* of Ehrhart: see Tab. 1915.

**OPEGRAPHA RUBELLA.** *Reddish Opegrapha.* TAB. 1916.

Thallus continued, limited, reddish ash-coloured, slightly rugged. Apothecia short, rounded, somewhat curved; their disc broader than the border.

*Opegrapha rubella*, *Persoon. E. B.* 2347. *Hooker Crypt. Part 1.* 144. *O. herpetica*,  $\beta$ . *Acharius Syn.* 72. *Lichen rubellus*, *Ach. Prodr.* 22.

Found on the trunks of large trees. Thallus of a reddish smoky hue. Apothecia numerous, short, rounded, almost all separate; their disc black, flattened, at least as broad as the margins, frequently broader.

**OPEGRAPHA RUFESCENS.** *Rusty Opegrapha.* TAB. 1917.

Thallus cartilagineo-membranaceous, pale brownish-olive. Apothecia innate, polymorphous, flexuose, simple, branched, or substelated; their disc grooved, nearly plane.

*Opegrapha herpetica*, *E. B.* 1789. *Opegrapha rufescens*, *Persoon. Hooker Crypt. Part 1.* 144. *O. siderella*, *Acharius Syn.* 79.

Grows on the bark of trees, and first found by Mr. Turner about Yarmouth. Thallus uneven, somewhat rugged, of a dirty olive-brown or greyish colour. Apothecia minute, very irregular, crowded.



**OPEGRAPHA ATRA.** *Black Opegrapha.* TAB. 1918 and 1919.

Thallus very thin, membranaceous, smooth, whitish. Apothecia sessile, polymorphous; the smaller ones globose or oblong, the larger linear, subrugulose, flexuose, simple, or divided, or substellated, coal-black.

*Opegrapha denigrata*, *Acharius Meth.* 27. *E. B.* 1753. *O. atra*, *Persoon. Hooker Crypt. Part 1.* 145.

Frequent on the smooth bark of trees. The thin, smooth, greenish-white thallus forms patches of various shapes. Apothecia very numerous and diversified in their form, simple or slightly forked (Tab. 1918), more frequently stellated or inclining to that character (Tab. 1919, *O. astroidea*).

**OPEGRAPHA NIMBOSA.** *Clouded Opegrapha.* TAB. 1920.

Thallus thin, white, shining, cracked. Apothecia oblong, curved, obtuse, with a thin black border and dilated hoary disc.

*Opegrapha nimbosa*, *Acharius Meth.* 3. *E. B.* 2346.

Gathered, by Mr. D. Turner, from the bark of large trees at Coltishall, Norfolk. Referred in the 'English Flora' to *O. atra*, but doubtfully. Neither the figure nor description however accord with any of the varieties of that multiform species, and I have not the means of deciding the question.

**OPEGRAPHA VULGATA.** *Common Opegrapha.* TAB. 1921.

Thallus cartilagineo-membranaceous, thin, greenish-white; the surface scaly. Apothecia sessile, prominent, polymorphous, often wavy, shining, with a thick border and very narrow disc.

*Opegrapha vulgata*, *Acharius. E. B.* 1811. *Hooker Crypt. Part 1.* 145. *Acharius Syn.* 73.

Chiefly met with in the clefts and hollows of the bark of old trees, especially firs. Thallus pale greenish-grey or whitish. Apothecia scattered, exceedingly variable in size and form; the border very thick, black; the disc narrow, brownish.

**OPEGRAPHA BETULINA.** *Birch-bark Opegrapha.* TAB. 1922.

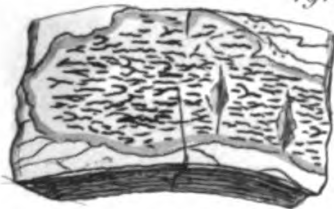
Thallus very thin, dilated, white, bordered with black. Apothecia mostly simple, prominent, linear, with an extremely narrow disc.

*Opegrapha betulina*, *Persoon. E. B.* 2281. *Hooker Crypt. Part 1.* 145.

Frequent on the smooth bark of the common birch. Thallus broad, white, smooth, shining; the black margin is only visible when the plants meet and confine each other's growth, and is apparently due to the turning up of the edges and consequent exposure of the under surface. Apothecia narrow, elevated, glossy black; the disc a mere line.

**OPEGRAPHA VARIA.** *Variable Opegrapha.* TAB. 1923.

Thallus thin, powdery, white, dispersed. Apothecia sessile, promi-



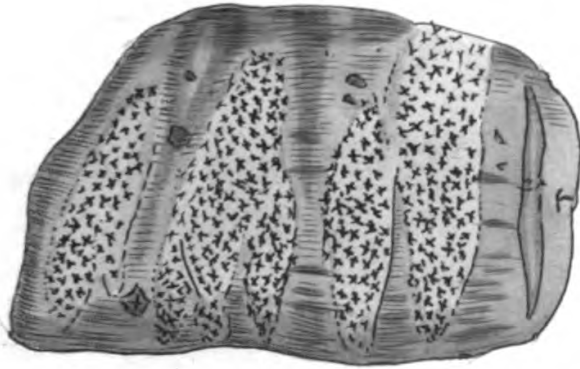
1753  
1918



*Cpegrapha atra?*  
Note 1807. Published by Jas. Sowerby London.



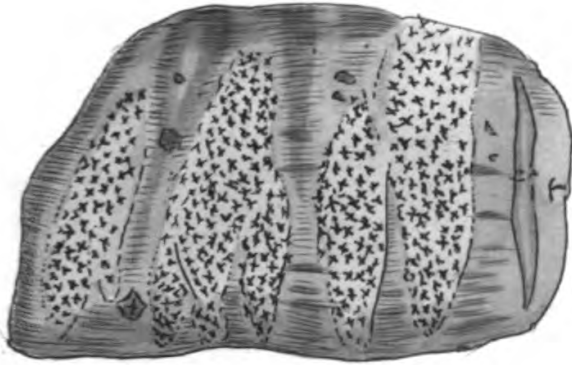
1847.  
199



*Opegrapha astroidea* ?  
Feb. 1, 1866, Published by Jas. Sowerby, London.



1847.  
1919

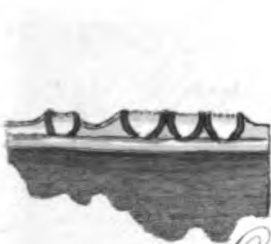
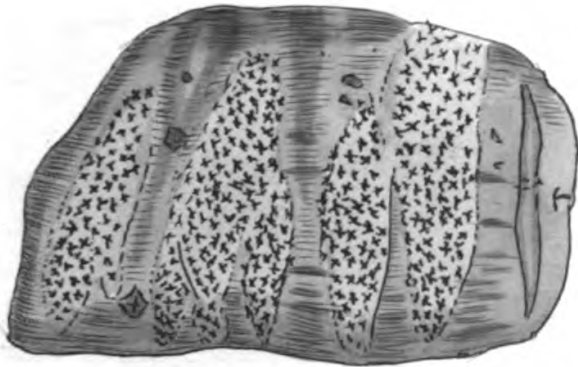


*Opegrapha astroidea?*  
Feb. 1, 1868, Published by Ja. Sewerby, London.



1847.

1919



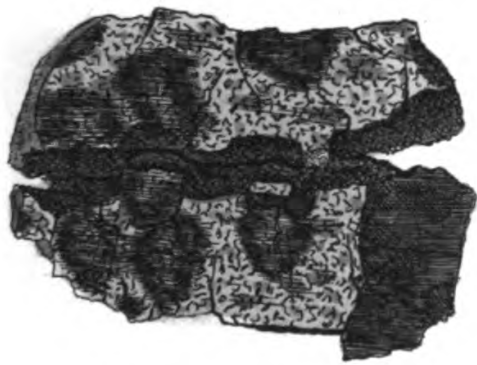
*Opegrapha astroides*

Feb. 1866, Published by J. Sowerby, London.





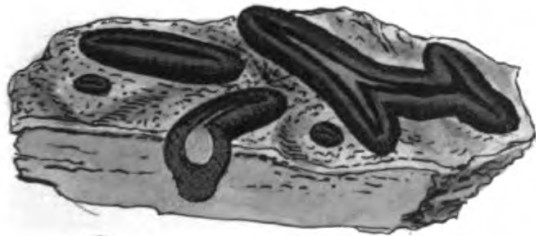
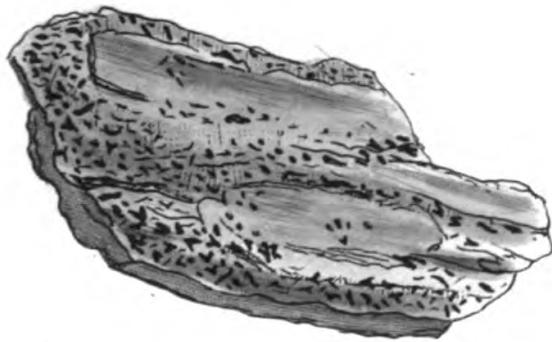
2346  
1920



*Opegrapha nimbosa?*  
ex. collected by J. S. Searby, London.



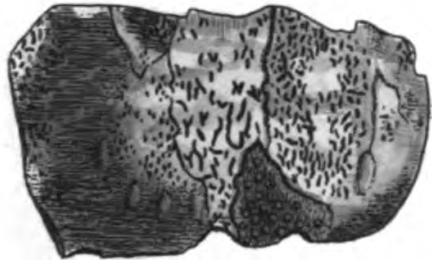
1811  
1921



*Opegrapha vulgaris?*  
No. 1. 207. Published by J. A. Sewerby, London.



2281  
1922



*Opegrapha betulina*

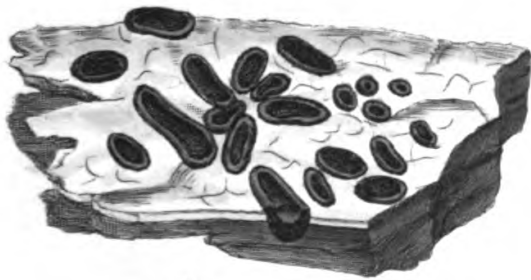
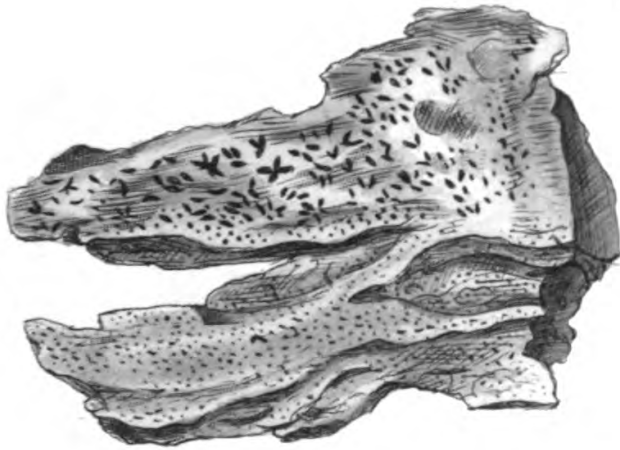
May 1, 1922 published by J. S. Sponks & Co.

W. S. Sponks & Co.



1890

1923



*Opegrapha varia*

June 2, 1868. Published by J. A. Sowerby, London.

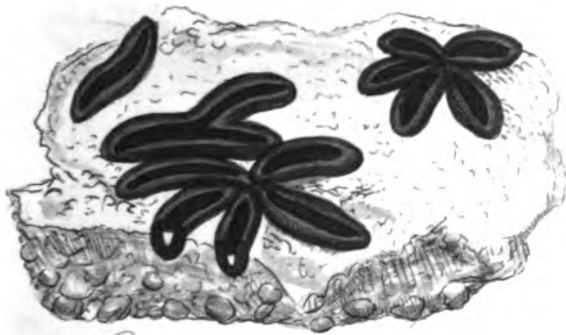






1790

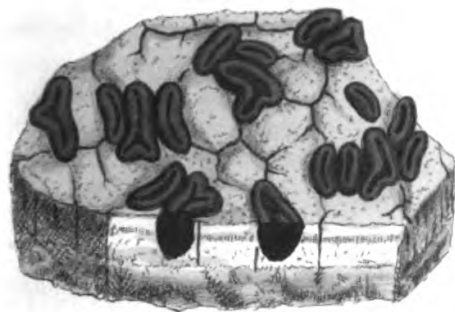
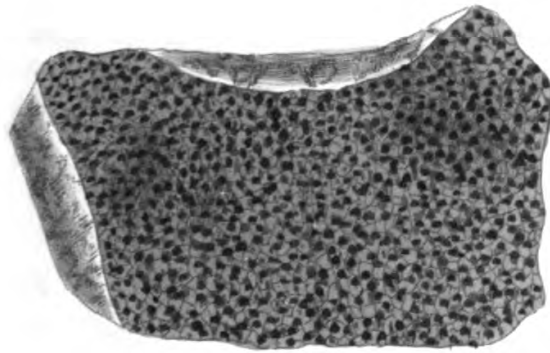
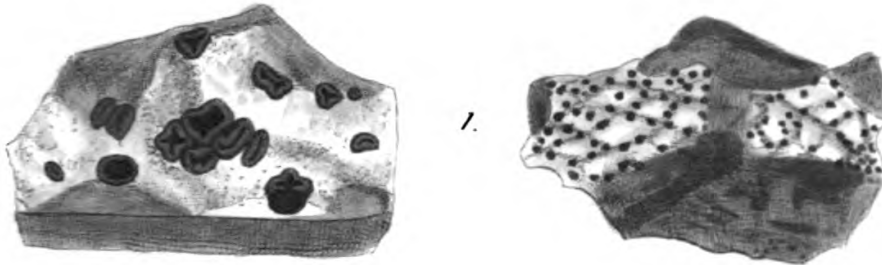
1924



*Opegrapha saxatilis*

Sept. 2, 1867. Published by J. & S. Sowerby London.





*Opegrapha cerebrina*. Fig. 1.  
——— *tesserata*. Fig. 2.



ment, scattered, roundish, oval, or oblong, wavy; the disc plane, eventually convex, somewhat tuberculose; the border subevanescent.

*Opegrapha notha*, *Acharius*. *E. B.* 1890. *O. varia*, *Persoon*. *Hooker Crypt. Part 1.* 145.

Not unfrequent on the bark of various trees. Thallus forming indeterminate patches, very white at first, but becoming yellowish or dusky with age. Apothecia black, various in shape, scattered, often crowded together, but never compound or branched.

*Opegrapha diaphora*, *E. B.* 2280, belongs to this species, of which it does not even represent a variety.

**OPEGRAPHA SAXATILIS.** *Stone Opegrapha.* **TAB. 1924.**

Thallus thick, tartareous, pulverulent, white; or obsolete. Apothecia sessile, slightly prominent, minute, roundish-oblong or linear, short, often confluent into small roundish spots; disc concave, the borders flexuose, at length obliterated.

*Opegrapha calcarea*, *Turner*. *E. B.* 1790. *O. saxatilis*, *De Candolle*. *Hooker Crypt. Part 1.* 145.

Found on rocks of various kinds, but especially those of a calcareous nature; likewise on walls, though chiefly overspreading the mortar. Thallus generally conspicuous for its brilliant whiteness, and unpolished, chalk-like surface. Apothecia for the most part clustered, often radiating, black.

*Opegrapha Persoonii*, *E. B.* 2345, represents one of the states of this species, but the figure is bad.

**OPEGRAPHA CEREBRINA.** *Tumid-crusted Opegrapha.* **TAB. 1925.** fig. 1.

Thallus tartareous, continuous, very white. Apothecia naked, prominent, short, obtuse, simple, or variously divided and deformed; their border broad, inflexed, at length expanding and obliterated.

*Opegrapha cerebrina*, *De Candolle*. *Borrer in E. B. Supp.* 2632. fig. 1. *Hooker Crypt. Part 1.* 146. *Lecidea plocina*, *Acharius Syn.* 16.

Of rare occurrence, on calcareous stones in the north of England. Thallus of unequal thickness, pure white, unpolished, looking as if powdery to the naked eye, solid, minutely pitted; within white. Apothecia deep black, sometimes glossy, mostly in clusters, occasionally solitary; oblong at first, or so short as to be nearly orbicular, with an inflexed, convex, even border closed over the disc; soon cloven at one or both ends, becoming angular, and the border expanding and exposing the disc, often so widely as to give the lirellæ a close resemblance to an irregular *patellula*, with sometimes a prominent, sometimes an obliterated border. The lirellæ often become confluent, and the clusters assume the appearance of the imperfect *tricæ* of a *Gyrophora*. Their base is sunk in the crust, and even in the stone beneath.

**OPEGRAPHA TESSERATA.** *Tessellated Opegrapha.* **TAB. 1925** fig. 2.

Thallus tartareous, areolate, brownish-grey. Apothecia naked, pro-

minent, short, obtuse, simple or slightly divided; border broad, inflexed.

*Opegrapha tesserata*, *De Candolle*. *Borrer in E. B. Supp.* 2632. *fig. 2. Hooker Crypt. Part 1.* 146. *O. petræa*, *Acharius Syn.* 72.

Gathered by Mr. W. Robertson, on Holwick Scar, by the Tees, in Yorkshire. Acharius gives it as a native of Scotland. The thallus forms patches of considerable extent. It is of a structure not uncommon in various other genera of Lichens, but not hitherto observed in any other *Opegrapha*; being composed of granulations, at first scattered and convex, afterwards crowded together and forming small, angular areolæ, irregular in shape and size, the interstices of which are barely visible to the naked eye. The general surface is rather uneven, dull, of a brownish-grey with a tinge of red; the internal substance white. Between the areolæ, and more rarely through their substance, arise numerous, small, dull black lirellæ, some solitary, some crowded in little clusters; they are oblong, rounded at the ends, sometimes curved and forked, with a convex border, so inflexed as almost to conceal the disc.

The peculiarity of the thallus is sufficient to distinguish it from every other species.

#### SUBGENUS II. GRAPHIS, *Acharius*.

Apothecia with an accessory border formed by the elevation of the thallus.

**OPEGRAPHA ELEGANS.** *Elegant grooved Opegrapha.* TAB. 1926.

Thallus orbicular, granulated, white, somewhat shining. Apothecia immersed, scattered, divaricated, mostly simple; with a grooved border and an accessory one formed by the thallus.

*Opegrapha elegans*, *Smith. E. B.* 1812. *Hooker Crypt. Part 1.* 146. *Graphis elegans*, *Acharius Syn.* 85.

First found by Mr. W. Borrer in Sussex, growing on the smooth bark of young trees. Thallus several inches broad, circular, white, more or less shining, finely granulated. Apothecia black, scarcely projecting above the crust, accompanied by a slight accessory border, which sometimes turns back. The proper border is very peculiar, being marked with a deep, uninterrupted, longitudinal furrow on both sides of the disc, which latter is narrow. These characters are shown in our section.

The furrowed border will distinguish it from all the varieties of the next species.

**OPEGRAPHA SCRIPTA.** *Black-letter Opegrapha.* TAB. 1927.

Thallus thin, membranous, more or less smooth, somewhat shining, greyish-white, indistinctly bordered with black. Apothecia partly

1812  
1926



*Opegrapha elegans.*  
Nov. 1. 1807. Published by J. Sowerby, London.





1754

1927



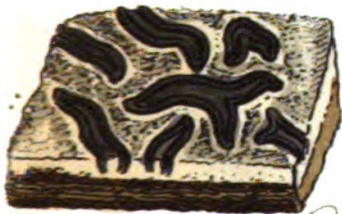
*Opegrapha scripta*

June 1867. Published by Jas. Sowerby London.



1754

1927

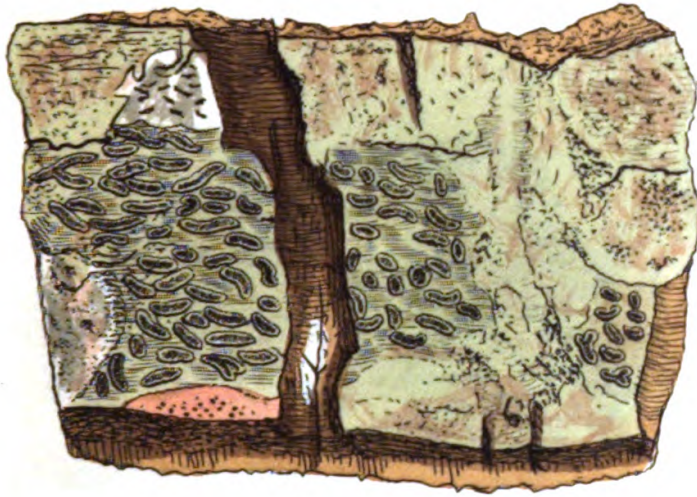


*Opegrapha scripta*

June 22<sup>nd</sup> 1867. Published by Jas. Sowerby London.



1876  
1928



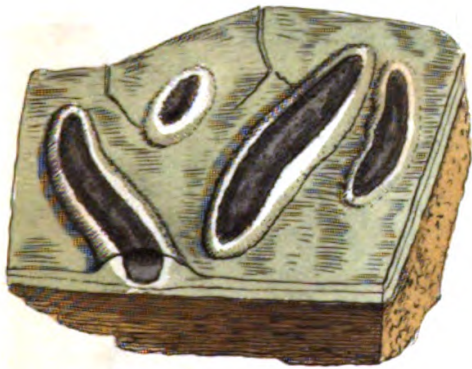
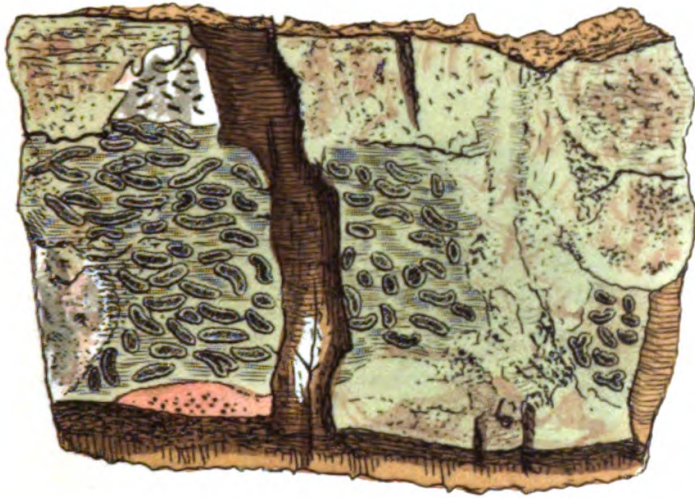
*Opegrapha Lyelli*

Apr. 1. 1868. Published by J. & Son in by London.



1876

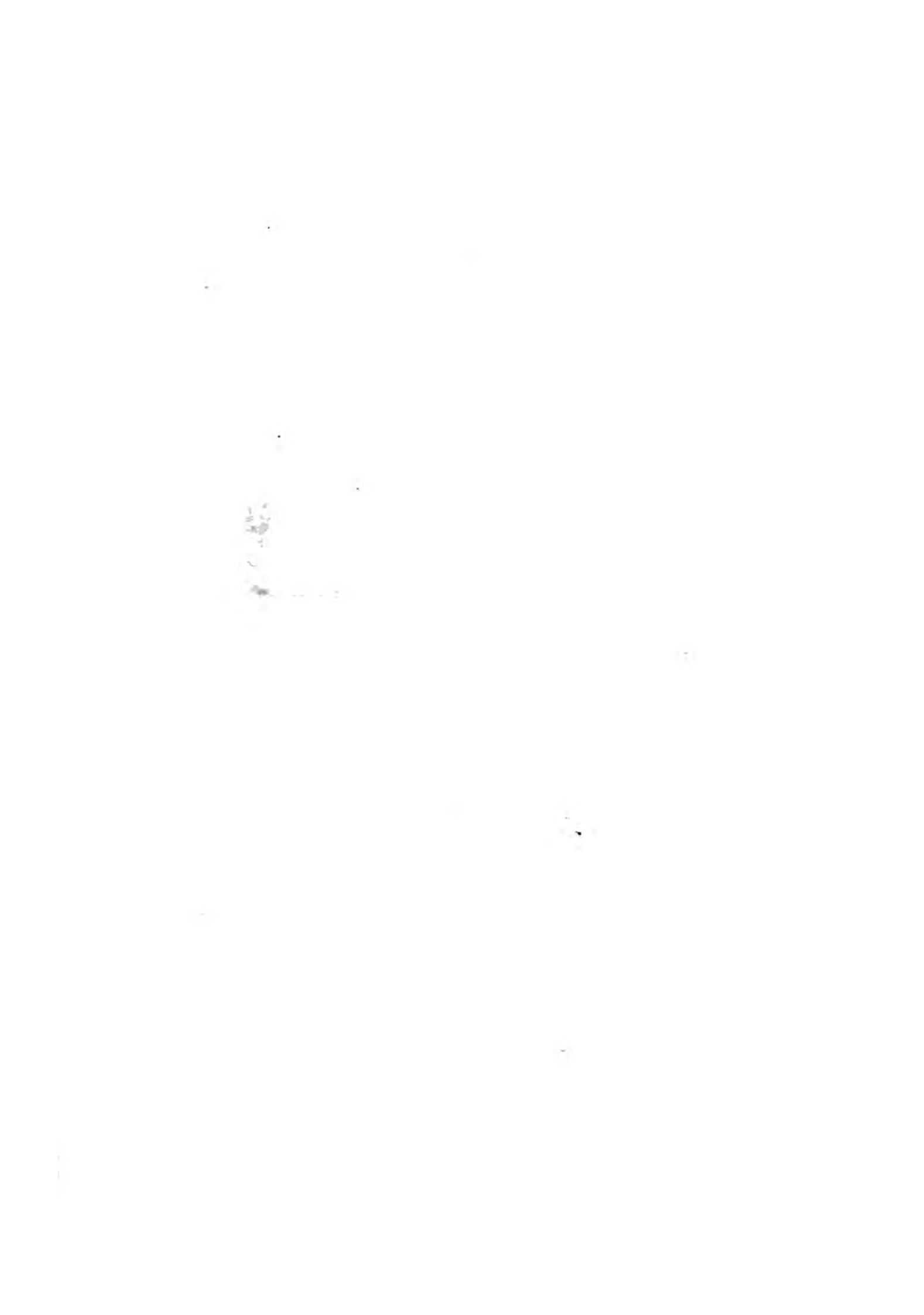
1928



*Opegrapha Lyelli*

Apr. 1. 1868. Published by Jas. Sowerby, London.





1756

1929



*Opegrapha dendritica.*

June 1867. Published by J. S. Sowerby, London.



immersed, naked or pruinose, flexuose, simple or branched in a parallel direction, subrimiform, surrounded by an accessory raised border, formed of the thallus.

*Opegrapha pulverulenta*, Persoon. E. B. 1754. *O. scripta*, Acharius *Lich. Univ.* 265. *Hooker Crypt. Part 1.* 147. *Graphis scripta*, Ach. *Syn.* 81.

Frequent on the smooth bark of trees. An exceedingly variable plant, whose different states have been often described as distinct species. It is indeed difficult, if not impossible, to define it by positive characters. Our figure, *G. scripta*,  $\beta$ . of Acharius, seems to represent the form most common in England, that at least with which I am most familiar, and between which and *O. serpentina*, E. B. 1755, the only perceptible difference consists in the unevenness of the thallus of the latter.

*O. cerasi*, E. B. 2301, is undoubtedly the same, and unworthy of notice even as a variety.

### SUBGENUS III. PLATYGRAMME, Meyer.

Apothecia with an accessory border formed of the thallus, but the proper border wanting, or obsolete.

#### OPEGRAPHA LYELLII. *White-bordered Opegrapha.* TAB. 1928.

Thallus smooth, membranous, pale olive. Apothecia prominent, turgid, crowded, curved, obtuse, greyish and powdery, with an elevated, white, powdery accessory border; destitute of proper border.

*Opegrapha Lyellii*, Smith. E. B. 1876. *Hooker Crypt. Part 1.* 147.

*Graphis Lyellii*, Acharius *Syn.* 85. *Platygramme Lyellii*, Meyer.

Found on the rugged bark of trees in the New Forest, Hampshire, where it was first discovered by C. Lyell, Esq. The thallus is remarkably smooth, almost waxy in appearance, and of a uniform pale olive-green. Apothecia numerous, crowded, mostly simple, various in length, very prominent; appearing to consist solely of the broad, convex, hard, powdery disc. Accessory border thick, elevated, white, and powdery.

*O. scripta*, E. B. 1813, probably belongs to the following species, not to this, but the figure is unsatisfactory, and the means of ascertaining its identity wanting.

#### OPEGRAPHA DENDRITICA. *Tree-like Opegrapha.* TAB. 1929.

Thallus tartareous, determinate, very white, somewhat powdery. Apothecia immersed, depressed, repeatedly branched, zigzag, tapering at each end, partly covered by the accessory border; destitute of proper border.

*Opegrapha dendritica*, Acharius *Meth.* E. B. 1756. *Hooker Crypt. Part 1.* 147. *Graphis dendritica*, Acharius *Syn.* 83. *Platygramme dendritica*, Meyer in *Sprengel.*

Not uncommon on the smooth bark of trees in the South of England. Thallus forming roundish, cream-coloured, somewhat mealy patches. Lirellæ mostly radiating from the centre, and not extending to the margin, which, for some distance, is smooth, uniform, and spotless; they are black, sunk below the surface of the crust, and appear to be formed by a shrinking of its central part, or as if that part could not keep pace in dilatation with the marginal region, and were overstretched.

The most beautiful of its genus, the radiating, variously branched apothecia resembling the markings of the Moss Agate or Mocha-stone.

**OPEGRAPHA VENOSA.** *Veiny Opegrapha.* TAB. 1930.

Thallus tartareous, determinate, reddish-white. Apothecia immersed, convex, repeatedly branched, curved, parallel and equidistant, obtuse at the ends, surrounded by a slightly elevated accessory border; destitute of proper border.

*Opegrapha venosa*, *Persoon.* E. B. 2454. *Hooker Crypt. Part 1.* 148.

First discovered by C. Lyell, Esq., growing upon the trunks of beeches, in the New Forest, Hampshire, but sparingly. Thallus uneven, somewhat rugged, white with a dirty reddish tint. Apothecia curiously and regularly disposed, much branched and twisted, but their ramifications, however complex and varied, keep generally at equal distances from each other, like the walks of an artificial maze. They are deeply sunk in the crust, but convex above, intensely black, with obtuse terminations; not tapering to a point, as in *O. dendritica*; nor do they, as in that, spread radiating from a centre. The patches are almost always surrounded by *Pertusaria crassa*.

"Most of the species referred to *Platygramme* by Sprengel are exotic, natives of China. Our own three species appear to prefer the warmer parts of Europe, and in Britain they inhabit the southern districts only."—*Hooker.*

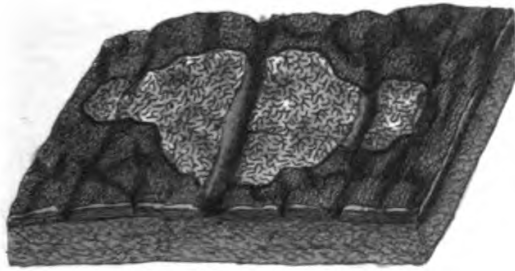
**FAMILY IV. VERRUCARIEÆ.**

Apothecia (*tubercula*) sessile or immersed, hemispherical, inclosing a nucleus.

**GENUS DLXX. VERRUCARIA.** *Verrucaria.*

**GEN. CHAR.** *Thallus* crustaceous or cartilagineo-membranaceous, spreading, adnate, uniform. *Apothecia (tubercula)* sessile, or innate and immersed, corneous, of a different colour and substance from the thallus (mostly a black crust or shell), inclosing a nucleus; the apex papillary, often even-

2456.  
1930



*Opegrapha venosa*  
Sept. 1812. Publ. by J. Sowerby London.





Fig. 1.

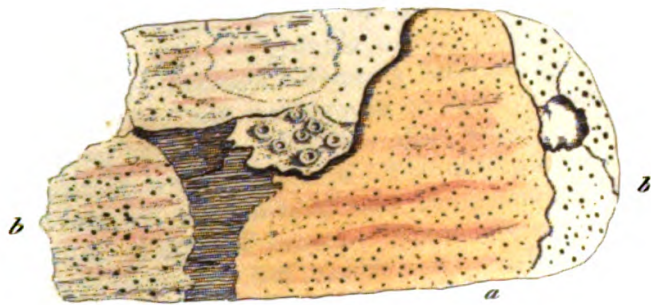
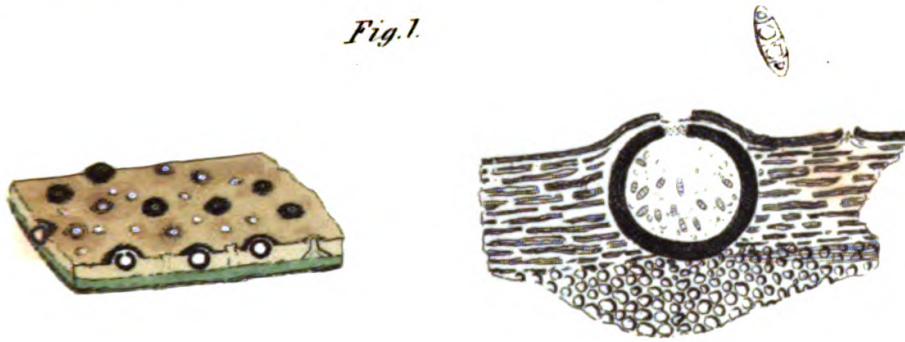
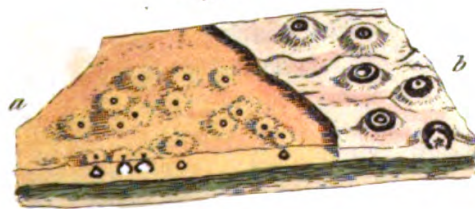


Fig. 2.



*Verrucaria nitida.* Fig. 1.  
*dermatodes.* Fig. 2.





tually perforated, sometimes covered by the wart-like processes of the thallus (when it constitutes the genus *Pyrenula* of Acharius).

It seems almost impossible to define the limits of this genus; it appears to contain the rudiments of two, if not of three genera, but satisfactory characters are yet wanting to their formation, as well as for the positive separation of others of the same family.

The name is adopted from *verruca*, a wart, in allusion to the tubercular surface of the thallus.

The species, which are numerous, present considerable diversity in their habitats, some growing on trees, others on the hardest stone, &c., hence the following sections.

\* *Growing on the bark of trees.*

VERRUCARIA NITIDA. *Wax-like Bark Verrucaria.* TAB. 1931. fig. 1.

Thallus determinate, somewhat tartareous, continuous, smooth, waxy, brown, marked with minute pale dots, and swelling about the tubercles. Apothecia rather large, hemispherical, black, immersed; at length partially exposed.

*Verrucaria nitida*, Schrader. *Borrer in E. B. Supp.* 2607. fig. 1. *Hooker Crypt. Part 1.* 149. *Pyrenula nitida*, Acharius *Syn.* 125. *Sphæria nitida*, Weigel, Dickson. *Sowerby Engl. Fungi*, 3. tab. 275.

A very distinct species, not uncommon on smooth bark, particularly on that of young ash-trees. Thallus thin, when uninterrupted spreading to the extent of 2 or 3 inches. Plants frequently crowded, forming map-like patches, the limits of each being marked by a dark line. Colour various shades of brown. Apothecia variable in size, sometimes as large as rape-seed, but usually much smaller; completely immersed at first, and sometimes even when full-grown, the thallus rising and forming little protuberances above them; more usually emerging; a small grey dot marks the apex. Nucleus when wet dark grey and gelatinous; in drying it shrinks much and becomes black. The shell incloses it on all sides; hence the plant is a *Pyrenula* of Acharius.

VERRUCARIA DERMATODES. *Vellum-like Bark Verrucaria.* TAB. 1931. fig. 2.

Thallus determinate, between filmy and tartareous, continuous, very smooth, cream-coloured, swelling about the tubercles. Apothecia hemispherical, black, immersed; at length exposed.

*Verrucaria dermatodes*, *Borrer in E. B. Supp.* 2607. fig. 2. *Hooker Crypt. Part 1.* 149.

Found on trees in Ireland, by Miss Hutchins, about Bantry, and by Sir T. Gage near Killarney. The living plant, as observed by the former, is constantly suffused with a reddish tinge. It grows in patches

of considerable extent, bounded by a narrow black line. "In the state figured at *b*, it is very liable to be confounded, by a hasty observer, with *V. epidermis*, as it usually grows on birch-trees, and still more with a variety of similar hue which sometimes spreads over the trunks of young ash-trees in woods. In the real nature of the crust, however, and the formation of the tubercles within it, the present species much more resembles *V. nitida*, although not in the structure of the tubercles, the shell of which does not, as in that, inclose the base of the nucleus: the colour, too, remarkable vellum-like appearance of its thinner and more polished thallus, and the entire want of dots upon the surface, afford a satisfactory specific distinction."—*Borrer*.

**VERRUCARIA CINEREA.** *Greyish Bark Verrucaria.* **TAB. 1932.**

Thallus greyish, uninterrupted, thin, smooth, polished; swelling about the tubercles. Apothecia minute, convex, black; protruding through and elevating the thallus.

Lichen stigmatellus, *Acharius Prod. E. B.* 1891. *Verrucaria cinerea*, *Persoon. Hooker Crypt. Part 1.* 149.

It forms broad, uninterrupted patches, on the smooth bark of trees in the New Forest, Hampshire, where it was first noticed by C. Lyell, Esq. Thallus pale brownish grey, about the thickness of tissue-paper. Apothecia numerous, giving a clouded appearance to the smooth, polished surface of the thallus.

**VERRUCARIA EPIDERMIS.** *Birch-Bark Verrucaria.*

Thallus very thin, spreading, cream-coloured. Apothecia black, very minute, roundish convex, the circumference depressed, with a hemispherical point in the centre.

*Verrucaria epidermis*, *Acharius Syn.* 89. *Hooker Crypt. Part 1.* 149. Not unfrequent on the epidermis of the birch-tree.

**VERRUCARIA ANALEPTA.** *Dotted Oak-Bark Verrucaria.* **TAB. 1933.**

Thallus determinate, very thin, smooth, shining, pale copper-coloured. Apothecia scattered, elevated, hemispherical, black, with a central dot.

Lichen analeptus, *E. B.* 1848. *Verrucaria analepta*, *Acharius Syn.* 88. *V. epidermis*  $\beta$ , *Hooker Crypt. Part 1.* 149.

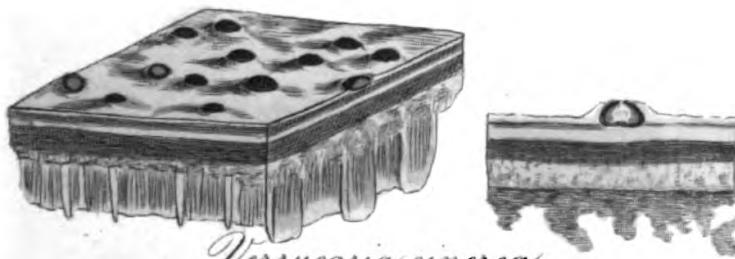
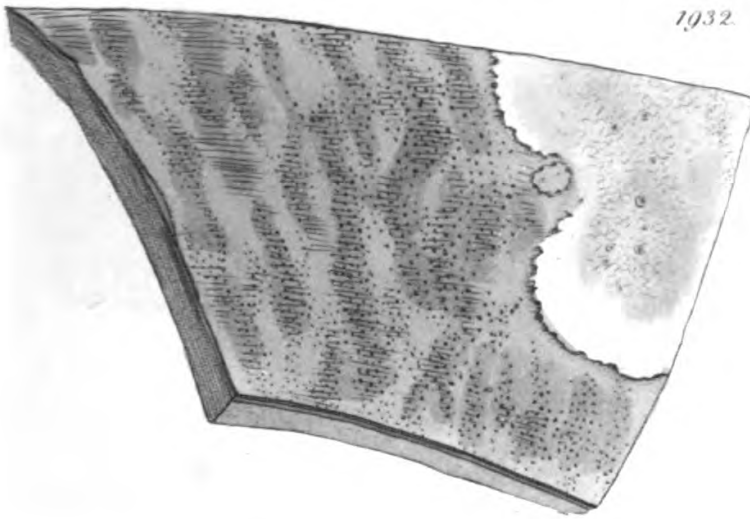
Found on the smooth bark of young oaks in Sussex and elsewhere in the south of England. It does not appear to differ from *V. epidermis*, except in the colour of the thallus. Apothecia very minute, scattered, black, hemispherical, with a small depression at the summit.

**VERRUCARIA PUNCTIFORMIS.** *Brownish Bark Verrucaria.* **TAB. 1934.**

Thallus determinate, very thin, smooth, rusty-brown. Apothecia very minute, black, hemispherical, umbilicated.

Lichen punctiformis, *E. B.* 2412. *Verrucaria punctiformis*, *Persoon. Hooker Crypt. Part 1.* 150. *Acharius Syn.* 87.

1891  
1932

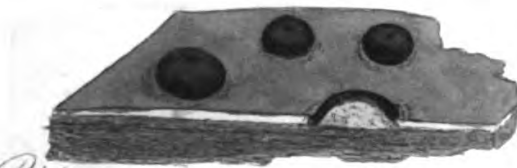


*Verrucaria cinerea.*  
June 1868. Published by J. S. Searby, London.



1848.

1933.



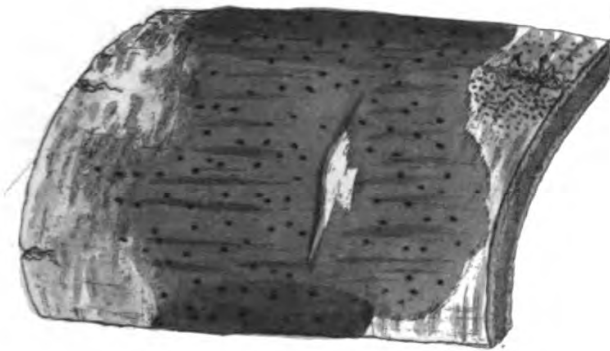
*Verrucaria analepta.*

Feb 21 1868, Published by J. S. Sewall, London.



1848.

1933.



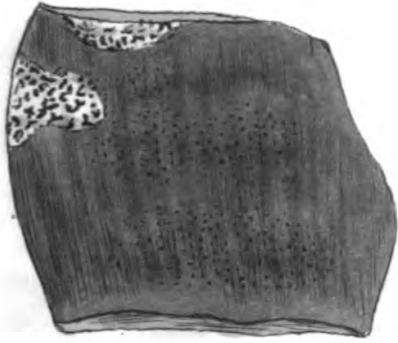
*Verrucaria analepta.*

Fed. 1868. Published by J. S. Senesby, London.





2412  
1934



*Verrucaria punctiformis.*

May 2, 1934, published by J. F. Sowerby, London.

3



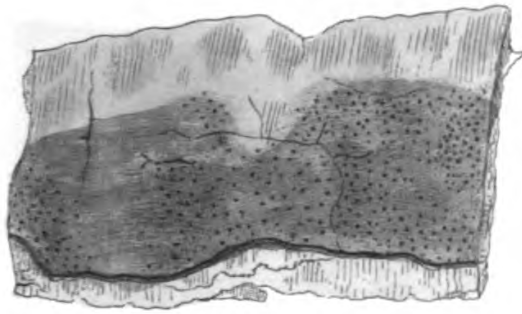


Fig. 1

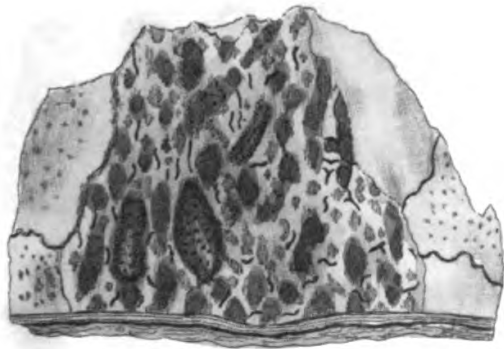
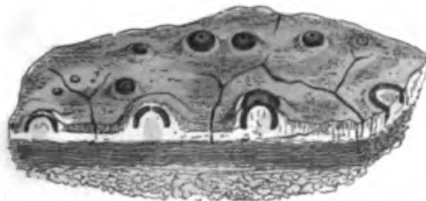
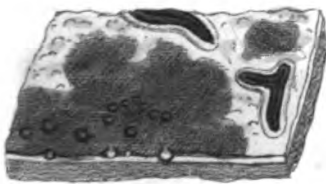
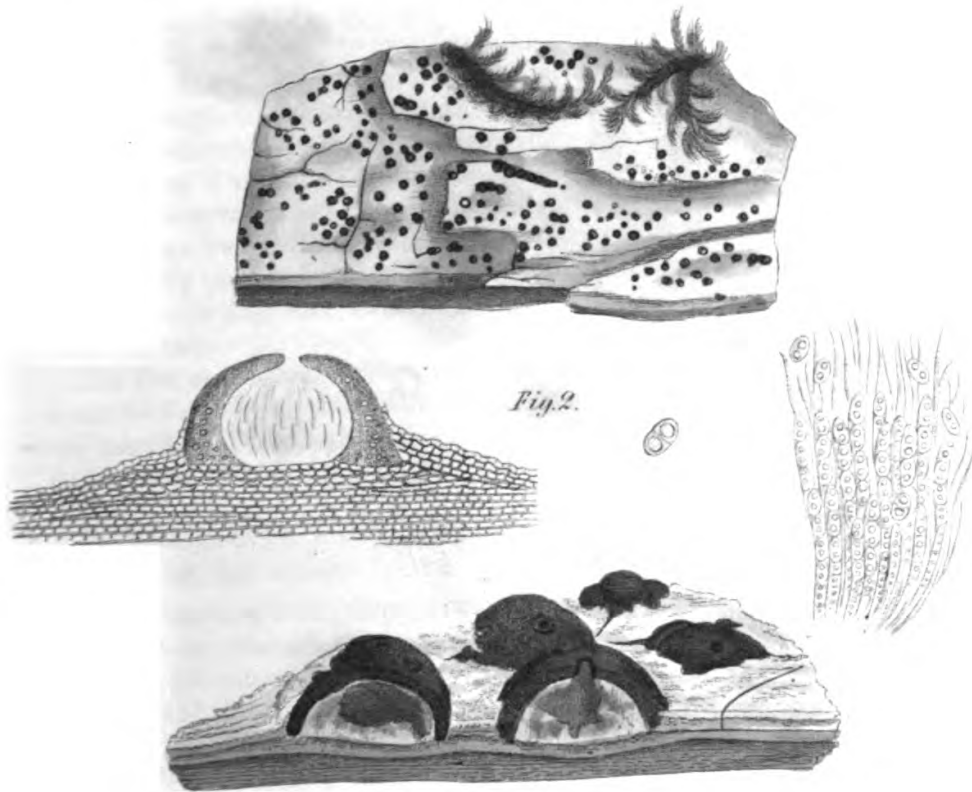
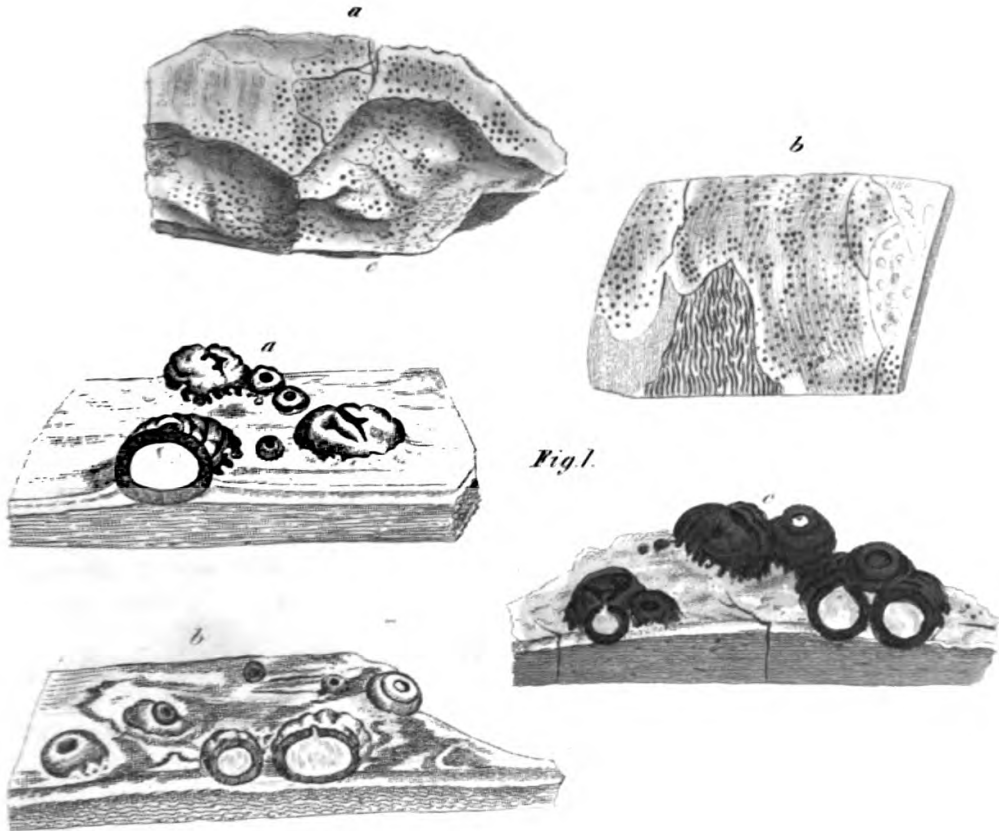


Fig. 2



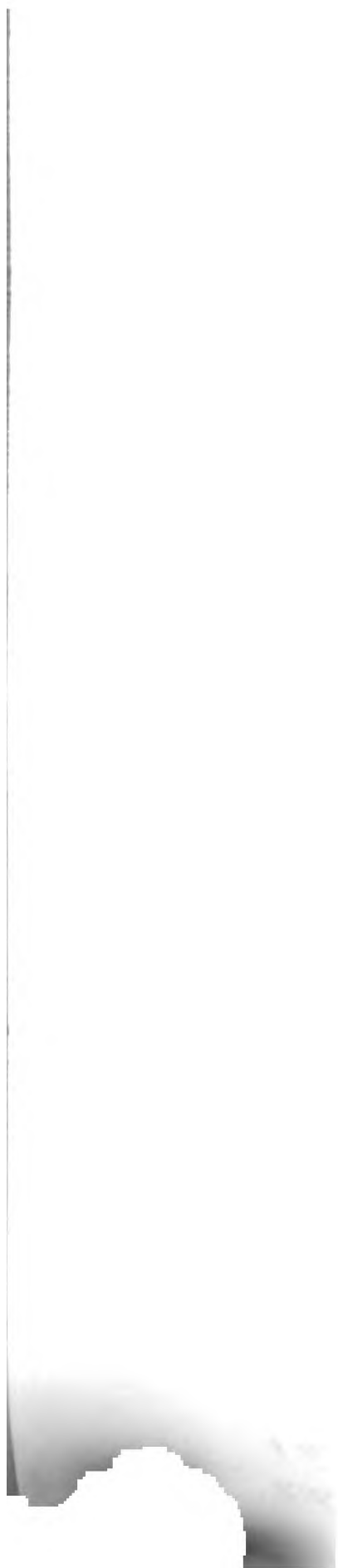
*Verrucaria olivacea*. Fig. 1.  
 -----  
*rhyponia* Fig. 2.

1851



*Verrucaria bififormis.* Fig. 1.  
——— *gemmata.* Fig. 2.

December 1<sup>st</sup> 1829.



Found commonly on the smooth bark of young ash-trees. Very nearly allied to *V. analepta*, if not a variety only. The thallus is of a more rusty hue, the tubercles more minute than in that species, and so much umbilicated as to be occasionally almost cup-shaped.

VERRUCARIA OLIVACEA. *Olive-crusted Bark Verrucaria*. TAB. 1935. fig. 1.

Thallus indeterminate, filmy, continuous, or slightly cracked, roughish, olive-green. Apothecia prominent, hemispherical or somewhat conical, black, slightly rugose; the thallus rising about their base, or investing their whole surface.

*Verrucaria olivacea*, *Persoon*. *Borrer in E. B. Supp.* 2597. fig. 1. *Hooker Crypt. Part 1.* 150. *V. carpinea*, *Acharius Syn.* 88.

Grows upon the smooth trunks of the hawthorn, ash, and other trees. It appears chiefly distinguishable from *V. epidermis* by the more considerable and somewhat rugged thallus, which varies in hue, and is sometimes almost black. Apothecia usually more or less enveloped by the thallus.

VERRUCARIA RHYPONTA. *Black-stain Bark Verrucaria*. TAB. 1935. fig. 2.

Thallus roundish, filmy, continuous, roughish as if minutely flocculose, black. Apothecia very minute, prominent, hemispherical, black, for the most part slightly rugose.

*Verrucaria rhypona*, *Acharius Syn.* 89. *Borrer in E. B. Supp.* 2597. fig. 2. *Hooker Crypt. Part 1.* 150.

Found on the trunks of young trees in Sussex and Hampshire. It grows parasitically on *Opegrapha scripta*, or rather, as Mr. Borrer expresses it, it is formed beneath the crust of that plant, and gradually bursts through and destroys it in little stain-like spots. Thallus dull black, sometimes passing into grey or olive; roughish under the microscope, as if minutely granulated, flocculose, or fibrous. Apothecia so minute as to be scarcely discoverable by the naked eye, usually of the same hue as the thallus, and roughish as if encrusted by it; occasionally polished and black; orbicular, convex; the apex sometimes slightly papillose, sometimes umbilicated; orifice minute; nucleus whitish.

The less spreading thallus, and the much more minute tubercles, seem to distinguish this little plant from *V. olivacea*; yet Mr. Lyell has found, on beech-bark, in the New Forest, a dark, olive-crusted *Verrucaria*, nearly intermediate in both these respects.

VERRUCARIA BIFORMIS. *Deceptive Bark Verrucaria*. TAB. 1936. fig. 1.

Thallus indeterminate, filmy, continuous, or sparingly cracked, slightly rugose or smooth, or somewhat powdery, greyish. Apothecia small, prominent, hemispherical, invested with a thin film.

*Verrucaria biformis*, *Borrer in E. B. Supp.* 2617. fig. 1. *Hooker Crypt. Part 1.* 150.

Grows not unfrequently on the trunks of young oaks, sometimes



on ash and other trees, but is easily overlooked. The thallus, on smooth bark, forms irregular patches, sometimes 2 inches in width, of a pale grey hue, almost white when dry, or more or less tinged with olive: it is not unfrequently suffused, as at fig. *b*, with a black, powdery or granulated matter which adheres so closely as not to be removed by rubbing. Apothecia numerous, black, or brownish, scarcely half so large as poppy-seed, orbicular, hemispherical, with a minute dot at the apex, which eventually becomes an irregular chink; incrustated at the lower part by the filmy thallus, which invests them at an early stage, fig. *a*. On more rugged bark, it is of a whiter hue, the tubercles more numerous, prominent and irregular in size; often crowded and confluent, and umbilicated at the apex. An obscure and puzzling lichen. In the state first described it approaches *V. olivacea*, but the whiter crust, and broken appearance of the older tubercles, tolerably well distinguish it; as do the latter character, the thicker shell, and greater protuberance of the tubercles, from *V. cinerea*. It very closely resembles *V. gemmata*, but the tubercles do not attain half the size usual in that species, although they seem liable to all the same variations in figure, except, perhaps, that they never become mammillated; their shell, also, passes under the base of the nucleus, which does not appear to be the case in the plant in question.

The second state is so unlike the first, that the two might be thought distinct species, did not specimens like that figured at *a*, *c*, occur, in which the thallus of the same individual, spreading on young oaks, from the smooth epidermis to the cracks of the bark, bears in the one part the former, in the other the latter appearance\*.

VERRUCARIA GEMMATA. *Large-fruited Bark Verrucaria.* TAB. 1936. fig. 2.

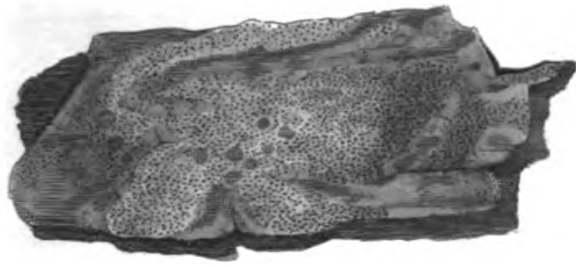
Thallus indeterminate, almost filmy, continuous or somewhat cracked, nearly smooth, whitish. Apothecia large, prominent, hemispherical or deformed, naked or invested with a very thin film.

*Verrucaria gemmata*, *Acharius Syn.* 90. *Borrer in E. B. Supp.* 2617. fig. 2. *Hooker Crypt. Part 1.* 150. *V. alba*, *Schrader.*

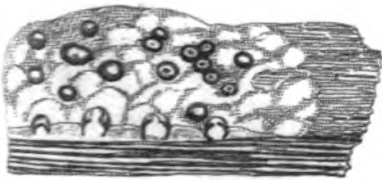
Frequent on the trunks of the ash and other trees. Thallus widely spreading, white, or occasionally of a dirty grey or lead-colour, smooth or sometimes a little rugged or powdery. Apothecia various in size, but, when fully grown, often as large as mustard-seed, generally distant and scattered, rarely confluent; the apex more or less flattened or mammillated. Nucleus whitish, composed of linear thecæ, within which the spores are united in pairs: in drying, it shrinks so as merely to line the interior of the shell.

The large size of the tubercles distinguishes this from all the other British *Verrucariæ* that grow on bark, except some states of *V. nitida*, with which it cannot in other respects be confounded.

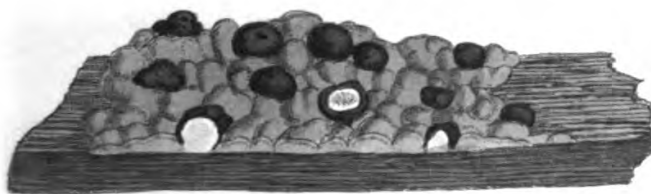
\* It is this variation in general aspect, resulting simply from the conditions of the supporting surface, that renders the study of the crustaceous Lichens one of so much uncertainty, and the indefinite multiplication of supposed species an error, into which even the most accomplished and discriminating of cryptogamic botanists is too prone to fall. How far the latter has been the case in the present genus it would be difficult to decide.



*Fig. 1.*



*Fig. 2.*



*Verrucaria niveo-atra* Fig. 1.  
——— *rudis* Fig. 2.





Fig. 2.

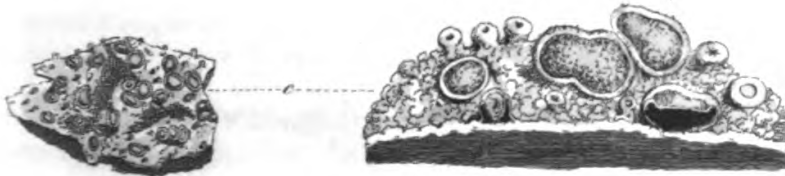
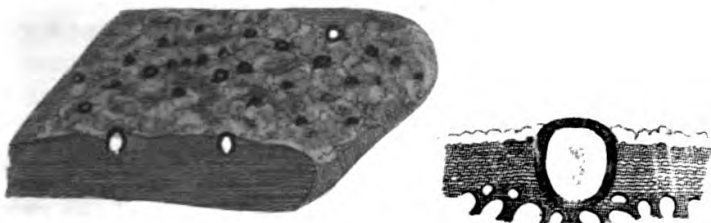


Fig. 1



*Verrucaria aphanes* Fig. 1.  
 ——— *lencoccephala* Fig. 2.



**VERRUCARIA NIVEO-ATRA.** *Snowy-crusted Bark Verrucaria.*  
**TAB. 1937.** fig. 1.

Thallus indeterminate, thin, rugose, somewhat powdery, white. Apothecia very minute, orbicular, half immersed; their apex naked, depressed, rugose.

*Verrucaria niveo-atra*, *Borrer in E. B. Supp.* 2637. fig. 1. *Hooker Crypt. Part 1.* 151.

Found on the bark of the elm in Suffolk, Sussex, and elsewhere, likewise on old timber. Thallus extremely thin, very minutely rugose, snowy-white externally, especially when dry; internally yellowish-green. Apothecia numerous, minute, black or somewhat pruinose, irregularly rugose in general, whence the small orifice is usually difficult of detection.

It approaches nearer to the powdery state of *V. biformis* than to any other British species; but differs in the crust, and in the smaller size and dissimilar structure of the tubercles.

**VERRUCARIA RUDIS.** *Rugged Bark Verrucaria.* **TAB. 1937.**  
 fig. 2.

Thallus indeterminate, somewhat gelatinous, thin, continuous, uneven with granulations, grey or blackish. Apothecia very minute, prominent, irregularly spherical, very rugged, dull black.

*Verrucaria rudis*, *Borrer in E. B. Supp.* 2637. fig. 2. *Hooker Crypt. Part 1.* 151.

Found on boarded buildings and rugged oaks, at Hurst-pierpoint and Albourne, Sussex, and at Esher, Surrey. Thallus composed of minute confluent granulations, of a dull dark, unpolished grey approaching to black. Apothecia very irregular in outline.

Known from the last species by the colour and texture of the thallus, and the prominence and more dingy hue of the tubercles, as well as their more generally conspicuous nucleus. It seems to bear some affinity to *V. leucocephala* in the structure of the tubercle, the shell being thinner and apparently softer than in the generality of the crustaceous *Verrucariæ*; and small and imperfect patches of that species are so intermixed with those of the present plant upon bark, as almost to lead to a suspicion whether the two be really distinct: yet the tubercles are not powdered, nor do they partake at all of the tendency to a cylindrical figure, so observable both in the denudated state and in the more common appearance of *V. leucocephala*; and they differ further by their minute size, rugged surface, and hardly discoverable orifice; the nature of the crust, too, seems essentially different. To distinguish *V. rudis* in its palest state from *V. biformis* and *V. olivacea*, it is only necessary to advert to the more even crust, and the larger and more distinctly perforated tubercles of those species.

**VERRUCARIA APHANES.** *Inconspicuous Bark Verrucaria.* **TAB.**  
**1938.** fig. 1.

Thallus indeterminate, very thin, continuous, minutely rugose, olive.

Apothecia very minute, nearly globose, covered with a pale olive powder.

*Verrucaria aphanes*, *Borrer in E. B. Supp.* 2642. *fig. 1. Hooker Crypt. Part 1.* 151.

Probably not unfrequent on old elms, but being visible to the naked eye only by a dull dark olive tinge, it may be passed over as the naked surface of the bark. Thallus a mere film spreading indeterminately, frequently disappearing in spots. Apothecia most minute, their surface regularly convex, usually pruinose; the orifice marked by a little brown or blackish dot.

Mr. Borrer observes that the powdery surface of its tubercles seems to indicate some degree of affinity between this most inconspicuous little lichen and *V. leucocephala*; and the state of our knowledge of these obscure vegetables is by no means such as to warrant a positive assertion that it is not an infant state of that species, in company with which only it has been found growing. Yet the structure of the crust seems very different, as well as the colour both of that part and of the fructification. The tubercles are more minute than those of any other British *Verrucaria*.

**VERRUCARIA LEUCOCEPHALA.** *White-fruited Bark Verrucaria.*  
TAB. 1938. *fig. 2.*

Thallus between filmy and tartareous, grey, pruinose. Apothecia largish, prominent, spherical or almost cylindrical, brown, covered with a white powder; their apex at length bare.

*Verrucaria leucocephala*, *Acharius Meth. Borrer in E. B. Supp.* 2642. *fig. 2. Hooker Crypt. Part 1.* 152. *Pyrenula leucocephala*, *Acharius Syn.* 126. *Sphæria lichenoides*, *Sowerby Fungi*, 373. *tab. 12.*

Grows on the trunks of old trees near the ground. The thallus spreads widely and irregularly. Young patches are usually roundish, and have sometimes a fibrous and slightly zonate edge. The tubercles, when young, are often so completely covered with a loose white powder, as to resemble the pulvinuli of a *Spiloma*.

*Fig. b.* represents a slight variety,  $\beta$ . *amphibola*, *Acharius Syn.*, with larger, often irregular tubercles.

Specimens on old bark, from Mr. Lyell and Mr. Robertson, present among the apparent tubercles, patellulæ of a dull purplish-black, covered with an inseparable superficial buff-powder, and resembling at first sight the fructification of a *Lecanora*, see our *fig. c.* Similar patellulæ occur on sand-rocks in Sussex, intermixed with what may possibly be abortive tubercles of the *Verrucaria*: their relation in either case to the plant before us, and consequently its reference to this genus, is yet undecided.

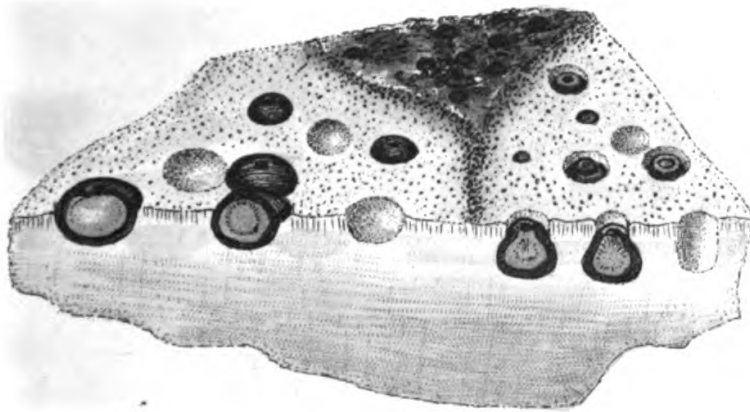
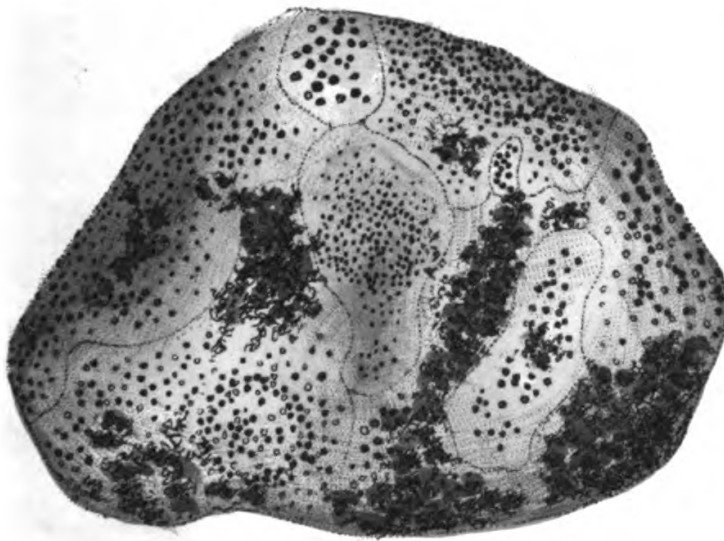
\* \* *Growing on rock or stone. Saxicolæ.*

**VERRUCARIA RUPESTRIS.** *Immersed Rock Verrucaria.* TAB. 1939.

Thallus indeterminate, very thin, whitish, smooth. Apothecia, small,

1711

1939.



*Verrucaria rupestris*

March 1907. Published by J. S. Sowerby London.



THE UNIVERSITY OF CHICAGO  
1954

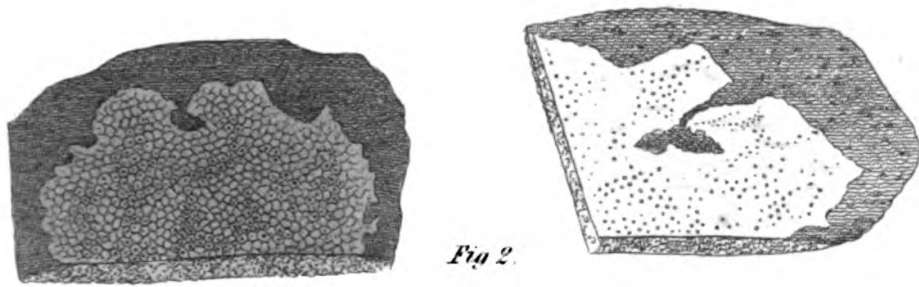


Fig 2.

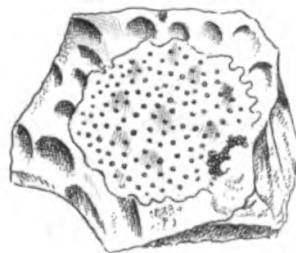
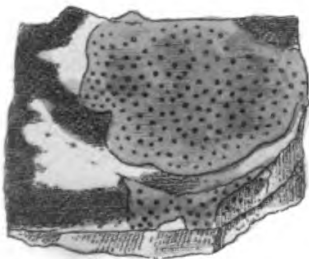
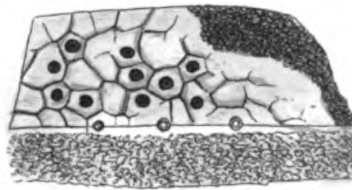
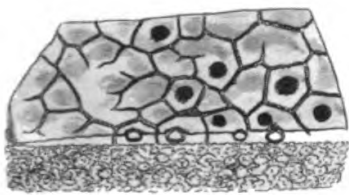
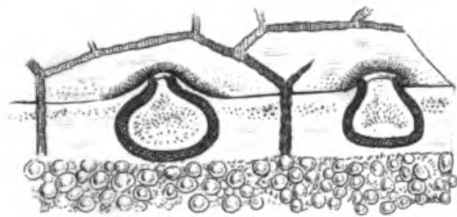
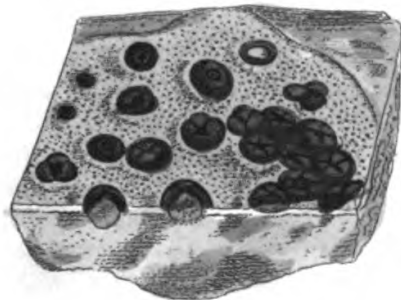


Fig 1.



*Verrucaria concinna*: Fig. 1.  
 ——— *laevata*: Fig. 2.



black, globose, umbilicated, sunk in a hollow of the crust and partly of the stone.

Lichen Schraderi, *Acharius Prod. E. B.* 1711. *Verrucaria rupestris*, Schrader. *Hooker Crypt. Part 1.* 152. *V. Schraderi*, *Acharius Syn.* 93.

Frequent on chalk and calcareous rocks and stones, whose surface its thallus so nearly resembles in hue that it would generally be overlooked, were not its presence indicated by the black speckled appearance of the fructification. Apothecia very numerous, globose when fully grown, and for the most part deeply sunk in little cavities which they form in the stone.

Mr. Borrer considers the different appearances presented by our figure to be occasioned by the intermixture of two distinct species, *V. rupestris* and *V. immersa* of Hoffmann, which, as he observes, frequently accompany each other upon chalk.

VERRUCARIA CONCINNA. *Neat Rock Verrucaria.* TAB. 1940.  
fig. 1.

Thallus determinate, very thin, tartareous, continuous, even, grey, somewhat pruinose. Apothecia of a middle size, prominent, hemispherical, umbilicate, black.

*Verrucaria concinna*, Borrer in *E. B. Supp.* 2623. fig. 1. *Hooker Crypt. Part 1.* 152.

Found on limestone rocks on the Durham shore of the Tees, near Eglistone; likewise at Killarney, Ireland, and, but rarely, on chalk on the Sussex Downs. The thallus forms roundish patches, an inch or two in diameter, mostly circumscribed by a narrow black line, and of a smoky-grey or mouse-colour. Apothecia about as large as poppy-seed, black, more or less polished, prominent, very little sunk in the stone.

The limited and even crust, and its more prominent and larger tubercles, distinguish it from the preceding.

VERRUCARIA LÆVATA. *Greyish Water Verrucaria.* TAB. 1940.  
fig. 2.

Thallus thin, tartareous, cracked, smooth, dirty-white or brownish-grey. Apothecia small, partially emerging, somewhat conical, black.

*Verrucaria lævata*, Acharius. Borrer in *E. B. Supp.* 2623. fig. 2. *Hooker Crypt. Part 1.* 153. *Acharius Syn.* 94.

Grows on the rocky beds of streams and water-courses in mountainous districts, as in the north of England, and about Killarney, Ireland. The thallus varies in thickness from a mere film to that of the shell of a hen's egg. The minute cracks appear as if caused by the shrinking of the originally continuous crust, and vary much in abundance; in the thicker specimens they usually divide the whole surface into imperfect, small, angular areolæ. Tubercles very small, numerous; their base sunk in the crust, which often rises about them, and obscures, as with a film, the greater part of their surface, the exposed portion of which is black and polished.

**VERRUCARIA ELÆINA.** *Olive-green Rock Verrucaria.* TAB. 1941.

Thallus thin, tartareous, cracked, smooth, slightly tumid above the tubercles, greenish-olive. Apothecia small, immersed, black, between hemispherical and conical; at length emerging.

Lichen viridulus, *E. B.* 2455, excluding the synonyms *Verrucaria elæina*, *Borrer*, *E. B. Supp.* after *V. lavata*. *Hooker Crypt. Part 1.* 152.

First collected by Miss Hutchins, on fissile slate-rocks, in shady situations, in the west of Ireland. Thallus spreading irregularly, greenish-olive when wet, more grey and shining when dry. Apothecia black, nearly hemispherical, bursting through irregular star-like cracks on the surface of the crust, and at length partially denuded.

**VERRUCARIA HARRIMANI.** *Mr. Harriman's Rock Verrucaria.* TAB. 1942.

Thallus tartareous, contiguous, limited, mouse-coloured, with very minute depressed dots. Apothecia minute, immersed, globose, with a prominent bordered orifice; dirty-white within.

Lichen Harrimani, *E. B.* 2539. *Verrucaria Harrimani*, *Acharius Syn.* 93. *Hooker Crypt. Part 1.* 153.

First discovered by the Rev. J. Harriman, growing on hard grey calcareous rocks in the county of Durham. Its thallus, though inseparable from the stone, is very distinctly limited, and visibly prominent above the surface. It is of a hard, tartareous texture, white within, greyish or pale mouse-coloured on the outside, which is thickly besprinkled with innumerable depressions or dots. The tubercles are deeply sunk in the crust, blackish, their little bordered orifices only projecting slightly above its level.

**VERRUCARIA PLUMBÆA.** *Lead-coloured Rock Verrucaria.* TAB. 1943.

Thallus tartareous, minutely cracked, rugged, lead-coloured, limited. Apothecia half immersed, globose, black, pale within.

Lichen plumbosus, *E. B.* 2540. *Verrucaria plumbæa*, *Acharius Syn.* 94. *Hooker Crypt. Part 1.* 153.

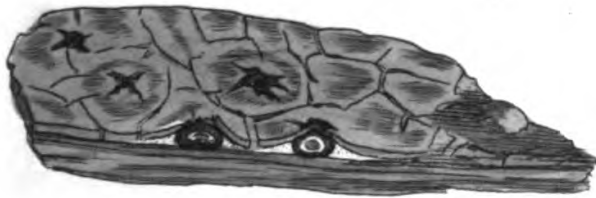
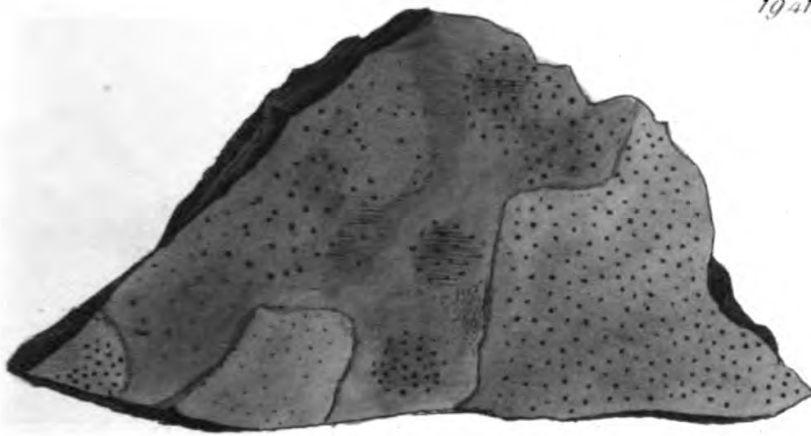
A native of limestone rocks, near Cheddar, Somersetshire. This species differs from *V. Harrimani*, not so much in its bluer colour, as in the tessellated configuration of its thallus, which is, moreover, destitute of impressed dots. The tubercles are also much larger, and sunk only about half their depth, or a little more, in the crust.

**VERRUCARIA GAGEI.** *Sir Thomas Gage's Rock Verrucaria.* TAB. 1944.

Thallus continued, calcareous, smooth, brownish-white, irregularly cracked when dry. Apothecia very minute, blackish, sunk in the thallus.

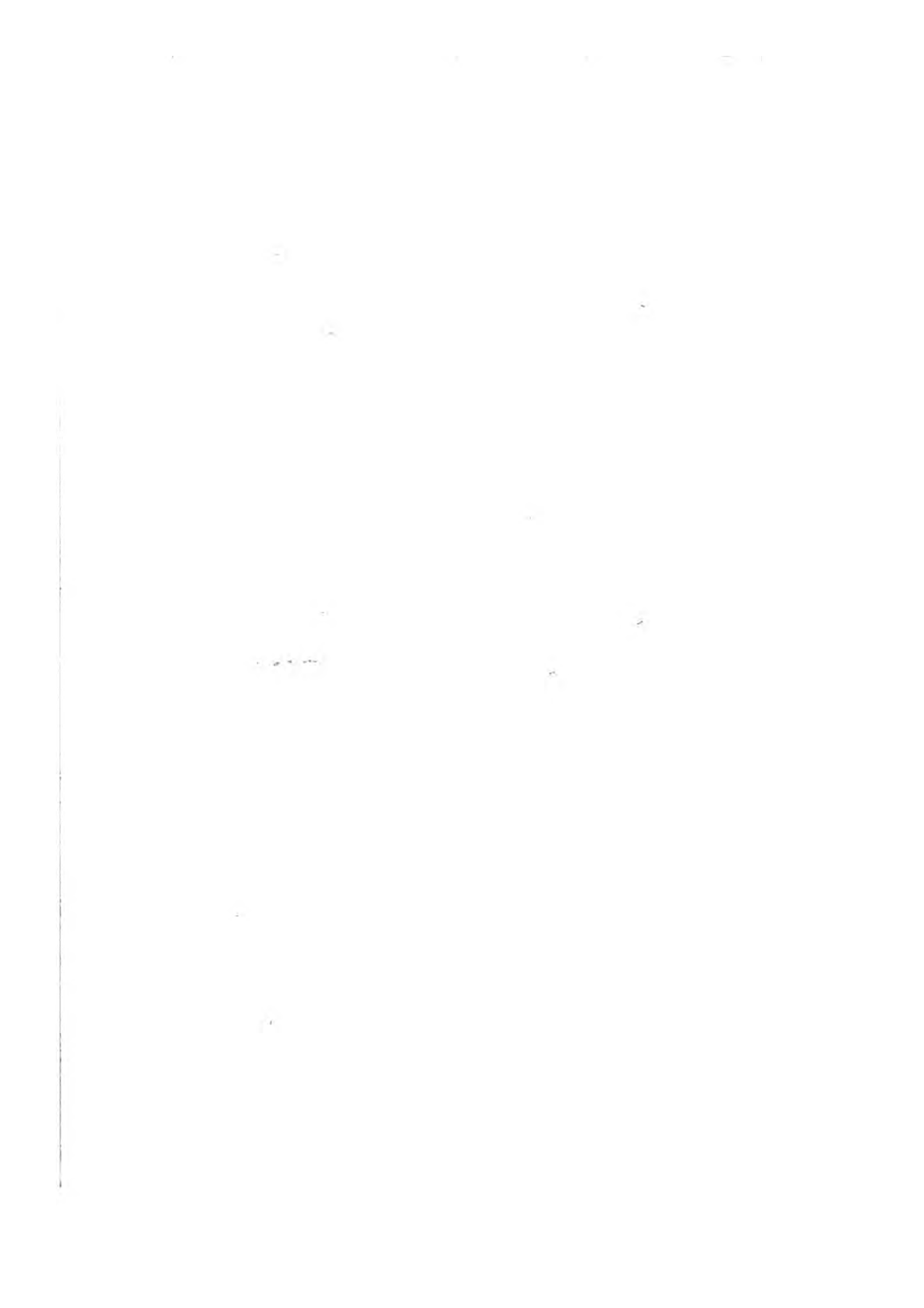
Lichen Gagei, *E. B.* 2580. *Verrucaria Gagei*, *Borrer*. *Hooker Crypt. Part 1.* 153.

2455.  
1941.

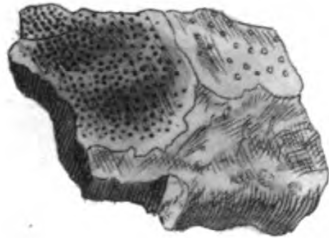


*Verrucaria elacina.*

*See 1941 published by J. S. Hurd.*



2539.  
1942.



*Verrucaria Harrimani.*

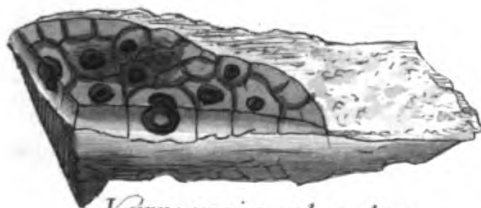
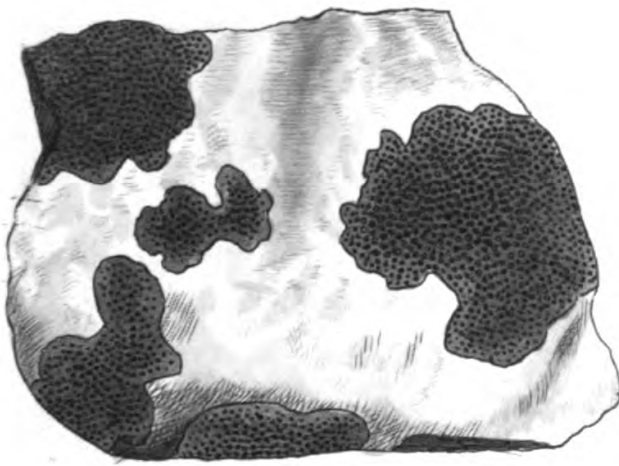
*May 1, 1943, published by J. S. Sowerby, London.*





2540.

1943.

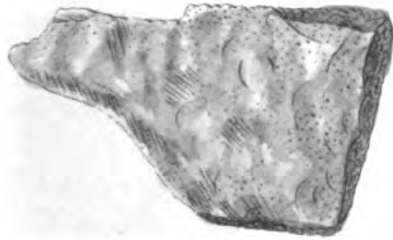


*Verrucaria plumbea.*

*Mycostr. pallida* (Ag.) Sacc. et Syd. var.



2500  
1944



*Verrucaria Gagei?*

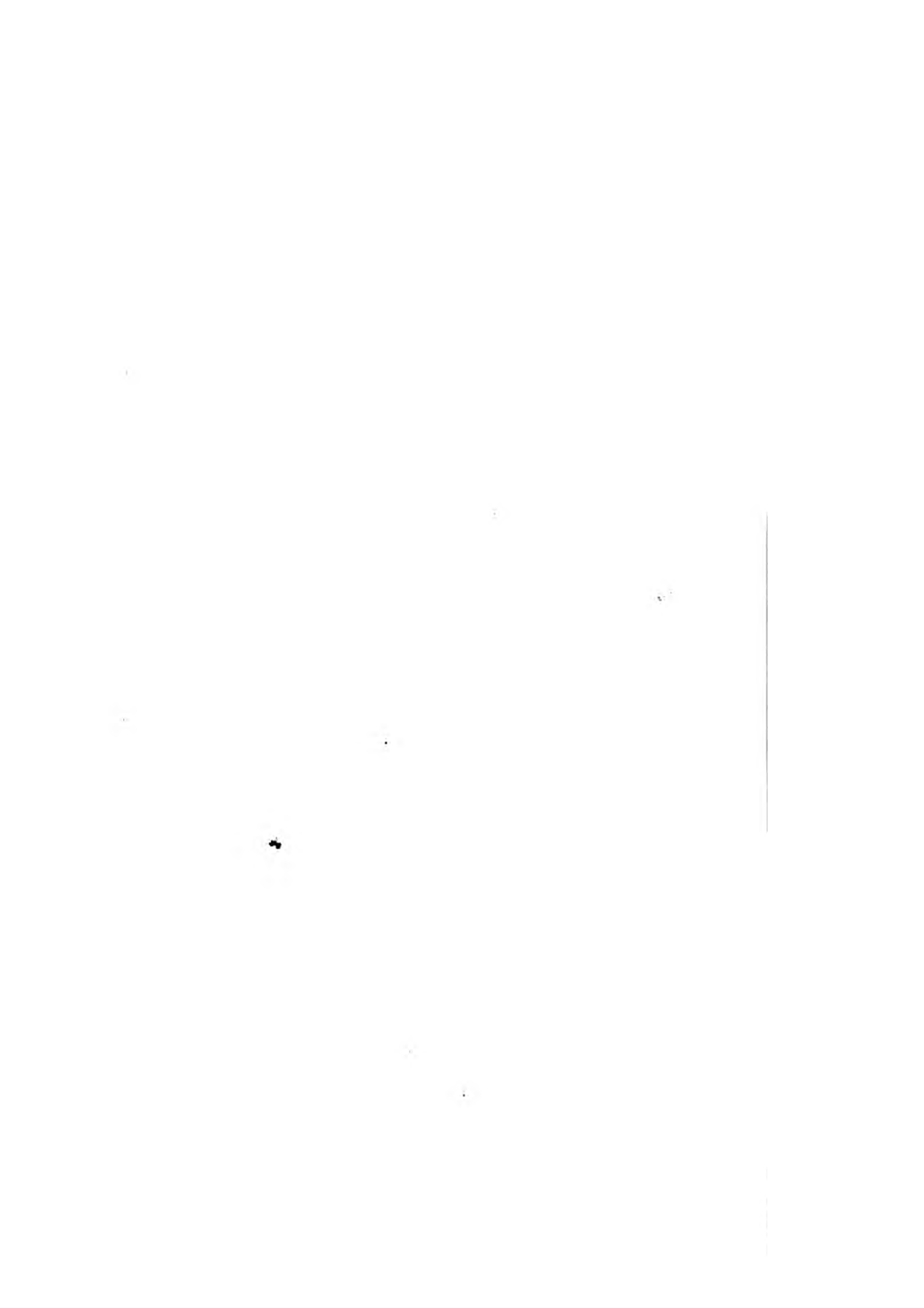
*From a very well-known locality for Verrucaria Gagei.*



1944.



*Verrucaria viridula*



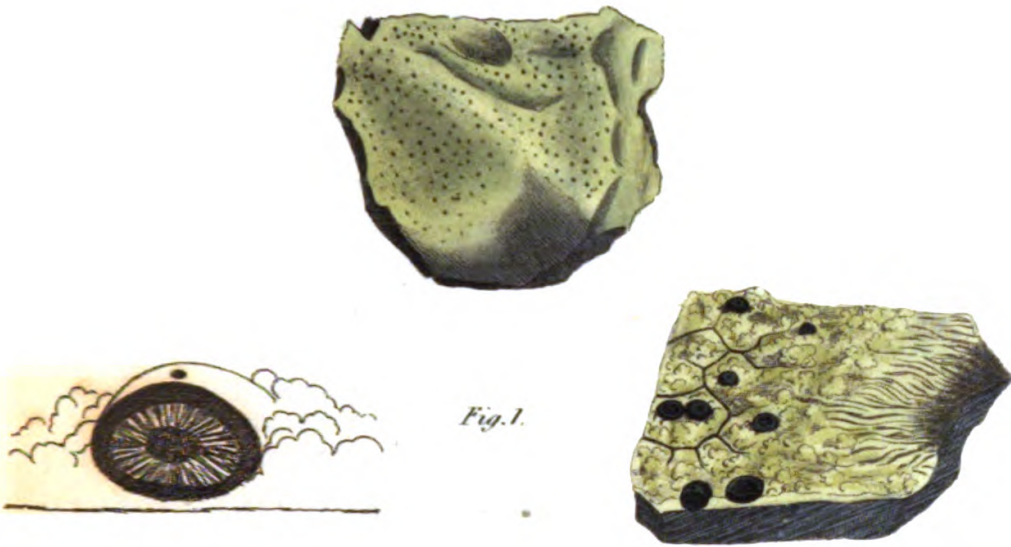


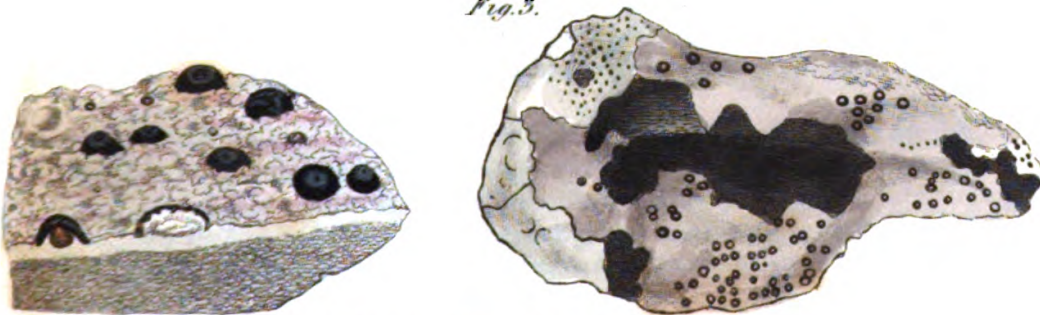
Fig. 1.

**NOTICE.**

Tab. 1945\* and 1945\*\* having been overlooked in collating the Plates for Vol. X., Mrs. Sowerby takes the earliest opportunity of publishing them, in order that the Volume may be complete.



Fig. 2.



*Verrucaria trachona.* Fig. 1.  
 ——— *muralis.* Fig. 2.  
 ——— *epipolacea.* Fig. 3.





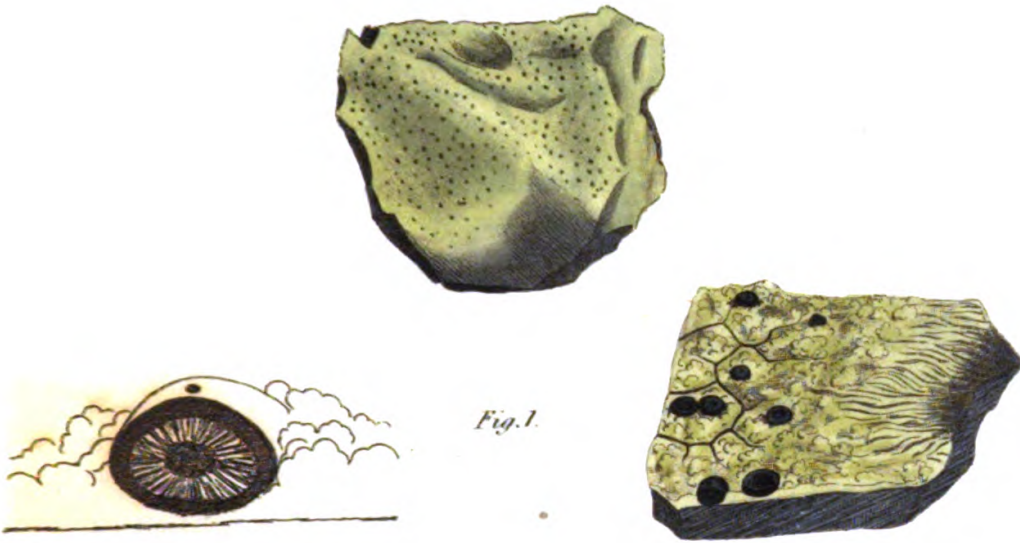


Fig. 1.

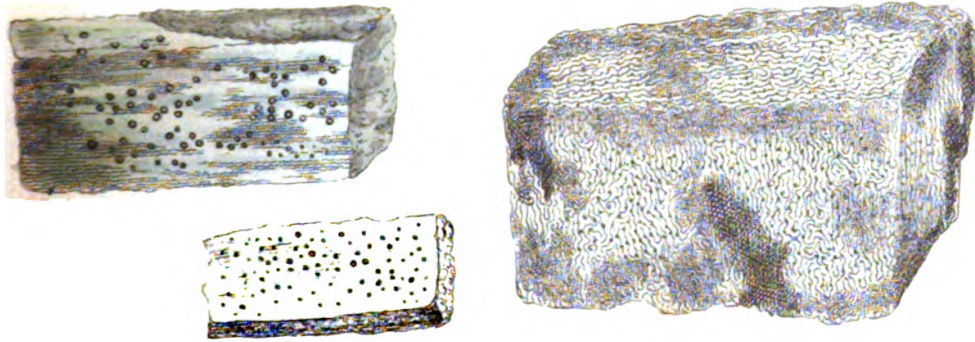


Fig. 2.

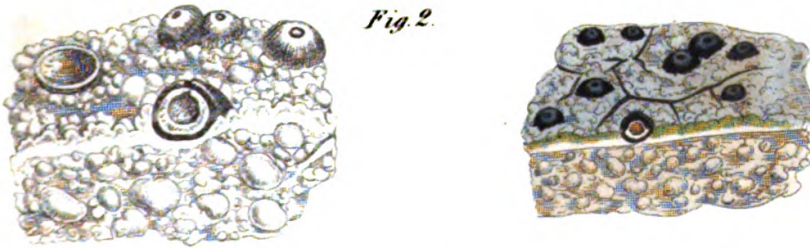
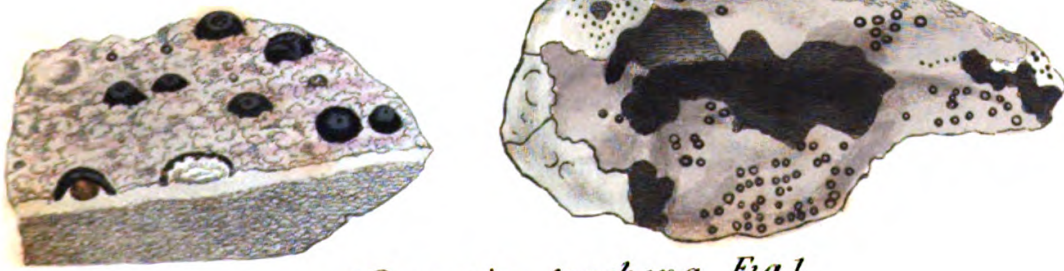


Fig. 3.



*Verrucaria* trachona. Fig. 1.  
 muralis. Fig. 2.  
 epipolaea. Fig. 3.



First found on the rocks of Glena and Glen Fesk, near Killarney, by the late Sir Thomas Gage, Bart., but not common there. The spots on which it grows are occasionally inundated. Colour a pale brownish- or ochrey-white.

**VERRUCARIA VIRIDOLA.** *Mosaic Rock Verrucaria.* TAB. 1944\*.

Thallus thickish, tartareous, rugose, greenish olive-brown ; formed of polygonal, granulato-crenate scales. Apothecia largeish, black, partially immersed, conical.

Lichen tessellatus, *E. B.* 533. *Verrucaria viridula*, *Borrer in E. B. Supp.* after *V. lævata*, 2623. *fig. 2.* *Pyrenula tessellata*, *Acharius Syn.* 126. *Endocarpon viridulum*, *Schrader.*

A common but very variable species, growing on brick-walls and tiles, and occasionally on rocks.

**VERRUCARIA TRACHONA.** *Green Rock Verrucaria.* TAB. 1945. *fig. 1.*

Thallus indeterminate, thin, between pulveraceous and tartareous, continuous or slightly cracked, greyish-green. Apothecia small, prominent, nearly globose, pruinose ; at length deformed.

*Verrucaria trachona*, *Acharius. Borrer in E. B. Supp.* 2647. *fig. 1.* *Hooker Crypt. Part 1.* 154. *Acharius Syn.* 96.

A native of slaty rocks in different parts of Ireland. Thallus very thin, formed of confluent, minute, powder-like granulations, spreading in irregular patches an inch or more in breadth, pale greyish-green : its edge grey, and of a dendritic or fibrous texture, as if the plant were subtended by an extremely thin filmy base. Apothecia copious, very small, imperfectly globose, generally partially clothed about their base and sides with particles of the crust ; brownish and pruinose when dry, black when wet.

The general aspect of this lichen is so much like that of *Lepraria viridis*, that it might be easily mistaken for that plant, somewhat faded and sprinkled with a minute parasite. Under a glass, however, the crust formed by its granulations is found to be thinner and more coherent than the pseudo-thallus formed by the granules, or *propagula* of the *Lepraria*, and the tubercles seem really to belong to it.

**VERRUCARIA MURALIS.** *Wall Verrucaria.* TAB. 1945. *fig. 2.*

Thallus indeterminate, composed of thin, scattered or confluent scales, between pulverulent and tartareous, pale grey. Apothecia prominent, nearly globose, unpolished, umbilicate.

*Verrucaria muralis*, *Acharius Syn.* 95. *Borrer in E. B. Supp.* 2647. *fig. 2.* *Hooker Crypt. Part 1.* 154. *V. ruderum*, *DeCandolle, Fl. Fr.* *Sphæria communis*, *Sowerby Eng. Fungi, tab.* 295. *upper figure.*

Very common on walls, growing chiefly, but not exclusively, on the mortar. Thallus often scarcely perceptible ; composed of minute whitish scales, or flocculi, of an imperfect powdery look.

Allied to *V. rupestris* ; but its crust is less continuous, its tubercles less deeply immersed, and less regular in figure, as well as usually

larger. Its nearest associate seems to be *V. viridula*, mutilated specimens of which might be readily mistaken for it, unless that the tubercula of that species are larger and more conical. The very inconsiderable, often almost abortive thallus, seems, however, the most important distinction; and Mr. Borrer observes, "the most experienced lichenists will not, perhaps, be the most forward to decide whether these two productions be truly distinct species."

**VERRUCARIA EPIPOLÆA.** *Large-fruited Rock Verrucaria.* TAB. 1945. fig. 3.

Thallus indeterminate, thin, tartareous, somewhat powdery, greyish. Apothecia large, prominent, mostly conical, brownish-black, pruinose.

*Verrucaria epipolæa*, *Acharius Syn.* 285. *Borrer in E. B. Supp.* 2647. fig. 2. *Hooker Crypt. Part 1.* 154.

Figured from specimens gathered on St. Vincent's rocks, Bristol, by Mr. Borrer, but found likewise in the north of England, Wales, and Ireland. The large tubercles and continuous crust distinguish this at once from *V. muralis*. *V. gemmata* of the preceding section, Tab. 1936. fig. 2, is so nearly allied to this, having equally large tubercles, that, as observed by Mr. Borrer, "it might be supposed a mere 'varietas loci';" yet its more tartareous crust, with a powdery surface, and its rugose, brownish, less variable tubercles, afford perhaps constantly distinctive marks.

**VERRUCARIA SUBMERSA.** *Rivulet Verrucaria.* TAB. 1945\*.

Thallus tartareous, somewhat gelatinous, thin, continuous; when young green and diaphanous; at length opaque and black: pale brown when dry. Apothecia immersed, dimidiate, depressed; the central papilla only emerging.

*Verrucaria submersa*, *Borrer in E. B. Supp.* 2768.

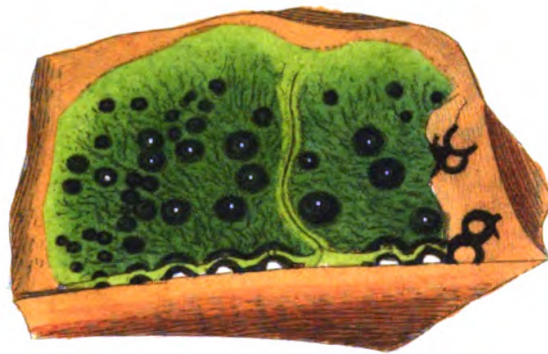
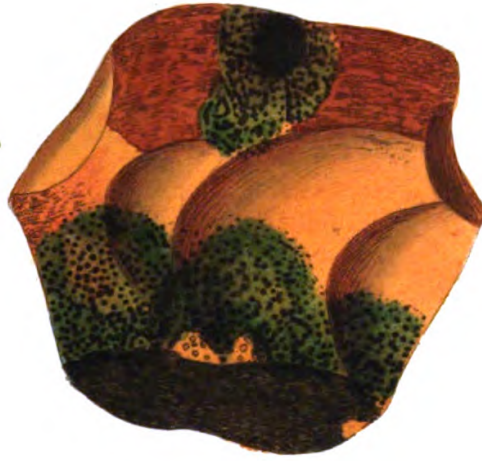
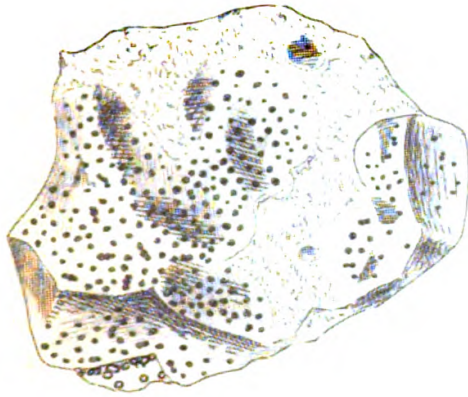
Found growing on stones under water in clear shallow streamlets and springs, in mountainous and subalpine districts. Thallus, in the younger plants, sap-green and diaphanous, so as to show the immersed tubercles; black in older specimens, especially in the thicker parts. Apothecia numerous, mostly covered, the crust rising in little prominences above them: nucleus pale, not subtended by the shell, so that when a tubercle falls off a black ring is left surrounding a bare spot.

**VERRUCARIA DUFOURII.** *Dufourian Verrucaria.* TAB. 1945\*\*.

Thallus determinate, tartareous, smoky-grey, somewhat pruinose, level; at length minutely tessellated. Apothecia large, prominent, mostly truncate, black.

*Verrucaria Dufourii*, *DeCandolle Fl. Fr.* *Borrer in E. B. Supp.* 2791. *V. pyrenophora*, *Acharius Syn.* 94.

Abundant on calcareous rocks on the summit of the hill above the cliffs at Cheddar. Thallus spreading in wide patches, with a tendency to a circular outline; continuous at first, at length divided by minute



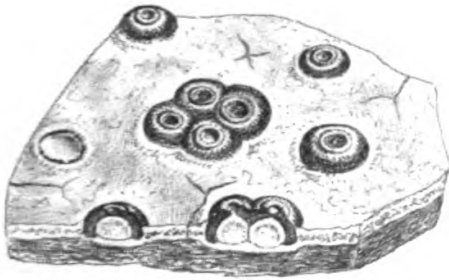
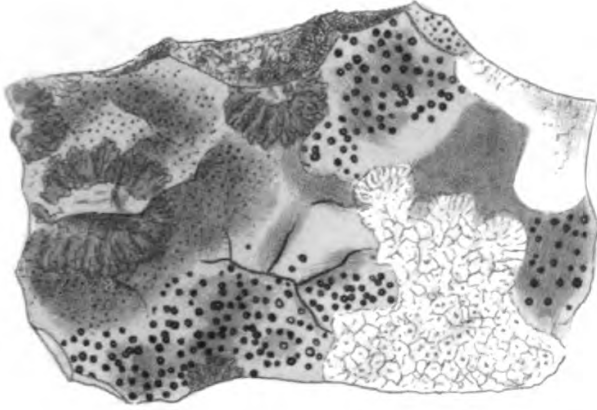
*Verrucaria submersa?*

April 1<sup>st</sup> 1855.

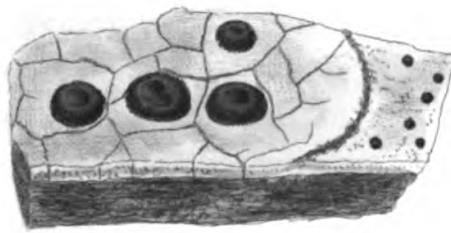


27.91.

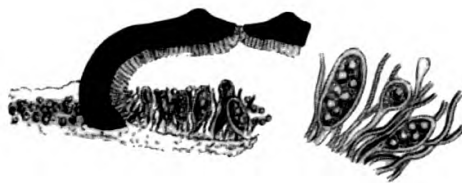
1945.



2



1



*Verrucaria Dufourii*

August 1<sup>st</sup> 1891.





2450.  
19-16.



*Verrucaria maura?*  
Sp. 18412, published by J. S. Sowerby, London.



1499

1947.



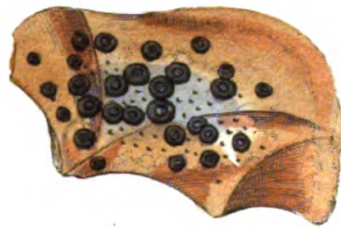
*Verrucaria nigrescens*

Sept. 2. 1806. Published by J. Sowerby London.



1712

1948



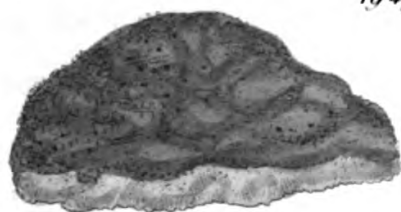
*Verrucaria acrotella?*

*Mar. 1. 1807. Published by J. Sowerby London.*

1

1681

1949



*Verrucaria epigaea* ?

Dec. 1806 Published by Jas. Sowerby London.





cracks, perceptible under a glass and in a dry state only, into small areolæ. Tubercles subhemispherical, about the size of cabbage-seed, truncate at the apex, but becoming concave when dry. Shell black, not subtending the whole of the pale, brownish nucleus.

**VERRUCARIA MAURA.** *Black-moor Rock Verrucaria.* TAB. 1946.

Thallus thin, continued, imperfectly circumscribed, coal-black, smooth, with innumerable minute cracks. Apothecia black, immersed, swelling under the crust, and marked by an umbilicated dot.

Lichen maurus, *E. B.* 2456. *Verrucaria maura*, *Acharius Syn.* 95. *Hooker Crypt. Part 1.* 154.

Frequent on rocks near the sea on the Scottish coast. First noticed by Mr. Borrer growing on a reddish porphyritic sandstone at Dunbar. Thallus forming widely extended and very black patches, of a thin, hard texture, and inseparable from the stone.

**VERRUCARIA NIGRESCENS,** *Dark-stained Rock Verrucaria.* TAB. 1947.

Thallus of a deep olive-black, solid, most minutely cracked. Apothecia of the same hue, half immersed, slightly convex, with a central pore.

Lichen umbrinus, *Acharius Prod. E. B.* 1499. *Verrucaria nigrescens*, *Persoon. Hooker Crypt. Part 1.* 155. *Pyrenula nigrescens*, *Acharius Syn.* 126.

Common on shady rocks and stone walls, even about houses. Thallus forming dark olive-coloured or black patches 1 or 2 inches across.

**VERRUCARIA ACROTELLA.** *Sharp-tubercled Rock Verrucaria.* TAB. 1948.

Thallus scarcely any. Apothecia minute, scattered, somewhat confluent, black, unequal, convex, pointed, umbilicated.

Lichen acrotellus, *E. B.* 1712. *Verrucaria acrotella*, *Acharius Meth.* 123, *V. striatula*  $\beta$ . *Hooker Crypt. Part 1.* 155.

Found by Mr. Borrer in Sussex, growing on flint-stones.

\* \* \* *Growing on the ground or on decayed Mosses.*

**VERRUCARIA EPIGÆA.** *Greenish Ground Lichen.* TAB. 1949.

Thallus pale yellowish-green or grey, somewhat fibrillose, slimy when moist. Apothecia minute, globose, with a minute point, immersed, black within.

Lichen terrestris, *E. B.* 1681. *Verrucaria epigæa*, *Acharius Syn.* 96. *Hooker Crypt. Part 1.* 155. *Sphæria epigæa*, *Persoon Syn. Fung. append.* 27.

Found on dry barren banks near Norwich. The thallus spreads uniformly over the inequalities of the soil, and is of a yellowish or greenish-grey colour when dry; when wet, soft and somewhat slimy.

The very small black apothecia, deeply immersed in the crust, are scattered over the whole plant.

VERRUCARIA HOOKERI. *Hookerian Verrucaria*. TAB. 1950.  
fig. 2.

Thallus thick, of pure white, tumid, tartareous scales, covering a black spongy substance. Apothecia ampulliform, black, immersed, except the conical or truncated apex.

*Verrucaria Hookeri*, Borrer in *E. B. Supp.* 2622. fig. 2. *Hooker Crypt. Part 1.* 155.

Found by Messrs. Hooker and Borrer growing on dead mosses on the micaceous soil of Ben Lawers, in the hollow near the summit, in which *Saxifraga cernua* grows; and since met with "in similar situations on Maelgreadha and the other Breadalbane mountains, not unfrequently on the bare soil composed of comminuted schist." Very unlike every other *Verrucaria* with which we are acquainted, both in thallus and fructification. The thick, turgid, somewhat lobed, tartareous scales are similar in figure to those of *Lecanora frustulosa*, but of a much smaller size; they appear smooth to the naked eye, minutely rugged under a glass; their internal substance is green. The black substratum, in which the tubercles are immersed, imbibes water freely, and is not always easily distinguishable from the decayed moss upon which it grows. The tubercles have a black shell, and a brownish-grey nucleus; their body is oval, and a cylindrical neck rises either through or between the scales of the crust.

#### GENUS DLXXI. ENDOCARPON. *Endocarpon*.

GEN. CHAR. *Thallus* crustaceous, often lobed or foliaceous. *Apothecia* globose, imbedded in the thallus, with a slightly prominent apex, and including a nucleus.

This genus seems to form a transitional grade between the *Lichenes* and the *Hepaticæ*, in habit as well as in general structure, certain species being not very widely separated from *Riccia* in the latter order. The character of the thallus is very variable, and it is not always adherent. Mr. Borrer, in *E. B. Supp.*, unites the species with *Verrucaria*, to which it undoubtedly approaches in the fructification. It is upon the whole a very unsatisfactory genus.

The name bestowed by Hedwig, from ἔνδον, *within*, and καρπός, *a fruit*, accords with the position of the latter within the substance of the thallus.

ENDOCARPON MINIATUM. *Grey cloudy Endocarpon*. TAB. 1951 and 1952.

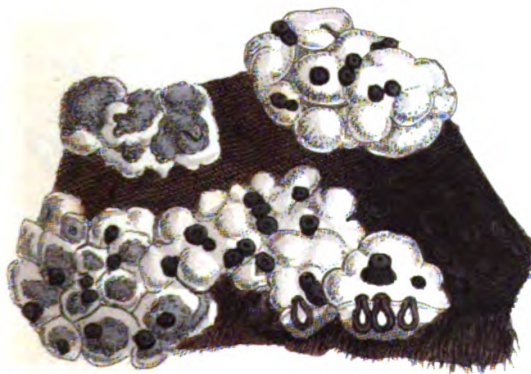
Thallus foliaceous, coriaceous, subumbilicated, variously and broadly lobed, olive-grey, tawny beneath.



*Fig. 1.*



*Fig. 2.*

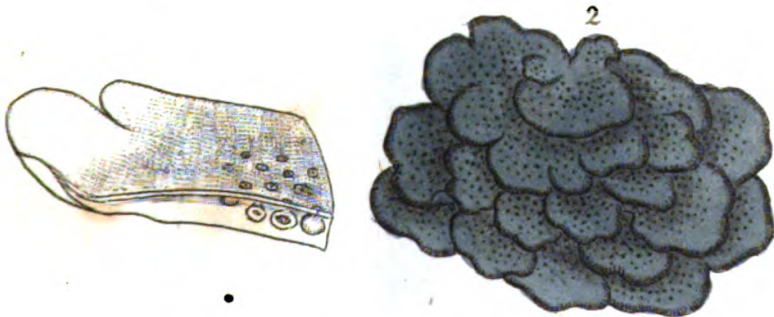
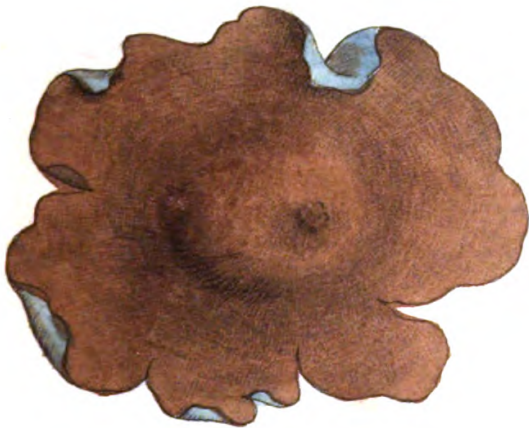
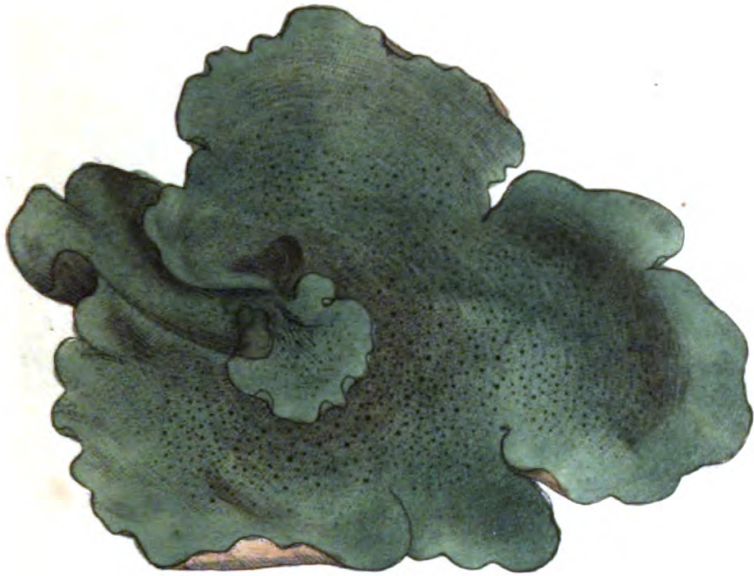


*Verrucaria Hookeri Fig. 1.*

*Pertusaria isidioides Fig. 1.*



593  
1951.

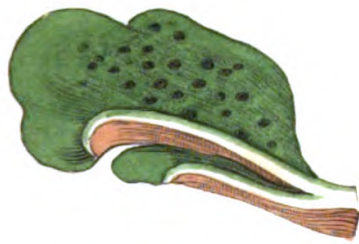


*Endocarpon minutum*

*Musci 1791. Tabulae 12. Fig. 1. 1.*



594.  
1952.



*Endocarpon aquaticum.*

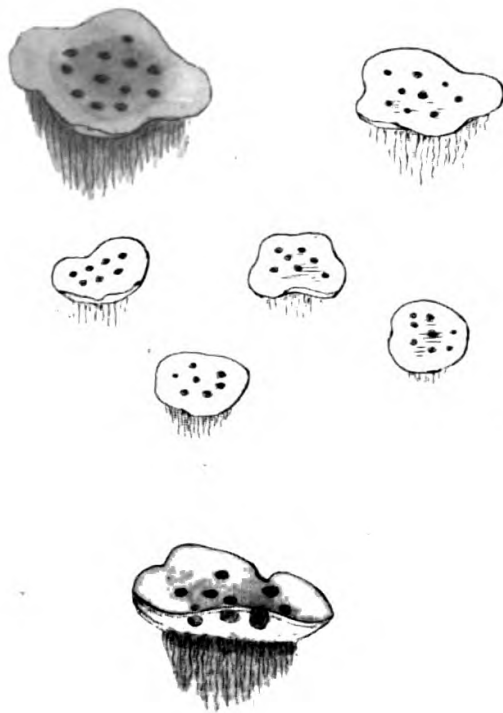
*Fig. 1706. Painted by T. Saccby, Lond.*





595.

1053.



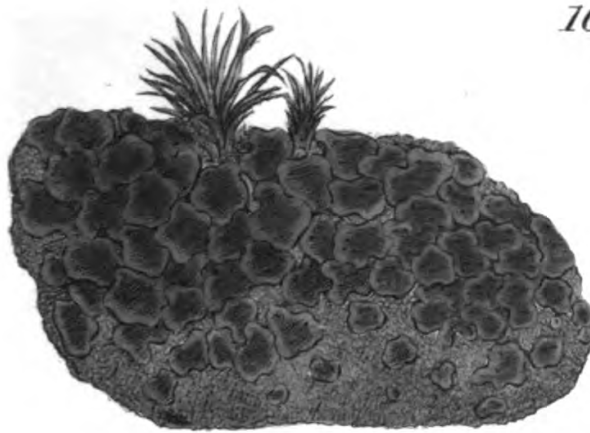
*Endocarpon trapeziformis.*

*Endocarpon trapeziformis.*



1698

1954.



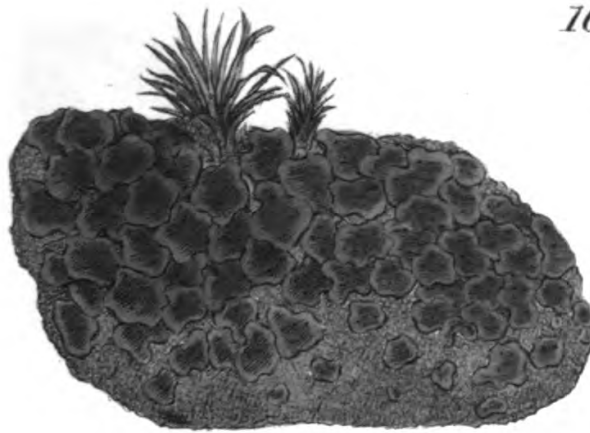
*Endocarpon lachueum?*

Jan. 1. 1807. Published by J. J. Sewerby London.



1698

1954.

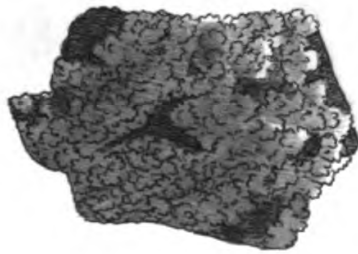


*Endocarpon lachueum?*

Jan. 1. 1867. Published by Jas. Sowerby London.



2541.  
1955.



*Endocarpon pallidum?*

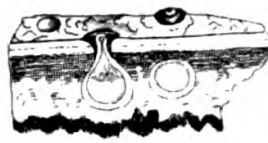
*May 1, 1955 published by J. S. Beer by London.*



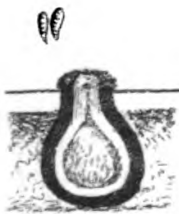




*Fig. 1*



*Fig. 2*



*Endocarpon psoromoides* Fig. 1.

\_\_\_\_\_ *sorediatum* Fig. 2.

1

2

3



Lichen miniatus, *Linn. E. B.* 593. *Endocarpon miniatum*, *Acharius Syn.* 101. *Hooker Crypt. Part 1.* 156.

*α. umbilicatum* Tab. **1951**. Thallus umbilicate, simple, spreading and lobed. *E. miniatum*. A native of dry perpendicular rocks.

*β. complicatum*. Thallus subumbilicate, cæspitose, polyphyllous, the lobes imbricated, erect. *E. complicatum*, *Acharius Syn.* 102. Found upon wet rocks, or within reach of the spray of cascades.

*γ. aquaticum*. Tab. **1952**. Thallus cæspitose, polyphyllous, the lobes crowded in the middle, convolute, the exterior spreading and cut. Lichen aquaticus, *Weis, E. B.* 594. Grows on stones or rocks under the water in subalpine rivulets.

Some intermediate states occasionally occur, depending, as do the above varieties, upon the difference of situation in which the plant grows.

In drying it often becomes of a reddish colour, but in a growing state is usually of an olive-green.

ENDOCARPON HEDWIGII. *Hedwigian Endocarpon.* TAB. **1953** and **1954**.

Thallus a subcartilaginous, scattered, flat, somewhat lobed and angled, greyish-brown scale, pale at the margin, at length blackish, fibrillose. Points of the apothecia protruded, brownish-black.

Lichen trapeziformis, *Dickson. E. B.* 595. *Endocarpon Hedwigii*, *Acharius Syn.* 99. *Hooker Crypt. Part 1.* 156. *E. trapeziforme*, Tab. **1953**.

*β. lachneum*, Tab. **1954**. Lobes of the thallus aggregated, somewhat imbricated, the margin elevated, repando-lobate, waved, beneath black and woolly. Lichen lachneus, *E. B.* 1698.

*γ. squamulosum*. Lobes of the thallus aggregate, subimbricated, lobato-crenate, pale, fibrillose, woolly beneath. Lichen leptophyllus, *E. B.* 2012. *fig. 1*, excluding the synonyms, according to Mr. Borrer; see Tab. **1957**.

A native of barren heaths and rocky ground in various parts of the kingdom. It is an exceedingly variable species, both in form and colour, and, as Sir W. J. Hooker remarks, constitutes, with the following five species, a little group, which, without much violence to nature, might be considered as varieties of the same.

ENDOCARPON PALLIDUM. *Pale-leaved Endocarpon.* TAB. **1955**.

Thallus foliaceous, somewhat imbricated, lobed, crenate, pale greenish-grey, slightly spongy and black beneath; the outermost lobes pale and naked on the under side. Apothecia immersed, black.

Lichen pallidus, *E. B.* 2541. *Endocarpon pallidum*, *Acharius Syn.* 100. *Hooker Crypt. Part 1.* 157.

Found growing on rocks thinly covered with earth, in some parts of Ireland, by the late Sir Thos. Gage.

ENDOCARPON PSOROMOIDES. *Bark Endocarpon.* TAB. **1956**. *fig. 1*.

Scales of the thallus between tartareous and leafy, small, crowded,

somewhat imbricated, appressed, lobed, waved, tumid, olive-green, with slightly elevated, crenate, whitish, downy edges; underside black and spongy. Apothecia immersed, nearly globular, pale, except the slightly prominent blackish-brown apex.

*Verrucaria psoromoides*, *Borrer in E. B. Supp.* 2612. *fig. 1.* *Endocarpon psoromoides*, *Hooker Crypt. Part 1.* 157.

Found on elm-bark at Hurst-Pierpoint, and on ash at Beeding, Sussex, and probably rare. It forms irregular patches, of very uneven surface, composed of crowded, variously tumid, undulated and contorted, sometimes confluent scales, of irregular figure, and cut at the edges into rounded lobes, which are usually crenated. The surface is of a dull olive-green when wet, browner, greyish, or pruinose when dry. It differs from *E. pallidum* in its less truly imbricated and more appressed mode of growth, the edges only of the scales being slightly raised, in the really fibrous texture of the underside; and, in some degree, in the figure of the scales and the incisions of their edges; and not less in the apothecia. The latter, in the present species, have in the immersed part only a thin perithecium, of no darker hue than the nucleus; while those of *E. pallidum* have, in every part, a thick black shell; in this respect it likewise differs from *E. sorediatum*, figured on the same plate.

**ENDOCARPON SOREDIATUM.** *Powdery-speckled Endocarpon.*  
TAB. 1956. *fig. 2.*

Scales of the thallus between tartareous and leafy, rather wide, mostly scattered, appressed, flat, irregularly orbicular, lobed, olive-green; underside brownish; edges slightly elevated, notched, spongy, pale grey. Apothecia black, immersed except the powdery, blackish-grey apex.

*Verrucaria sorediata*, *Borrer in E. B. Supp.* 2612. *fig. 2.* *Endocarpon sorediatum*, *Hooker Crypt. Part 1.* 158.

First found by Mr. Dawson Turner, growing upon mud-walls, at Thetford, Norfolk. Inconspicuous when dry, owing to the close resemblance of its pale grey-brown colour to the earth on which it grows. When wet, the living plant is of a dull olive-green. Apart from all other distinctions, this species is strongly characterized by the singular nature of the apex of the apothecia, which, from its minuteness, and the similarity of the colour to that of the thallus, is perceptible only on close inspection by the naked eye; but, under a glass, has, when perfect and in a dry state, altogether the appearance of a little, flat, grey *soredium*\*. When wet, it presents a very narrow black ring surrounding a grey point. The apothecium itself is globular or slightly conical, and occupies the whole thickness of the thallus. The shell is black, and filled with, and investing in every part, a colourless, jelly-like nucleus, containing the minute, clavate

\* The name of *soredia*, from ψώρα, *scurf*, was given by Acharius to the little masses of pulverulent matter often scattered over the surface of the thallus of a lichen, and by means of which they are propagated as well as by their apothecia. The trivial name of this species alludes to the resemblance which the minute, powdery apices of its apothecia bear to such organs.

2012

1957.



1



2



*Endocarpon* 1 *leptophyllum*.

May 1269. Published by J. Sowerby London.

2

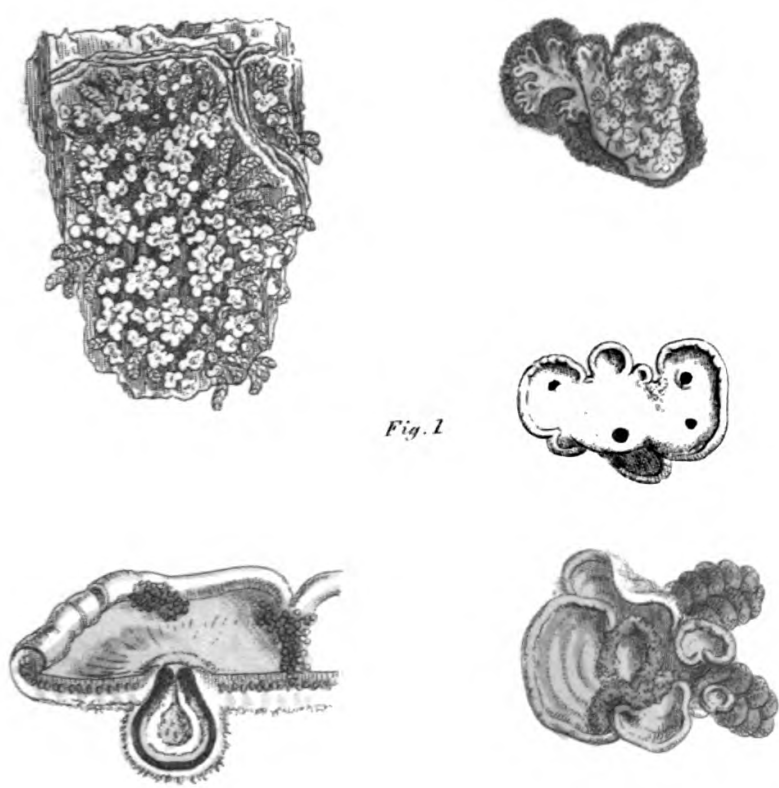


Fig. 1

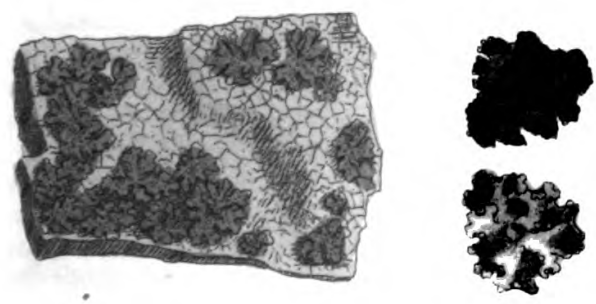
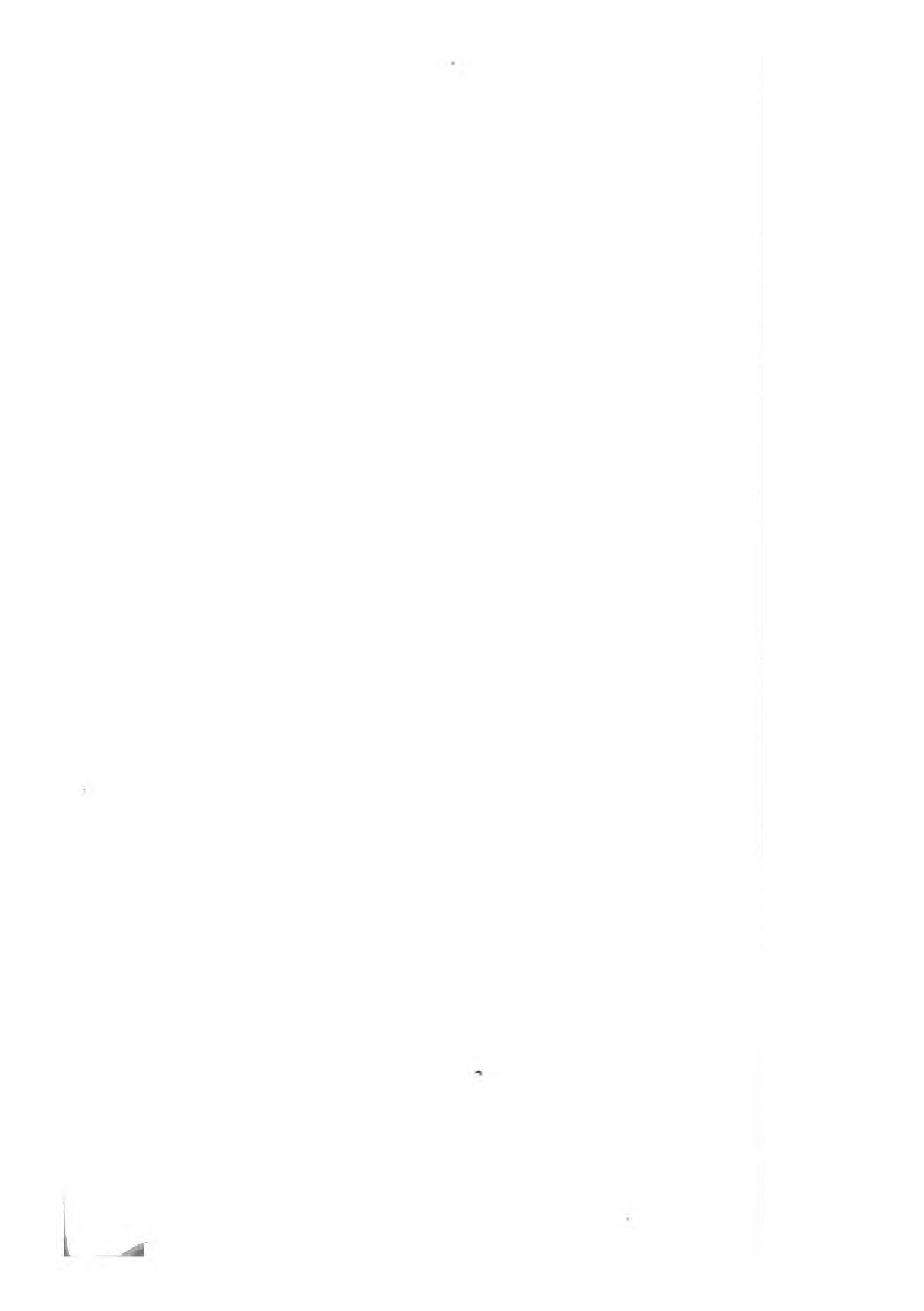


Fig. 2.



*Endocarpon pulchellum* Fig. 1.  
————— *cuplocum* Fig. 2.





thecæ. In drying the nucleus shrinks into an almost imperceptible white film.

The thick, entire shell, the peculiar apex of the apothecia, the larger scales of the thallus, and their more downy or spongy edges, constitute the distinction between this and *E. psoromoides*.

ENDOCARPON LEPTOPHYLLUM. *Small-leaved Endocarpon.*  
TAB. 1957.

Thallus cartilaginous, foliaceous, orbicular, peltate, blackish-brown or inclining to grey, the circumference spreading, flexuose; beneath smooth and naked, wrinkled, subplicate, black. Points of the apothecia black, somewhat prominent.

Lichen leptophyllum, *E. B.* 2012. *Endocarpon leptophyllum*, *Acharius Syn.* 102. *Hooker Crypt. Part 1.* 157.

Found by Mr. Borrer on rocks by the shore of Loch Lomond; and by Mr. Robertson on rocks by Bassenthwaite Water, Cumberland.

According to Mr. Borrer, the Loch Lomond specimen, fig. 2 only, on our plate, represents this species; fig. 1, the original of which was from the Hill of Kinnoul, near Perth, belonging to *E. squamulosum*, a variety of *E. Hedwigii*.

ENDOCARPON PULCHELLUM. *Little filmy-leaved Endocarpon.*  
TAB. 1958. fig. 1.

Scales of the thallus leaf-like, very thin, membranous, smooth, greenish-grey, roundish, with an elevated, incurved edge; eventually crowded, waved, cut into rounded lobes and sprinkled with powdery granules; underside pale brown, with woolly fibres. Apothecia nearly globular, immersed, the apex only eventually exposed. *Verrucaria pulchella*, *Borrer in E. B. Supp.* 2602. *fig. 1.* *Endocarpon pulchella*, *Hooker Crypt. Part 1.* 158.

Frequent, in a barren state, on mossy trees in Sussex, where it usually grows on *Jungermannia dilatata*, forming wide but interrupted patches. Miss Hutchins first found it in fructification, growing on *Placodium plumbeum*, on stems of heath, on a mountain near Bantry, Ireland. The individual plants are seldom 2 lines in diameter; in the living state they are of a silvery grey colour, or, when wet, glaucous green; in drying they become almost white. The apothecia cause little protuberances on the underside of the thallus, through the upper surface of which they eventually break, their apices, forming slightly prominent specks, just visible to the naked eye, and pierced with a central pore. Under a powerful glass the nucleus appears composed of a mixture of innumerable linear and globular, pellucid corpuscles.

Before the discovery of the fructification, Acharius referred it to the genus *Thelephora*, among the *Fungi*.

ENDOCARPON EUPLOCUM. *Curled peltate Endocarpon.* TAB.  
1958 fig. 2.

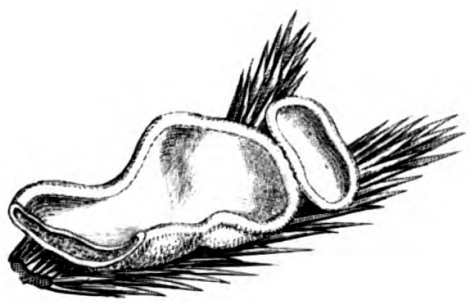
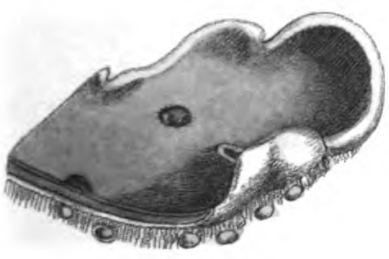
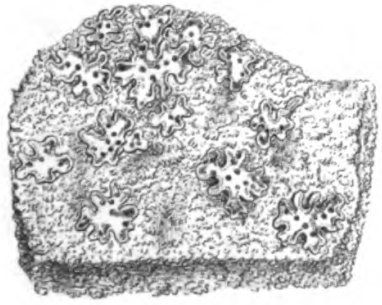
Thallus coriaceous peltate leaf, deeply lobed, with jagged, curled, recurved edges. naked on both sides; olive-green above; tawny



2658.

1959.

*Endocarpon*  
*laete-virens*  
No. 1. A. Griseb.  
1859.



*Endocarpon laete-virens.*

October 7<sup>th</sup> 1859.

beneath. Apothecia nearly globular, immersed, pale except the slightly prominent apex.

*Verrucaria euploca*, *Borrer in E. B. Supp.* 2602. *fig. 2.* *Endocarpon euplocum*, *Acharius. Hooker Crypt. Part 1.* 157. *E. miniatum*,  $\beta.$  *pusillum*, *Wahlenberg Fl. Lapp.* 462.

Found by Mr. W. Robertson, growing on sandstone exposed to the tide, by the Tyne, a little to the west of Newcastle. The plants grow scattered, not forming patches, and are rarely half an inch in diameter. Upper surface of a dull, greyish copper-brown colour in dried specimens, olive-green when moist; the bright tawny colour of the underside scarcely changes, unless becoming a little paler in long-kept specimens.

"The deep, lacinated lobes, and the colour of the underside distinguish this plant from *E. leptophyllum*; yet so closely is it allied to that species, that the propriety of separating it may admit of doubt. Both are fixed by a central callus, and destitute of fibres on the underside."—*Borrer.*

**ENDOCARPON LÆTE-VIRENS.** *Bright-green Endocarpon.* **TAB. 1959.**

Thallus a leaf-like scale, thin, smooth, grass-green, irregularly orbicular, with shallow rounded lobes; underside white, appressed and fibrous in the central part, free, elevated and naked at the edges. (Apothecia unknown.)

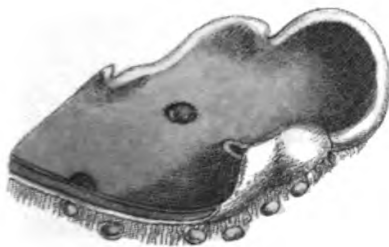
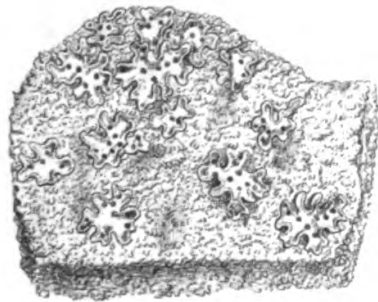
*Verrucaria læte-virens*, *Borrer in E. B. Supp.* 2658. *Endocarpon læte-virens*, *Turner. Hooker Crypt. Part 1.* 158. *E. viride*, *Acharius Syn.* 100.

It appears to have been noticed in the British Islands only, and even here is not of general occurrence. It abounds on some of the Scottish mountains, growing chiefly on *Sphagnum*, on which also it is found near Esher, in Surrey, and on Black Down, Sussex; the late Miss Hutchins and Sir T. Gage gathered it in Ireland; and it is met with on wet parts of the sand-rocks in the neighbourhood of Tonbridge Wells. The younger specimen here figured was from the last-mentioned locality, the other from Ireland. The scales seldom exceed a quarter of an inch in width; they usually grow rather crowded, are rather membranous than coriaceous, flexible, and of a somewhat gelatinous appearance when wet, shrinking a little and becoming brittle in drying; at first orbicular, regularly and deeply concave; soon flatter, sinuated, and at length lobed. Upper surface smooth, not polished, grass-green; greyish-olive when dry; underside pale, very white when dry, naked at the edges, but elsewhere closely attached by white cottony fibres. Not any apothecia have been hitherto discovered, but minute, blackish, elevated, somewhat gelatinous dots, of a parasitical appearance, are often scattered over the surface of the thallus.

"Acharius has expressed an opinion that this species is but the primordial leaves of a *Cenomyce*; yet in the appressed mode of growth, and in the manner in which the scales are attached to the substance on which they grow, it agrees with *Endocarpon*, and we would assign it a place in the genus between *E. psoromoides* and *E. pulchellum*."—*Borrer.*

2658.

1959.

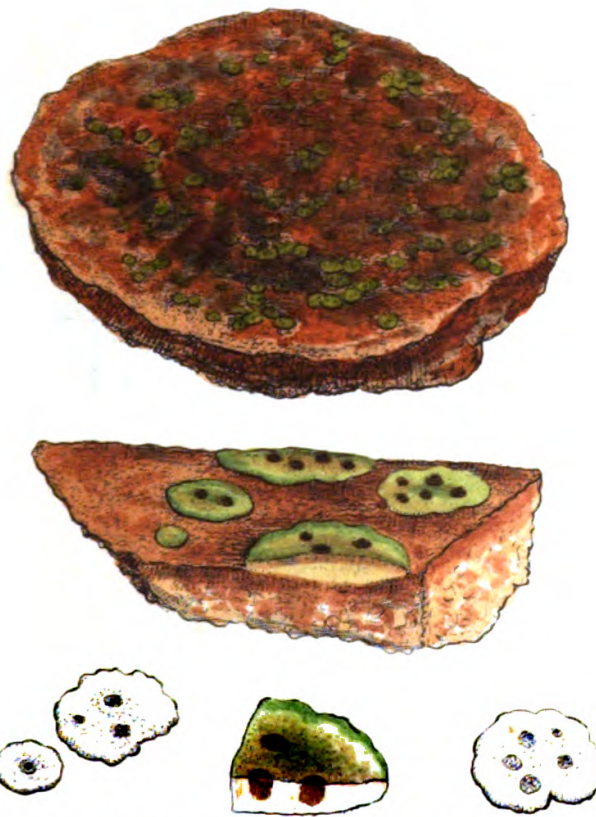


*Endocarpon laete-virens.*

October 7<sup>th</sup> 1890.



1512  
1960.



*Endocarpon smaragdulus.*

*Oct. 1. 1805. Published by J. Sowerby, London.*





2013  
1967.



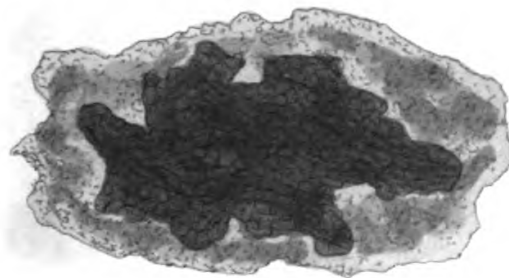
*Endocarpon tephroides.*

May 1 1869 Published by J. Sowerby London



1500

1962.



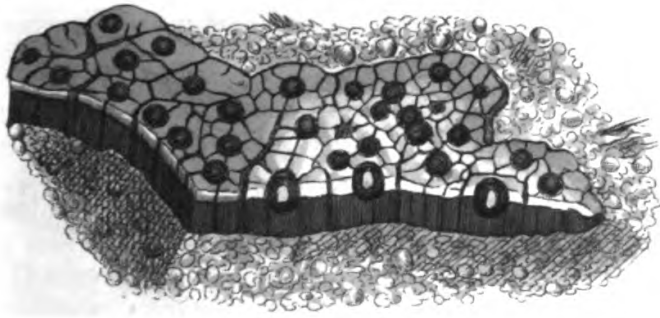
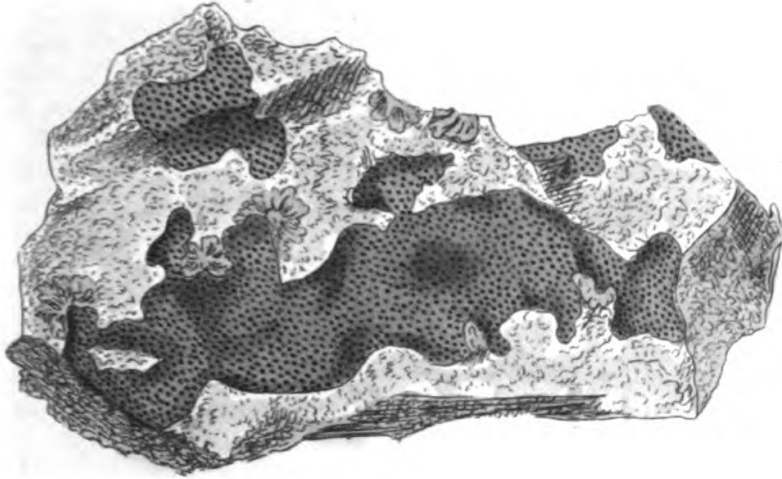
*Endocarpon fuscillus.*

*Sept. 2. 1865. Published by J. Sowerby, London.*



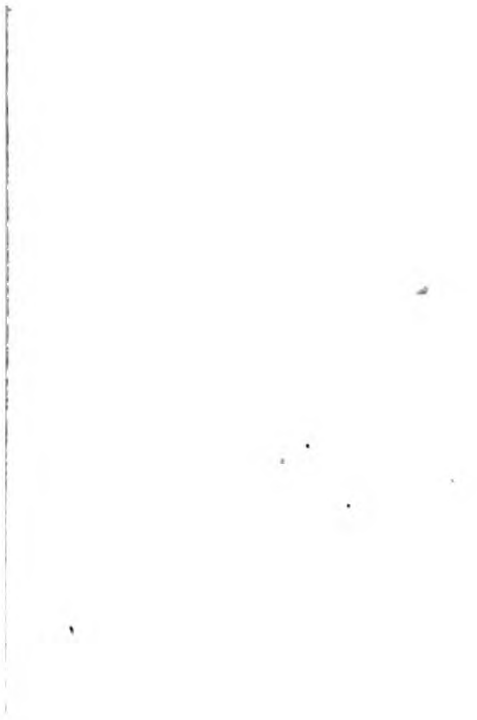
2741.

1963.



*Endocarpion polystictum?*

Ami 1<sup>re</sup> 1832.



**ENDOCARPON SMARAGDULUM.** *Little Emerald Endocarpon.*  
TAB. 1960.

Thallus of simple, depressed, cartilaginous, peltate, roundish, smooth, greenish-yellow scales. Apothecia immersed, their apices red brown, depressed.

Lichen smaragdulus, *E. B.* 1512. *Endocarpon smaragdulum*, *Acharius Syn.* 98. *Hooker Crypt. Part 1* 158.

A native of sandstone rocks in Durham, likewise found in the fissures of rocks at Ardtur, Argyleshire, and near Sheean ferry, Ross-shire. Each plant consists of a minute, yellowish-green, leaf-like scale, fixed by its centre. The apothecia are immersed in the substance of the thallus, and often form little papillary projections on the under surface.

**ENDOCARPON TEPHROIDES.** *Ash-coloured Endocarpon.* TAB. 1961.

Thallus crustaceous, of depressed, areolated and separated, lobed or angled, glaucous ash-coloured, smooth scales, the circumference wavy. Apothecia immersed, coal-black; the apex depressed, margined.

Lichen tephroides, *E. B.* 2013. *Endocarpon tephroides*, *Acharius Syn.* 98. *Hooker Crypt. Part 1.* 159.

Found by Messrs. Borrer and Hooker, growing upon the ground, on a turfy soil, at Burgh Head in Stronsa, one of the Orkneys. Thallus tessellated, pale, glaucous ash-colour. Apothecia immersed, concave.

"This species, in habit, seems to be the connecting link between *Endocarpon* and *Verrucaria*."—*Hooker*.

**ENDOCARPON FUSCELLUM.** *Dark grey Endocarpon.* TAB. 1962.

Thallus smooth, spreading, cracked, dark grey, somewhat pruinose. Apex of the apothecia flat, not prominent, black.

Lichen fuscillus, *Turner in Linn. Trans.* 7. 90. tab. 8. fig. 2. *E. B.* 1500. *Endocarpon fuscillum*, *Hooker Crypt. Part 1.* 159. *E. tephroides*,  $\beta$ . polythecium, *Acharius Syn.* 89.

First found by Mr. Turner on the walls of Gorleston Church, Suffolk. Not unfrequent in similar situations throughout the Eastern counties. Thallus more or less irregular, pale grey or darker, sometimes almost black, generally with a pruinose or glaucous hue upon the surface, especially in young plants.

"*Acharius* unites this with *E. tephroides*, but I think not justly: the colour, form, and texture are considerably different, and this has still more of the habit of a *Verrucaria* than the last."—*Hooker*.

**ENDOCARPON POLYSTICTUM.** *Many-dotted Endocarpon.* TAB. 1963.

Scales of the thallus minute, tartareous, very thin, crowded, angular, even, whitish, upon a thick, black, continuous substratum. Apo-



thecia minute, immersed, at length slightly emerging, flattish above; shell black throughout; pore obsolete.

*Verrucaria polysticta*, *Borrer in E. B. Supp.* 2741. *Endocarpon polystictum*, *Hooker Crypt. Part 1. Addenda.*

Not uncommon on walls, whether of brick or flint, growing chiefly, but not exclusively, on the mortar. It occurs also occasionally on sandstone, and on large flints on the Downs of Sussex. Thallus in irregular patches, often 2 or 3 inches in length, composed of a black substratum, and innumerable minute, extremely thin, tartareous, superficial scales, generally so crowded as to form an even surface of little angular areolæ.

It is so nearly allied to *E. fuscillum*, that Mr. Borrer proposes it as a distinct species with considerable hesitation. *E. fuscillum*, however, is distinguished, not only by the thicker, pulvinate, variously tumid, and often deeply fissured thallus, but more essentially by the structure of its apothecia, which are much more minute, and have the brown solid nucleus enveloped, in the immersed portion, only in a thin pellicle of their own colour, and not inclosed in every part in a thick black shell\*.

ENDOCARPON SINOPICUM. *Sinoper Endocarpon*. TAB. 1964.

Thallus spreading, determinate, tumid, smooth, cracked and tessellated, scarcely lobed, rusty red. Apothecia minute, sunk, black, depressed in the centre.

Lichen sinopicus, *E. B.* 1776. *Endocarpon sinopicum*, *Acharius Syn.* 98. *Hooker Crypt. Part 1.* 159.

Found by the Rev. H. Davis, growing on a yellowish hone-schist in Anglesey. The thallus forms roundish, smooth, tessellated patches, of a red colour, resembling that of a stone called Sinoper, whence, according to Sir J. E. Smith, the specific name.

This and the three preceding species approach so nearly to the character of *Verrucaria*, that the propriety of their reference here is very doubtful; at the same time they lend support to the opinion of Mr. Borrer, who associates the two genera.

## GENUS DLXXII. PERTUSARIA. *Pertusaria*.

GEN. CHAR. *Thallus* cartilagineo-membranaceous, spreading, adnate, uniform. *Apothecia* verruciform, formed of the thallus, one or many-celled, each cell containing a nucleus, the apex opening by a depressed pore, often distorted.

The apothecia in this genus are, properly speaking, contained within the wart-like processes of the thallus, and in-

\* "There is a Lichen, probably undescribed, although common on pebbles on the sea-shore, and found occasionally on brick walls, which is scarcely distinguishable from this by the naked eye: as, however, the production in question is a *Lecidea*, it is unnecessary to point out any less decisive difference."—*Borr. in E. B. Supp.*

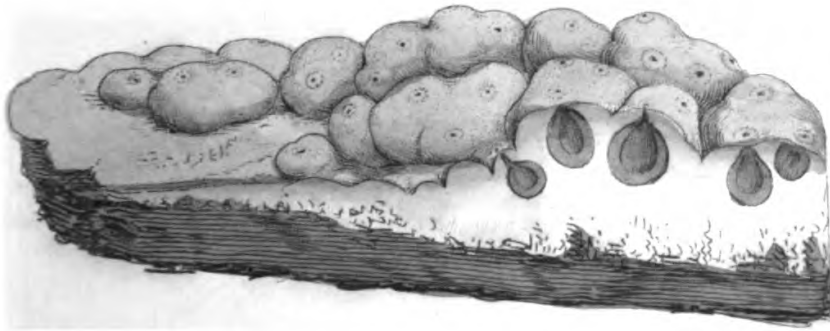
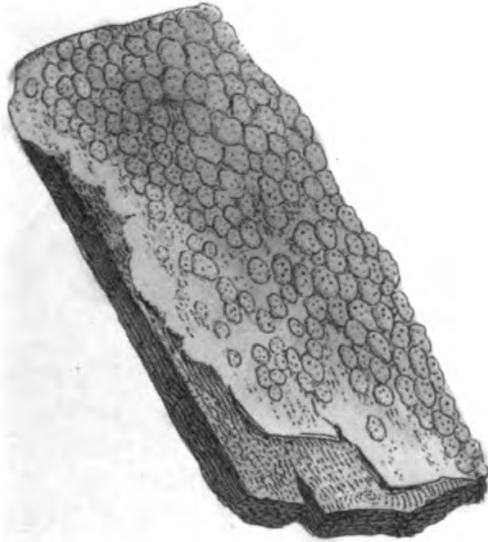
1776  
1964



*Endocarpon sinopicum?*

*Ang. 1807 published by J. A. Murray, London.*



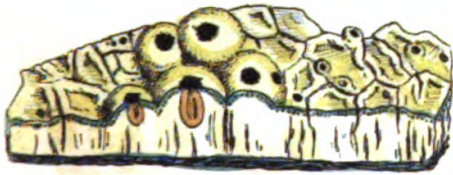
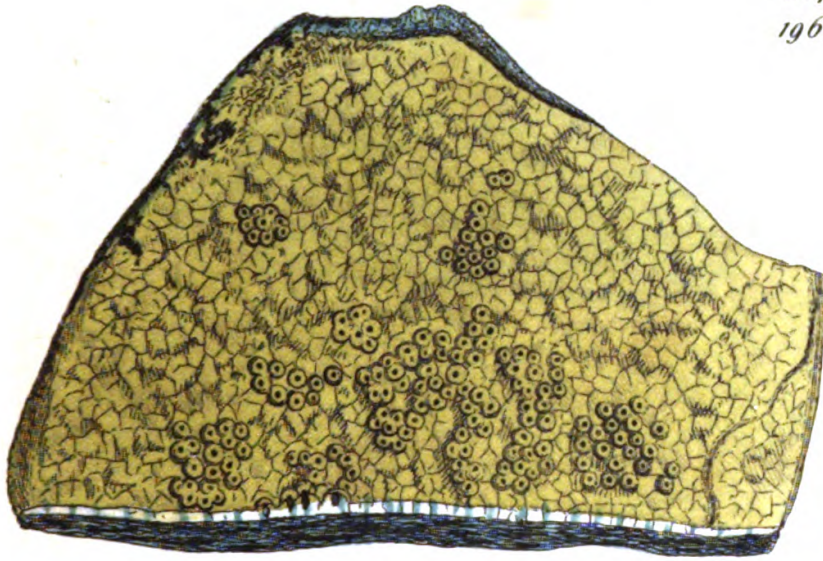


*Pertusaria communis.*

*Pertusaria communis.*



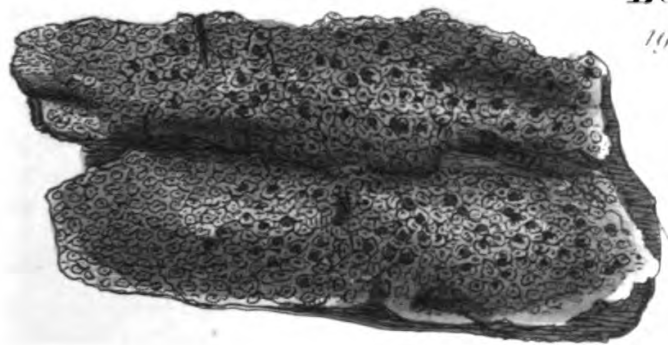
2372  
1966.



*Pertusaria ceuthocarpus.*

*Pertusaria* published by J.A. Kewley-Lewis.





1731

1967



*Pertusaria fallax?*

*Ap. 11807. Published by Jas. Sowerby London.*





deed differ little from those of some *Verrucaria*. Several apothecia often occupy the same verruca, which thus dotted with their pores gave rise to the generic name, from *pertusus*, pierced with holes. Acharius for the same reason calls the genus *Porina*.

**PERTUSARIA COMMUNIS.** *Common Pertusaria.* TAB. 1965.

Thallus crustaceous, greyish-white, smooth. Warts of the apothecia crowded, subglobose, with many depressed points.

Lichen pertusus, Linn. E. B. 677. *Pertusaria communis*, DeCandolle. *Hooker Crypt. Part 1.* 160. *Porina pertusa*, Acharius *Syn.* 109.

Frequent on the trunks of trees. Thallus forming patches 2 or 3 inches broad, greyish or greenish-white, its substance swelling into numerous subglobose, irregular crowded, often confluent, wart-like processes, each including 2 or more, sometimes 6 or 7 apothecia, each marked by a little depressed perforation.

**PERTUSARIA CEUTHOCARPA.** *Cream-coloured Pertusaria.* TAB. 1966.

Thallus crustaceous, calcareous, continued, cream-coloured, tessellated, unequal, smooth. Warts of the apothecia tumid, globose, smooth, with black depressed points.

Lichen ceuthocarpus, E. B. 2372. *Pertusaria ceuthocarpa*, *Hooker Crypt. Part 1.* 160.

Found in Ireland, forming large, uninterrupted patches on slate rocks. Thallus cream-coloured externally, chalky white within, conspicuously tessellated; the fructifying warts very smooth, globose, depressed, with generally a single apothecium occupying the centre of each, the pore of which is much larger than those of *P. communis*.

**PERTUSARIA FALLAX.** *Doubtful Pertusaria.* TAB. 1967.

Thallus crustaceous, somewhat spreading, plicato rugose, grey. Warts of the apothecia crowded, irregular, depressed above, bordered by the swollen, almost gibbous and wavy circumference; pores solitary or several, large, somewhat confluent, distorted, black.

Lichen hymenius, Acharius *Prod. E. B.* 1731. *Pertusaria fallax*, *Hooker Crypt. Part 1.* 160. *P. Walfenii*, DeCand. *Porina fallax*, Acharius *Syn.* 110. *Thelotrema hymenium*, Acharius *Meth.*

Not unfrequent on the bark of old oaks and other trees. The thallus forms large indeterminate patches of a dull greenish-grey, remarkable for their extremely wrinkled and prominent aspect, arising from the numerous, crowded, and irregular fructifying warts, perpendicular sections of which, across their large distorted pores, are aptly compared by Sir J. E. Smith to the grinders of some quadruped. See our magnified figure.

**PERTUSARIA ISIDIOIDES.** *Isidium-like Pertusaria.* TAB. 1950.  
fig. 1.

Crust thick, tartareous, frustuloso-areolate, yellowish-brown. Apo-

thecia small, globose, pale, immersed in tumid roundish warts, except the darker slightly prominent apex.

*Verrucaria isidioides*, *Borrer in E. B. Supp.* 2622. *fig. 1.* *Pertusaria isidioides*, *Hooker Crypt. Part 1.* 160.

Found by Miss Hutchins, growing on rocks, in Glengariff, near Bantry, Ireland. This remarkable species forms indeterminate patches of considerable extent, consisting at first of small, thin, plicate granulations, scattered on the rock: these are at length crowded into a very uneven crust, divided by narrow cracks into irregular areolæ, each composed of a congeries of convex warts, which vary in protuberance, and are of a circular outline when perfect, but often deformed by mutual pressure.

A very doubtful member of the genus.

**PERTUSARIA CRASSA.** *Thick Pertusaria.* **TAB. 1968.**

Thallus cartilaginous, undulated, olive-brown, smooth, black-edged.

Warts of the apothecia very large and irregular, with numerous cells, and many black, slightly depressed, often confluent, and then linear curved points.

Lichen obscurus, *E. B.* 1752. *Pertusaria crassa*, *Hooker Crypt. Part 1.* 160. *Opegrapha crassa*, *DeCandolle.*

It forms dull olive-coloured, irregular patches on the bark of old trees, undulating with the inequalities of the bark, but otherwise even in thickness; in age it becomes greyish. Apothecia very numerous, their apices depressed, minute, dark brown or black, linear, giving a remarkably speckled appearance to the fructifying warts.

**GENUS DLXXIII. THELOTREMA.** *Thelotrema.*

**GEN. CHAR.** *Thallus* crustaceo-cartilaginous, spreading, adnate, uniform. *Apothecium* double; the outer consisting of an open wart (*verruca*) formed of the thallus; the inner (one or two) thin, membranaceous, breaking away at the top, its disc containing a nucleus.

The genus *Thelotrema*, founded by Acharius upon the first of the following species, *Lichen inclusus* of the English Botany, is as uncertain in its limits as the preceding genera of the family of *Verrucariæ*, *T. lepadinum* and *T. melaleucum*, being the only native species referable to it without hesitation.

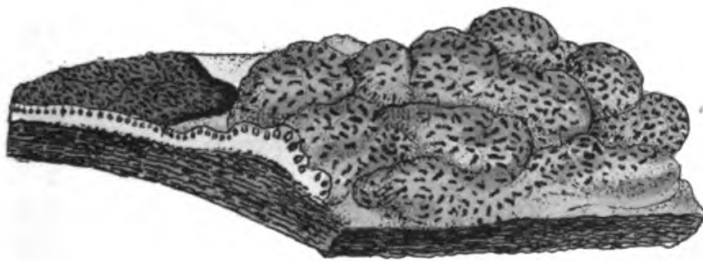
The name, from *θηλή*, a wart, and *τρῆμα*, a perforation, applies to the very distinct character of the fructification of the normal species.

**THELOTREMA LEPADINUM.** *Wide-mouthed Thelotrema.* **TAB. 1969.**

Thallus crustaceous, smooth, cream-coloured. Warts of the apothecia

1752

1968.



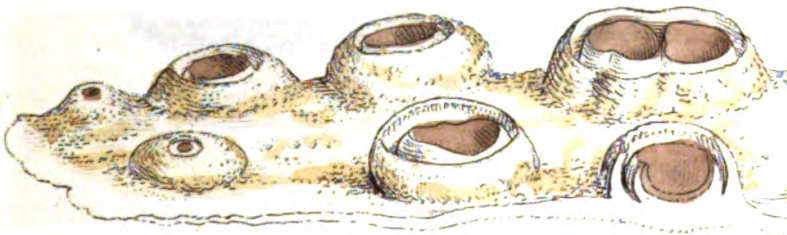
*Pertusaria*  *crassa*.

June 1. 1867. Published by J. Sowerby London.



078.

1969



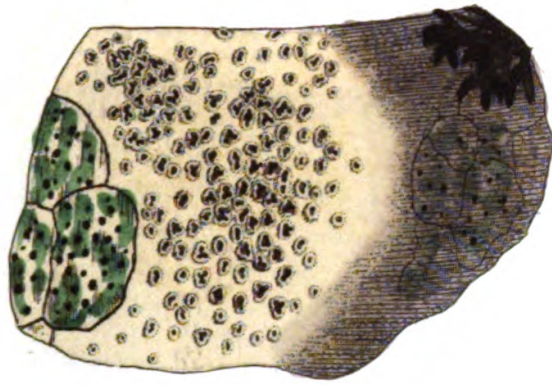
*Thelotrema lepadinum?*

*Lanternia* *Thelotrema* *lepadinum* *Leptogium* *lepadinum*



2401.

1970.



*Thelotrema melaleucum?*

*Lycopodium puberulum by J. S. Saccardo*





24

25

26

27

28

29

30

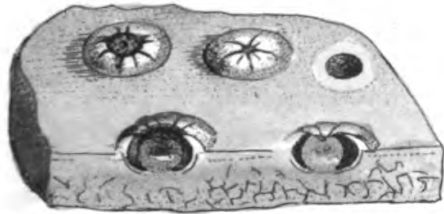
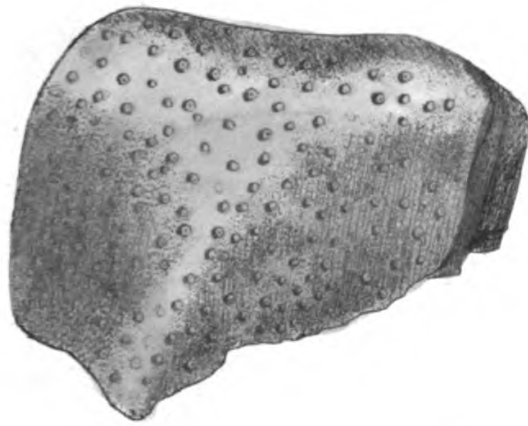
31

32

33

1184

1971.



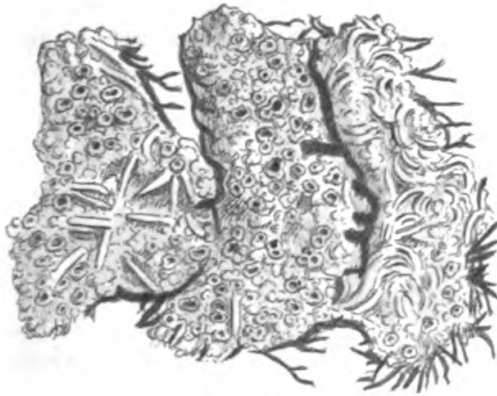
*Thelotrema exanthematicum*?

July 1 1803 Published by Ja<sup>r</sup> Sowerby London



2652.

1972



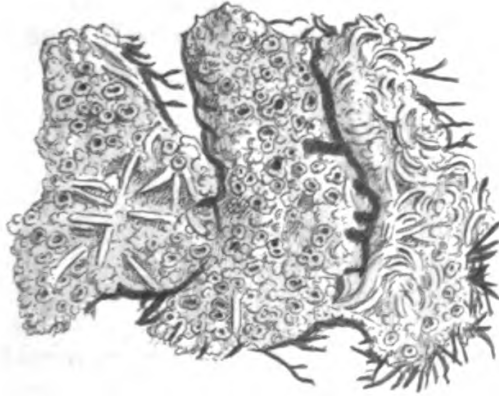
*Thelotrema Hutchinsiae*

July 1<sup>st</sup> 1830.



2679

1972



*Thelotrema Hutchinsiae*

July 1<sup>st</sup> 1870.



smooth, conoid, truncated; inner apothecia one or two, hollow, pale brown, with a thin inflexed edge.

Lichen inclusus, *E. B.* 678. *Thelotrema lepadinum*, *Acharius Syn.* 115. *Hooker Crypt. Part 1.* 161.

Not unfrequent on the bark of trees. Thallus spreading in roundish but irregular patches, cream-coloured, rather polished. Apothecia elevating the crust in the form of warts, which are truncated and widely open at the apex, disclosing their proper coat and the pale brown nucleus.

THELOTREMA MELALEUCUM. *Small-mouthed Thelotrema.*  
TAB. 1970.

Thallus crustaceous, cream-coloured. Warts of the apothecia convex, opening by an irregular, inflexed orifice; inner apothecia depressed, brown, with a thin, obsolete, jagged border.

Lichen melaleucus, *E. B.* 2461. *Thelotrema melaleucum*, *Turner and Borrer. Hooker Crypt. Part 1.* 161.

Found by Mr. Borrer, growing on the bark of young oaks, in St. Leonard's Forest, Sussex, and not uncommon on that of the beech and other trees, especially in the south of England. It very much resembles *T. lepadinum* in appearance and general characters, so much so, that Sir W. J. Hooker suspects it to be only a young state of that species. The chief points of difference consist in the less tumid and regular form of the warts, and their irregular and narrower aperture.

THELOTREMA EXANTHEMATICUM. *Eruptive Thelotrema.*  
TAB. 1971.

Thallus subtartareous, thin, continuous, ash-coloured. Warts of the apothecia hemispherical, with a radiated orifice; inner apothecia concave, flesh-coloured, depressed in the centre.

Lichen exanthematicus, *Smith. E. B.* 1184. *Thelotrema exanthematicum*, *Acharius Syn.* 116. *Hooker Crypt. Part 1.* 161. *Verrucaria clausa*, *Hoffman Flor. Germ.*

A native of exposed calcareous rocks. Thallus very thin, greyish ash-coloured, smooth, uniform, adhering closely to the rock. Apothecia solitary, minute, concave, flesh-coloured or waxy, with a border of their own substance and colour; deeply imbedded in a little cavity, hollowed not only out of the thallus, but out of the stone beneath, the margin of which cavity is surrounded, and in an early state closed, by a thick, inflexed, lobed, white border, which, though apparently a continuation of the crust, differs from it in hue and texture.

The reference of this species to the present genus is involved in much uncertainty.--See *Lecidea marmorea*.

THELOTREMA HUTCHINSIÆ. *Miss Hutchins' Thelotrema.*  
TAB. 1972.

Thallus subtartareous, very white. Warts of the apothecia crowded, obsolete, of irregular figure, at length expanding with a broken, flocculose, inflexed orifice; nucleus (inner apothecium) forming a dark grey, pruinose, concave disc, with a white lacerated margin.



*Thelotrema Hutchinsiae*, Borrer in *E. B. Supp.* 2652. *Hooker Crypt. Part 1.* 162.

Discovered by the late Miss Hutchins, growing upon the ground, encrusting fragments of heath, moss, &c., near Bantry, Ireland. This is another very doubtful species, resembling more in habit some of the *Variolarieæ* than the rest of the *Thelotremata*; yet in the structure of the fructification it accords in a degree, particularly in the presence, in an advanced stage, of a thin margin to the discoid nucleus, separate from the spurious one formed from the substance of the thallus. Thallus thin, almost filmy, but of a somewhat tartareous substance, pure white, not powdery, but everywhere uneven with minute wrinkles caused by the young verrucæ.

It has very much the aspect of an *Urceolaria*; indeed, we might almost suspect it to be a variety of *U. scruposa*, tab. 2004, occasioned by development on a different medium.

#### Lichenes veri.

*Thallus adherent, crustaceous, amorphous. Absent or obsolete in Lepraria.*

### FAMILY V. LEPRARIEÆ.

Apothecia obsolete or absent. Sporules (*pulvimuli*, *propagula*, or *gongyli*) naked?

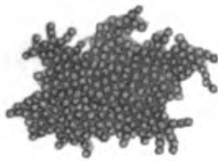
#### GENUS DLXXIV. LEPRARIA. *Lepraria*.

GEN. CHAR. *Thallus* filmy or obsolete, or consisting only of the more or less scattered or conglomerated reproductive germs forming a leprous crust.

The plants of this genus present the simplest observable examples of aerial vegetation; some of the species appearing to consist solely of sporules, or of extremely minute globular or oval bodies, whose production and propagation are not at all understood, although the subject of much curious and interesting speculation. Whether, as supposed by many botanists, they are merely the abortive rudiments of plants higher in the scale of organization, or, possessing an independent existence, are entitled to the rank in which they are placed by others, are questions that future observation may decide, but which our limits do not permit us to discuss. It is, however, an undoubted fact, that whatever may be their origin,

2148

1973



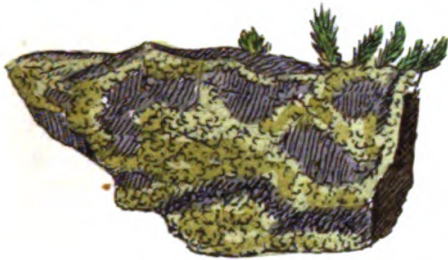
*Lepraria betryoides*

Massachusetts, collected by J. S. Burley, L. S.



2408

1974



*Lepraria ochracea*

May 1972 published by J. S. Kimmey, London.



the *Leprariæ*, when once developed, are capable of vegetating individually, every granule of the amorphous mass being reproductive; this is the case at least with respect to the most common species, *L. viridis*.

The appearance of the species to the naked eye is that of a powdery scurf, hence the generic name from λέπρα, *leprosy*.

*L. lutescens*, E. B. 1529, is referred by Acharius to the genus *Isidium*; *L. chlorina*, *L. æruginosa* and *L. latebrarum*, E. B. 2038, 2182, and 2147, do not belong to the order, being *Fungi*.

**LEPRARIA VIRIDIS.** *Common Green Lepraria.* TAB. 1973.

Thallus absent. Sporules? extremely minute, bright green, globular, collected into a continuous, thin, crustaceous, powdery mass.

*Lepraria botryoides*, Acharius *Meth.* E. B. 2148. *Lepraria viridis*, Turner and Borrer. *Hooker Crypt. Part 1.* 163. *Chlorococcum vulgare*, Greville *Scot. Crypt. Fl. tab.* 262.

Abundant everywhere on the bark of trees, old paling, walls and buildings, in the form of a green powder, removable, and staining the fingers, garments, &c., on the slightest touch. Colour bright green, yellowish or brownish in decay. Granules somewhat gelatinous, free, or but slightly coherent as if from their viscosity, heaped upon each other without any apparent order in the aggregate, but certainly, as observed by Dr. Greville, with a tendency to associate in fours. No trace of thallus is perceptible under the most careful examination with a high magnifying power.

**LEPRARIA MURORUM.** *Wall Lepraria.*

Sporules green, simple, minute, oval-oblong.

*Lepraria murorum*, *Hooker Crypt. Part 1.* 163. *Chlorococcum murorum*, Greville *Scot. Crypt. Fl. tab.* 325.

Frequent on walls and stones, forming small spots of a yellowish-green colour that eventually become confluent.

Perhaps only a variety of *L. viridis*, differing in colour generally, and especially in the form of the granules.

**LEPRARIA OCHRACEA** *Ochry Lepraria.* TAB. 1974.

Thallus absent. Sporules extremely minute, ochraceous yellow, collected into thin scattered patches.

*Lepraria ochracea*, Turner and Borrer. E. B. 2408. *Hooker Crypt. Part 1.* 163.

Found on the trunks of old trees, at Hurst Pierpoint and Poynings, Sussex, and about Yarmouth and Halesworth, generally growing on *Hypnum sericeum*. Sporules or propagula scattered or clustered in an irregular manner, in the form of finely granulated masses, of a pale, dull, ochraceous-yellow, often greenish, rather brighter when wet than dry.

**LEPRARIA FLAVA.** *Bright Yellow Lepraria.* **TAB. 1975.**

Thallus none. Sporules extremely minute, bright yellow, collected into a continuous, crustaceous, powdery mass.

*Lepraria flava*, *Acharius Syn.* 331. *E. B.* 1350. *Hooker Crypt. Part 1.* 163. *Byssus candelaris*, *Linn.*

Frequent on the rugged bark of old oaks, on boarded buildings and pales; rarely on walls. The bright golden-yellow colour of the propagula renders it a conspicuous object, and the hue is but little altered by drying.

**LEPRARIA ALBA.** *White Lepraria.* **TAB. 1976.**

Thallus grey, edged with white downy fibres. Sporules extremely minute, snowy-white, densely collected into continuous, crustaceous patches.

*Lepraria alba*, *Acharius Meth. E. B.* 1349. *Hooker Crypt. Part 1.* 163. *Byssus lactea*, *Linn.*

Common on the trunks of old trees, on boarded buildings, posts and pales, chiefly in shady, moist situations; occasionally on walls. The patches which it forms resemble whitewash at a little distance. The thallus when closely examined is found to be entirely composed of minutely articulated fibres, resembling those of its margin. Its position in this genus is equivocal.

**LEPRARIA VIRESCENS.** *Dull-green Lepraria.* **TAB. 1977.**

Thallus filmy, greyish. Sporules rather large, subgelatinous, deep green, greyish when dry, collected into a thickish crustaceous mass.

*Lepraria virescens*, *Smith. E. B.* 2149. *Hooker Crypt. Part 1.* 164.

Found on the lower parts of the trunks of old trees, especially elms, chiefly in the southern and eastern counties of England. The whole plant is of a soft, almost gelatinous texture in the living state, or when moistened. Propagula comparatively large, adhering to the thallus, and very dissimilar to those of the preceding species of the genus.

**LEPRARIA CINEREO-SULPHUREA.** *Yellow-grey Lepraria.*

"Thallus very thin, submembranaceous, whitish, the surface scattered over with very minute, aggregated granules, greenish-yellow at first, afterwards cinereous."

*Lepraria cinereo-sulphurea*, *Acharius Syn.* 330. *Hooker Crypt. Part 1.* 164. *Greville Fl. Edin.* 352.

Found on the trunks of Scotch firs, near Edinburgh.

**LEPRARIA IOLITHUS.** *Violet-scented Lepraria.* **TAB. 1978.**

Thallus filmy, greyish. Sporules extremely minute, very red, collected into a thin, even, powdery mass.

*Lepraria lolithus*, *Acharius. E. B.* 2471. *Hooker Crypt. Part 1.* 164. *L. rubens*, *Acharius Syn.* 331. *Byssus lolithus*, *Linn.*

Met with in various parts of the kingdom, growing on the trunks of trees, old pales, and boarded buildings; likewise on rocks and

1349

1975.



*Lepraria flava.*

*Aug. 1 1804. Published by J. Sowerby, London.*





1360

1976



*Lepraria alba?*

*Aug. 2. 1804. Published by J. Sowerby, London.*



2471

1978.

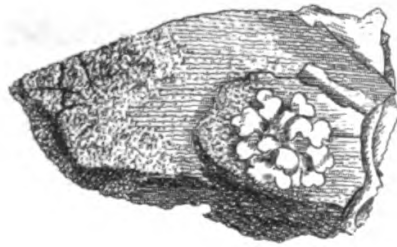


*Lepraria Jolithus.*

*Det. 102, published by J. P. S. L. L. L.*



2149.  
1977.



*Lepraria virescens.*

*Microscopically by J. S. ...*



2409

1979



*Lepraria nigra*

*Map. 1972 published by J. L. Laverne, Louvain*





2396

1980.



*Spiloma microscopicum.*

*Nov. 1882 published by J. & K. L. L. L.*



stones in mountainous districts ; occasionally on walls. When rubbed or bruised it yields a fragrant odour resembling that of violets or of the Orris-root, and which it retains after being dried for years.

According to Sir J. E. Smith, the red stain of the stones at Holywell in Flintshire, which, by the Welsh legend, are said to have been sprinkled with the blood of St. Winifred, is due to this plant.

“Under *Byssus Iolithus* (of Linnæus and others) two plants have been described, one filamentous, the other pulverulent. The latter is our *Lepraria*, the former is the *Chroolepus Iolithus* of Agardh, nearly allied to *C. lichenicola* of the same author, *Conferva lichenicola*, E. Bot. 1609.”—Hooker.

**LEPRARIA NIGRA.** *Black Lepraria.* TAB. 1979.

Thallus filmy, greyish. Sporules extremely minute, black, collected into a continuous, thin, even, powdery layer.

*Lepraria nigra*, Turner and Borrer. E. B. 2409. Hooker Crypt. Part 1. 164.

Frequent on squared timber, but especially on the squared tops of oaken posts, to which it communicates a black, ink-like stain ; hence it seems to prefer the cross-grain of the wood. Thallus scarcely to be detected unless in an early stage of growth, the minute, globular, black granules covering afterwards its whole surface with a continuous layer ; they stain the finger like soot, when rubbed.

GENUS DLXXV. SPILOMA. *Spiloma.*

GEN. CHAR. *Thallus* crustaceous, spreading, adnate, uniform. *Apothecia* none. *Sporules* naked, coloured, collected into compact tumid masses (*pulvinuli*).

A tolerably defined genus, connecting by easy gradation the very simple forms of the *Leprariæ* with those of the next family. From *Lepraria* it chiefly differs in the thallus being generally more developed ; while the sporules, instead of being free and scattered, are collected here and there into little clusters, at the base of which, in some species, the rudiment of an apothecium is traceable. The Greek name, σπύλωμα, signifying a scattered spot, well expresses the character of the reproductive masses. Most of the species grow on wood or the bark trees.

**SPILOMA MICROSCOPICUM.** *Microscopic Spiloma.* TAB. 1980.

Thallus spreading widely, filmy, very thin, greyish. Pulvinuli extremely minute, black, lead-coloured when dry.

*Spiloma microscopicum*, Turner and Borrer. E. B. 2396. Hooker Crypt. Part 1. 165.

Very common on boarded buildings, and all timber exposed to the weather, to which it communicates the bluish tinge so frequently observable. Thallus so extremely thin that it seems merely to stain the fibres of the wood. Pulvinuli so excessively minute as not to be discernible without a microscope of considerable power. The sporules readily adhere to and stain the finger, especially when dry.

**SPILOMA MURALE.** *Wall Spiloma.* TAB. 1981.

Thallus obsolete. Pulvinuli extremely minute, black, confluent.  
*Spiloma murale*, *Turner and Borrer. E. B. 2397. Hooker Crypt. Part 1. 165.*

Found upon the plastered walls of cottages, in the parishes of Hurst Pierpoint and Albourne, Sussex; and on the walls of Burgh Church, Suffolk. Probably not uncommon, and to be found, as observed by Sir J. E. Smith, "almost anywhere by those who, with microscopic eyes, will take the pains to scrutinize any dirty mortar." The thallus seems not to have been noticed by any botanist. The pulvinuli are mostly irregular in form, apparently in consequence of two or more becoming confluent.

Messrs. Turner and Borrer remark, in the *Lichenographia Britannica*, that the thallus of other species of Lichen, however conspicuous elsewhere, becomes, when they grow on stone or mortar, very thin, and sometimes disappears altogether, which may account for the absence of it in this species.

**SPILOMA DISPERSUM.** *Dispersed Spiloma.* TAB. 1982.

Thallus filmy, very thin, greenish-grey. Pulvinuli mostly dispersed, hemispherical, sooty; internally yellowish-green.  
*Spiloma dispersum*, *Turner and Borrer. E. B. 2398. Hooker Crypt. Part 1. 165.*

Not unfrequent on old rails and on boards exposed to the weather, often intermixed with *S. microscopicum*, which it resembles in its thin, stain-like thallus, though greatly differing in the structure and disposition of its larger and more conspicuous pulvinuli; the latter are about the size of poppy-seed, the sooty or brownish-black sporules being attached to a subhemispherical receptacle of a yellowish-green colour.

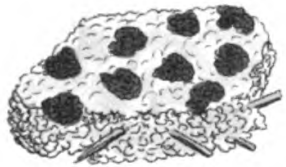
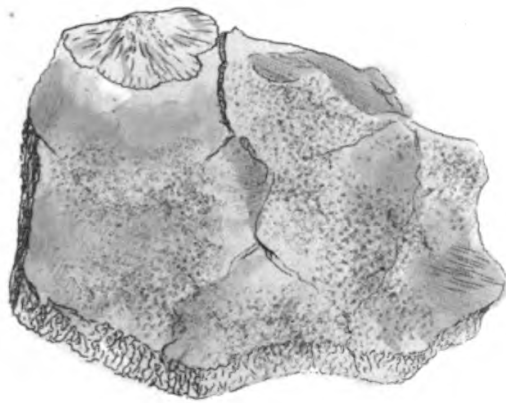
**SPILOMA AURATUM.** *Golden Spiloma.* TAB. 1983.

Thallus thin, subtartareous, whitish. Pulvinuli convex, generally confluent, dark brown or black; internally deep yellow.  
*Spiloma auratum*, *E. B. 2078. Hooker Crypt. Part 1. 165. S. tricolor, Acharius Syn. 2.*

This very beautiful *Spiloma* is not uncommon on old church-walls and timber, especially, but far from exclusively, in the southern and eastern counties of England; it grows likewise occasionally on the bark of the elm fir, and other trees. Pulvinuli numerous, rounded, and more or less convex, generally very conspicuous in consequence of their becoming eventually confluent; outwardly of a deep brownish-black, which is easily rubbed off, and discovers a dull but deep

2397

1981.



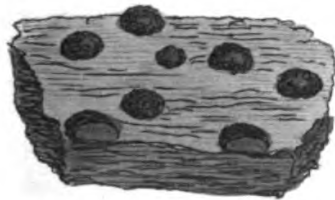
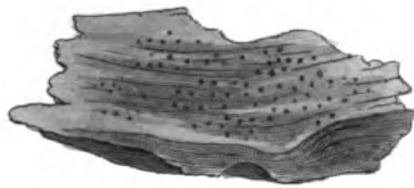
*Spiloma murale*

*Spiloma murale* published by J. S. F. in London.



2398

1982



*Spiloma dispersum*

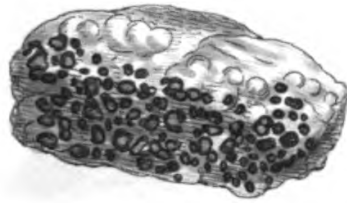
*Sp. 1112 published by J. A. Sowerby, London*





2078.

1983.



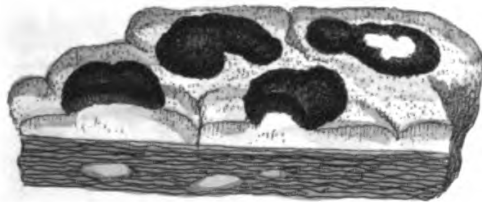
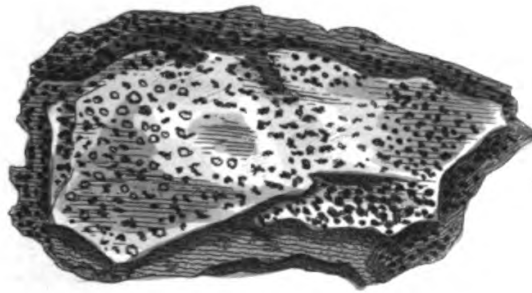
*Spiloma auratum.*

*Nov. 1809 published by J. Sowerby London.*



2077

1984.



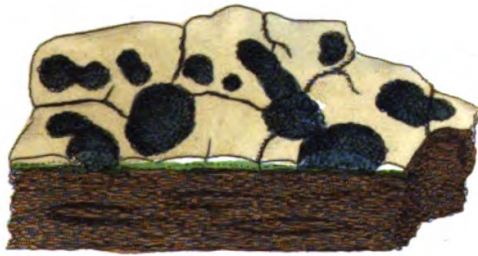
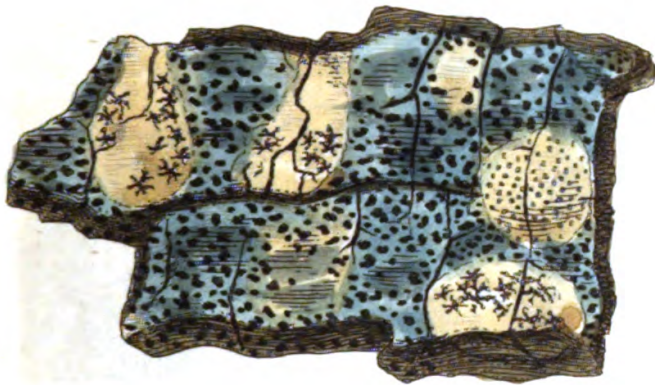
*Spiloma nigrum.*

*Nov. 1804 published by J<sup>s</sup> Sowerby London.*



2070

1985.

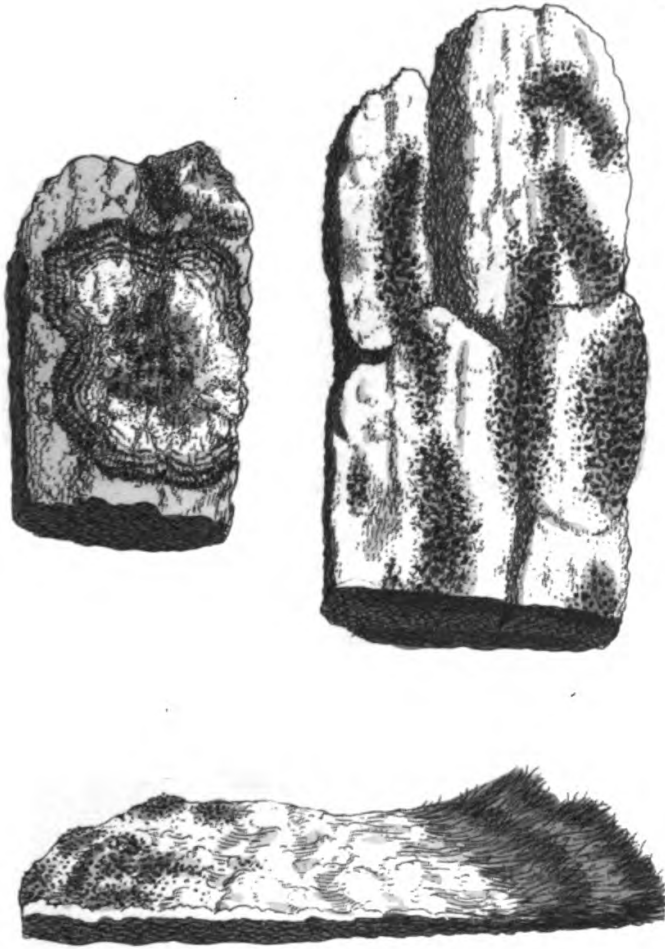


*Spiloma versicolor.*

Oct 1809 published by J. Koenig London.



21 n.  
1986



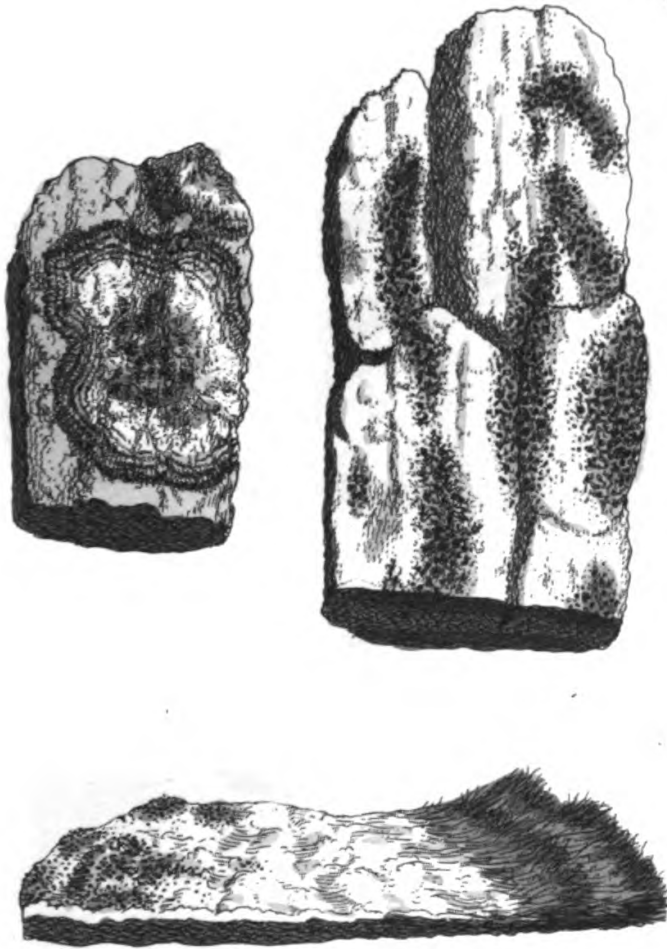
*Spiloma microclonium.*

*Massimo Fulvidi by Dr. Roberto London.*





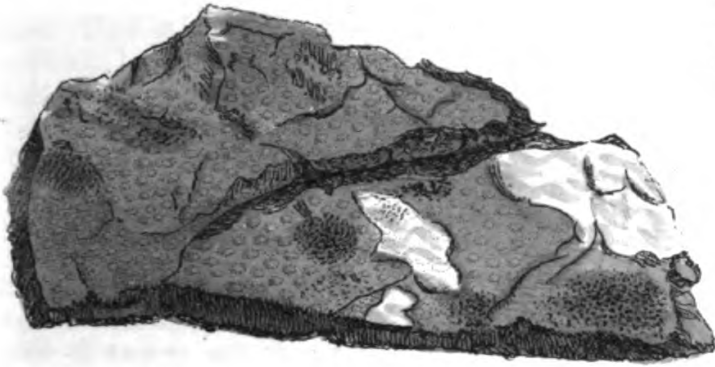
213  
1986



*Spiloma microclonium.*

*Maximum published by J. P. Roberts, London.*





2399

1987.



*Spiloma decolorans.*

*Ap. 1872 published by J. S. Edwards London.*



gold-coloured or orange crust beneath : the latter seems to make its appearance spontaneously at most seasons of the year, probably in consequence of the periodical dispersion of the exceedingly minute ripe sporules constituting the black layer.

Our lower figure represents the thallus far thicker than it ought to be, a mistake probably originating, as Sir W. J. Hooker remarks, from the circumstance of this plant often spreading "over the thick tartareous thalli of *Verrucaria*, *Opegrapha*, &c."

**SPILOMA NIGRUM.** *Black Spiloma.* TAB. 1984 and 1985.

Thallus inclining to tartareous, thin, white, with a narrow black edge. Pulvinuli roundish, more or less flattened and at length confluent, black.

*Spiloma nigrum*, *Turner and Borrer Lich. Brit.* 35. *Hooker Crypt. Part 1.* 166.

*a. variolosum.* Thallus powdery, pure white. Pulvinuli convex, but little confluent, black. *S. variolosum*, *E. B.* 2077. TAB. 1984.

*β. versicolor.* Thallus inclining to powdery, grey, variegated with greenish-yellow. Pulvinuli flat, very confluent. *S. versicolor*, *E. B.* 2076. Tab. 1985.

*γ. erubescens.* "Thallus tartareous, reddish, cracked into areolæ. Pulvinuli small, shapeless, for the most part distinct."—*Hooker Crypt.*

Not unfrequent on the rugged bark of old trees, especially oaks, in the eastern and southern counties of England, rarely on old walls. The varieties *β.* and *γ.* are chiefly found on smooth bark, but, the former at least, not exclusively. It is an exceedingly variable species in its aspect, and the varieties pass into each other by almost imperceptible grades.

**SPILOMA FULIGINOSUM.** *Sooty-fruited Spiloma.* TAB. 1986.

Thallus very thin, inclining to tartareous, hoary, with a brown edge composed of downy fibres. Pulvinuli very minute, punctiform, somewhat confluent, sooty-black.

*Spiloma microclonium*, *E. B.* 2150. *S. fuliginosum*, *Turner and Borrer. Hooker Crypt. Part 1.* 166.

First observed by Mr. Sowerby, growing on the trunks of aged oaks in Windsor Forest, and apparently not uncommon in similar situations in the middle and south of England. The white or hoary thin leprous crust overruns the inequalities of the bark, and is terminated by a remarkable brown, undulated, downy border. The fructification appears as if snuff, or wood-soot, had been sprinkled over the thallus, or swept into the clefts of the bark; and it is so minute that it might be mistaken for the *propagula* of a *Lepraria*.

**SPILOMA DECOLORANS.** *Staining Spiloma.* TAB. 1987.

Thallus spreading widely, very thin, for the most part filmy, greyish-white; when rubbed yellowish-green. Pulvinuli minute, flat, confluent, purplish-grey.

*Spiloma decolorans*, Turner and Borrer. E. B. 2399. *Hooker Crypt. Part 1*. 166.

Common on the bark of trees, on boarded buildings and pales, sometimes on old walls. Thallus externally of a dirty white or grey; green within. The fructification, when young, appears in the form of minute, irregular, whitish, flat, powdery warts, which soon become confluent, covering the whole plant, and giving it a faint purplish hue as they advance in age.

It approaches the next genus in some respects, but the fructifying masses are true pulvinuli.

**SPILOMA PUNCTATUM.** *Dotted Spiloma.* TAB. 1988.

Thallus thin, filmy, somewhat powdery, white. Pulvinuli? scattered, minute, punctiform, solid; sporules superficial, blackish-brown.

*Spiloma punctatum*, Turner and Borrer. E. B. 2472. *Hooker Crypt. Part 1*. 165.

Found on old oaks at Colchester, Norfolk. The thallus forms small, irregular patches, minutely edged with black. Masses of fructification very abundantly sprinkled over the crust, into which they are sunk, looking like minute black dots: their substance is solid, but greyish externally, with a black external coat, covered with a very minute brownish-black powder.

It seems very doubtful whether this should not be referred to the genus *Stictis*.

**SPILOMA GREGARIUM.** *Red-cinereous Spiloma.* TAB. 1989.

Thallus thin, filmy, greyish white. Pulvinuli? clustered, shapeless, solid, and flat. Sporules superficial, vermilion-coloured.

*Spiloma gregarium*, Turner and Borrer. E. B. 2451. *S. gregarium*, Turner and Borrer. *Turner and Borrer Crypt. Part 1*. 167. *Sporidia gregaria* V. Sacc. *Thesaur. Crypt. Part 2*. *Sowerby Brit. Faun.* 375. *tab. 3*.

Common on the smooth bark of trees. Thallus extremely thin, closely adhering, not very distinctly delineated. Fructification in the form of small, rounded, flat, whitish warts, with a brownish external layer, resembling numerous small stipples.

The appearance of the plant has just an internal use of the pulvinuli with very minute spores, the present state, through all its variations, but is distinguished as it were from *Stictis* in terms detected, & which has been explained, the fact of present at all is very minute, and not covered by the stipples.

It is however, not of a general appearance of character than this in other lichens, but is more or less sufficiently marked to allow it to be distinguished from them, and seems to have been figured in the description of it in *Tab. 1989* as *Spiloma gregarium*.

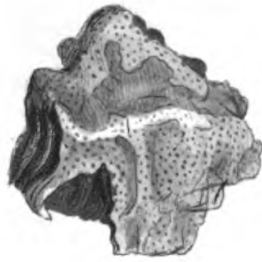
**SPILOMA ADHAERENS.** *White Spiloma.* TAB. 1990.

Thallus sub-sessile, greyish white. Pulvinuli? scattered, somewhat confluent, irregular, slightly constricted, black.

*Spiloma adhaerens*, Turner and Borrer. *Turner Crypt. Part 1*. 166.

2472

1988.



*Spiloma punctatum.*

*Ch. C. 2. 2012, published by J. A. Sowerby & Co. London.*



*Spiloma decolorans*, *Turner and Borrer. E. B. 2399. Hooker Crypt. Part 1. 166.*

Common on the bark of trees, on boarded buildings and pales, sometimes on old walls. Thallus externally of a dirty white or grey; green within. The fructification, when young, appears in the form of minute, irregular, whitish, flat, powdery warts, which soon become confluent, covering the whole plant, and giving it a faint purplish hue as they advance in age.

It approaches the next genus in some respects, but the fructifying masses are true pulvinuli.

**SPILOMA PUNCTATUM.** *Dotted Spiloma.* **TAB. 1988.**

Thallus thin, filmy, somewhat powdery, white. Pulvinuli? scattered, minute, punctiform, solid; sporules superficial, blackish-brown. *Spiloma punctatum, Turner and Borrer. E. B. 2472. Hooker Crypt. Part 1. 166.*

Found on old oaks at Coltishall, Norfolk. The thallus forms small, irregular patches, minutely edged with black. Masses of fructification very numerous, sprinkled over the crust, into which they are sunk, looking like minute black dots: their substance is solid, but greyish internally, with a black external coat, covered with a very minute brownish-black powder.

It seems very doubtful whether this should not be referred to the genus *Arthonia*.

**SPILOMA GREGARIUM.** *Red-clustered Spiloma.* **TAB. 1989.**

Thallus thin, filmy, greyish-white. Pulvinuli? clustered, shapeless, solid, of a livid hue; sporules superficial, vermilion-coloured.

*Spiloma tumidulum, Acharius Syn. 1. E. B. 2151. S. gregarium, Turner and Borrer. Hooker Crypt. Part 1. 167. Sphæria gregaria, Weigel. Dickson Crypt. Fasc. 22. Sowerby Brit. Fung. 375. fig. 5.*

Common on the smooth bark of trees. Thallus extremely thin, smooth, whitish, not very distinctly bordered. Fructification in the form of scattered, irregular warts, with a brownish external layer, producing innumerable scarlet sporules.

“The large size of the compact base or internal disc of the pulvinuli sufficiently distinguishes the present plant, through all its variations, from its congeners; as in every other *Spiloma* hitherto detected, *S. punctatum* alone excepted, this part, if present at all, is very minute, and entirely concealed by the sporules.”

Few lichens present a greater diversity of character than this in different habitats, but its varieties are scarcely sufficiently marked to deserve notice separately: one of them seems to have been figured in the first edition of *Engl. Bot. tab. 981. as Lichen impositus.*

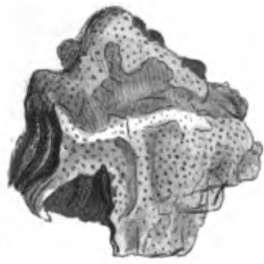
**SPILOMA TUBERCULOSUM.** *Warty Spiloma.* **TAB. 1990.**

Thallus calcareous, greyish-white. Pulvinuli? scattered, somewhat confluent, unequal, elevated, granulated, black.

*Spiloma tuberculatum, E. B. 2556. Hooker Crypt. Part 1. 166.*

2472

1988.



*Spiloma punctatum.*

*Oct. 2, 1872, published by J. A. Murray, London.*

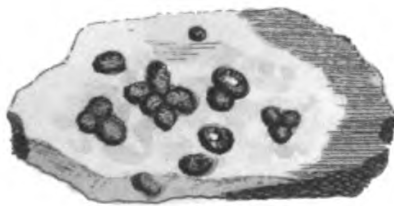
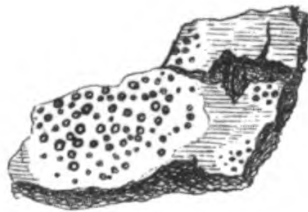
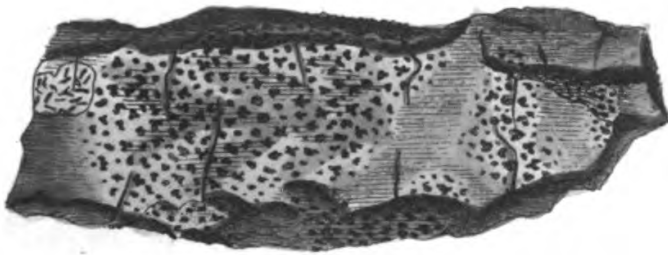
12

13

14

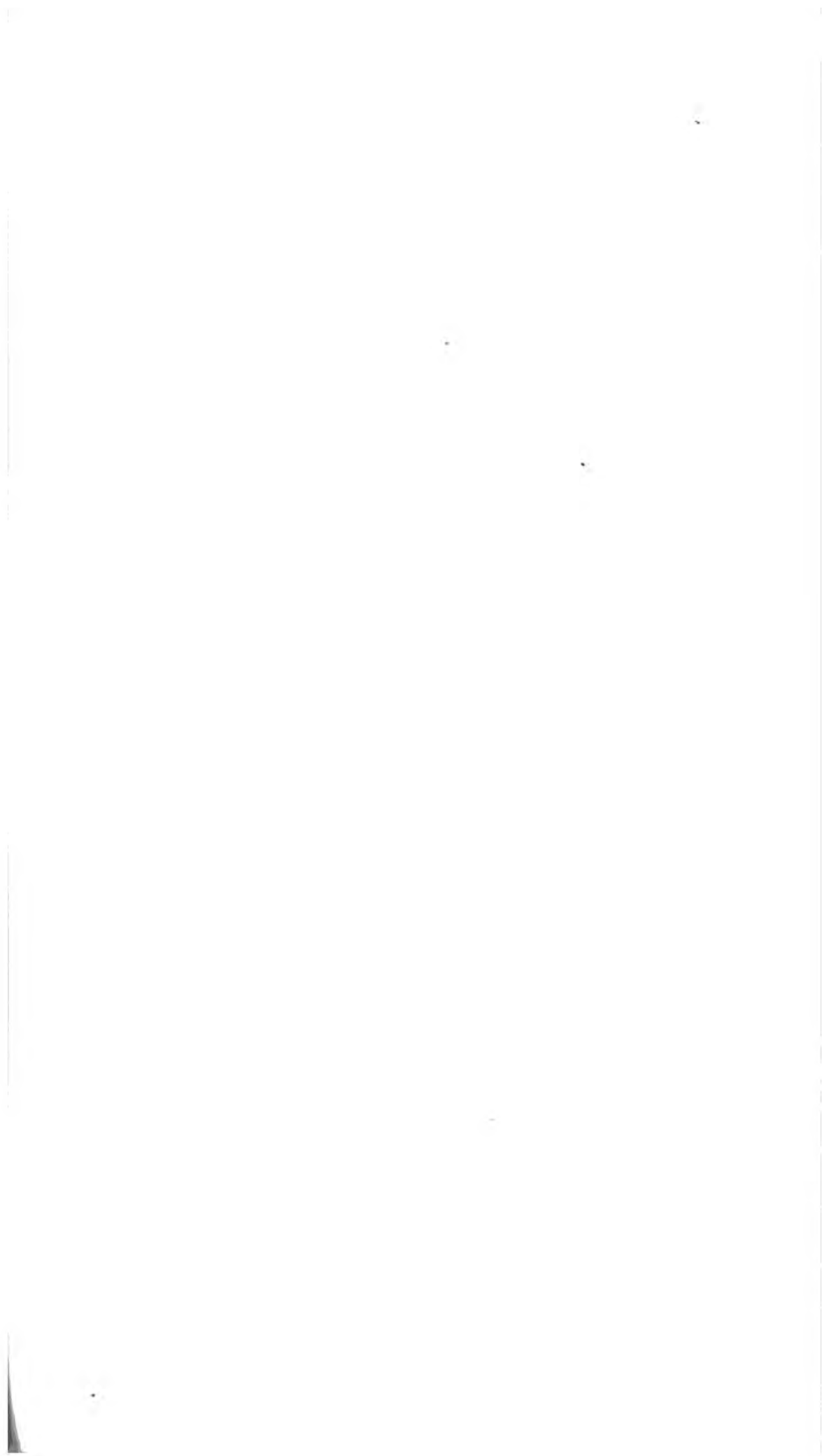
2151

1989.

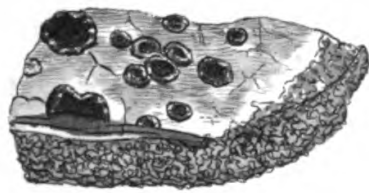
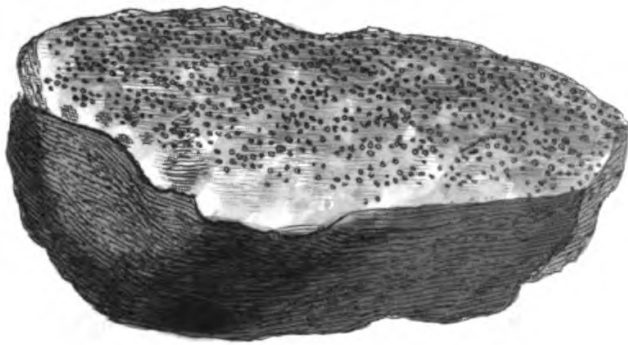


*Spiloma gregarium.*

1810 published by J<sup>d</sup> Sowerby London.



2556  
1990.

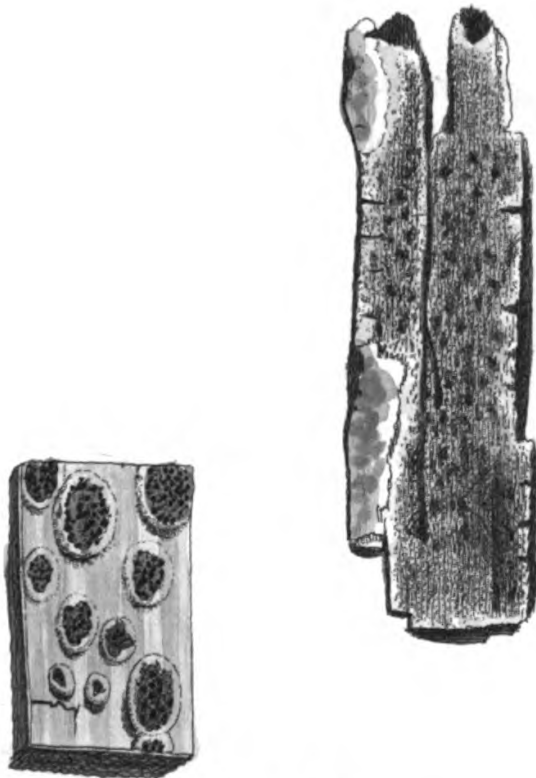


*Spilema tuberosum.*

*Sp. 2019. Mullerbach bei La Sporella, Lantia.*



2075  
1997.



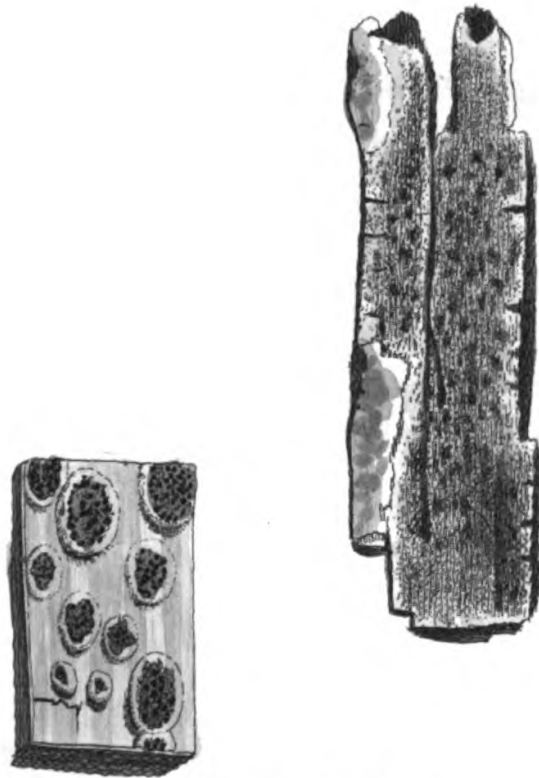
*Variolaria Vitiligo.*

*(Et. 1809 published by J. Smooty London.)*





2075  
1991.

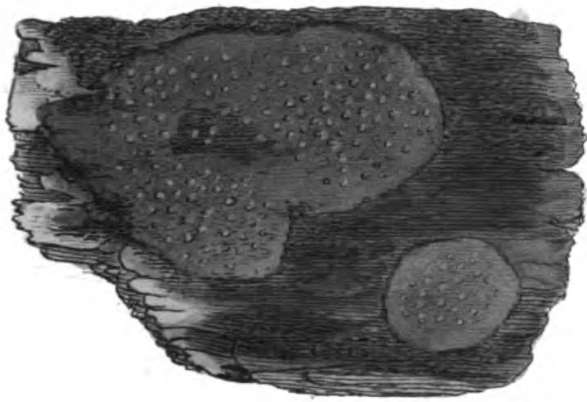


*Variolaria Vitiligo.*

(1811209 published by J. Sowerby London.)



2400  
1992.



*Variolaria griseo-virens.*

*Sp. 1102 published by J. A. Harvey, London.*



Found on sandstone rocks in the neighbourhood of Newcastle-upon-Tyne, as well as in various parts of Northumberland and Durham. A very doubtful production, having little or nothing of the habit or structure of a *Spiloma*. Masses of fructification sessile, but not at all immersed, consisting of black, tumid granulations, intermingled with some appearance of a grey powder: it is very uncertain whether they really belong to the crust or are parasitical.

## FAMILY VI. VARIOLARIEÆ.

Apothecia opening into depressed or hollow shields or pustules (*variolæ*).

### GENUS DLXXXVI. VARIOLARIA. *Variolaria*.

GEN. CHAR. *Thallus* crustaceous, membranceous, adnate, spreading, uniform. *Apothecium* a suborbicular, scutelliform cup, formed of the thallus, filled with a powdery or flocculose substance, which covers an immersed, waxy disc, containing imbedded thecæ.

Most of the species adhere to the bark of trees, but they are occasionally found on dead wood; a few only grow on walls and rocks. The apothecia resemble the pustules of the small-pox or some other eruptive disorder, hence the generic name.

#### VARIOLARIA VITILIGO. *Leprous Variolaria*. TAB. 1991.

*Thallus* elliptical, very thin, almost filmy, smooth, whitish, indeterminate. Apothecia very numerous, minute, oblong, confluent, with a very narrow elevated margin; powder lead-coloured.

*Spiloma Vitiligo*, *Acharius Meth. E. B.* 2075. *Variolaria Vitiligo*, *Turner and Borrer. Hooker Crypt. Part 1.* 168. *Lecanora apochræa*, *Acharius Syn.* 162.

Common upon old posts and pales, which it covers with an apparent hoary mouldiness, that slightly stains the fingers, if touched, in consequence of the powdery covering of the apothecia. *Thallus* of a silvery greyish-white. Apothecia very variable in size and figure, on account of their tendency to become confluent.

#### VARIOLARIA GRISEO-VIRENS. *Greyish-green Variolaria*. TAB. 1992.

*Thallus* elliptical, thin, inclining to tartareous, slightly rugged, grey, nearly indeterminate. Apothecia small, suborbicular, with a very narrow elevated border; powder greenish.

*Variolaria griseo-virens*, *Turner and Borrer*. *E. B.* 2400. *Hooker Crypt. Part 1.* 168.

Found on the smooth bark of the birch and cherry trees, on Stratton Strawless Heath, Norfolk, likewise at Killarney, Ireland. The grey-brownish crust looks like a dirty stain, or a mass of decayed *Lepraria*; it forms oblong transverse patches, an inch or two in length and half an inch in breadth. Apothecia more or less scattered, or crowded, roundish; the narrow border often concealed by the green or greenish-yellow powder.

**VARIOLARIA CONSPURCATA.** *Dusty Variolaria.* **TAB. 1993.**

Thallus suborbicular, tartareous, thick, whitish, surrounded when young by a zonate border of various colours. Apothecia minute, inconspicuous, with a depressed, evanescent border; powder grey. *Lichen conspurcatus*, *E. B.* 964. *Variolaria conspurcata*, *Turner and Borrer. Hooker Crypt. Part 1.* 168.

Not unfrequent on old churches, walls, and other buildings of calcareous stone, sometimes on plaster, and on limestone rocks, rarely on brick. Sir J. E. Smith observed the freestone church of Cawston, Norfolk, to be in many parts completely encrusted with it, particularly the elegant carving at the west end. The thallus spreads in nearly circular patches, varying from half a line to two lines or more in thickness, and in moist weather may be easily detached from the stone: the surface is of a greyish-white hue, very rugged and unequal, and cracked into small, irregular portions. When old it has a dirty or dusty aspect, to which the numerous minute apothecia contribute.

The hue of the crust, as well as of the apothecia, varies in different situations, both being sometimes white, while the former is occasionally very thin, and its ordinary rugose character almost lost; circumstances on which Messrs. Turner and Borrer have founded three distinct varieties.

The figure in *E. Bot.* 964. being very unsatisfactory, the Plate is re-engraved for the present edition.

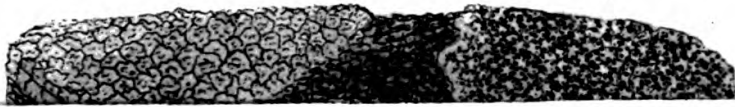
**VARIOLARIA GLOBULIFERA.** *Globule-bearing Variolaria.* **TAB. 1994.**

Thallus orbicular, somewhat tartareous, thickish, glaucescent, rugose, sprinkled all over with white soredia\*, and surrounded by a somewhat zonate border of various colours. Apothecia large, spherical, depressed at the apex, where they at length burst irregularly, becoming scutelliform with a lacerated border; powder white.

*Lichen globuliferus*, *E. B.* 2008. *Variolaria globulifera*, *Turner. Hooker Crypt. Part 1.* 169. *Acharius Syn.* 130.

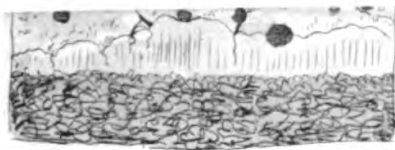
Found on the trunks of beeches and old oaks in the forests of Sussex. Crust greenish-grey, hoary from the numerous soredia sprinkled over its surface. Apothecia about the size of vetch seeds, globular, with a depression at the summit, which eventually bursts, the thin, torn cover becoming an erect, circular margin to the disc.

\* See note, page 32.



### NOTICE.

MRS. SOWERBY begs to inform her Subscribers, that in consequence of Tabs. 1993 and 2002 having to be re-engraved, they will not appear till the end of the Volume.



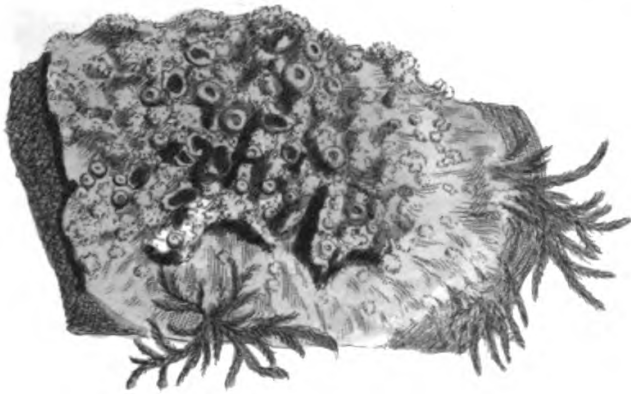
*Variolaria conspurcata?*





2008

1992



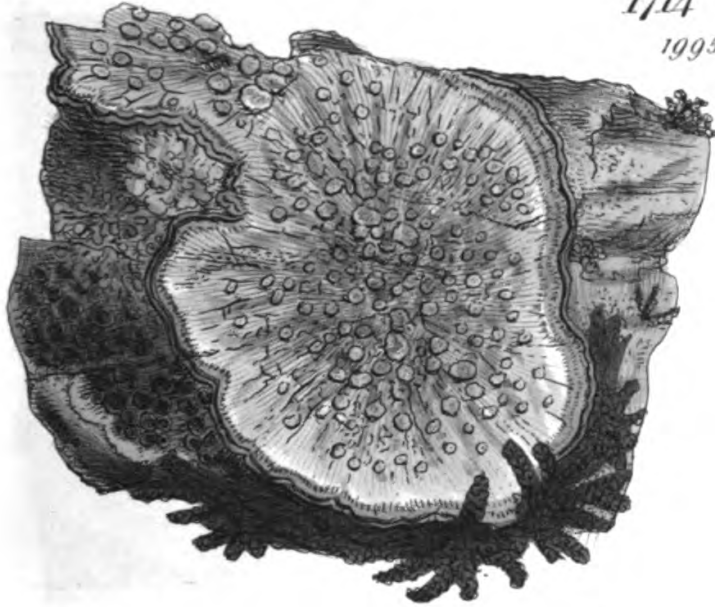
*Varietaria globulifera.*

Mar 1 1899 Published by Jas. Sowerby London.



1714

1995.



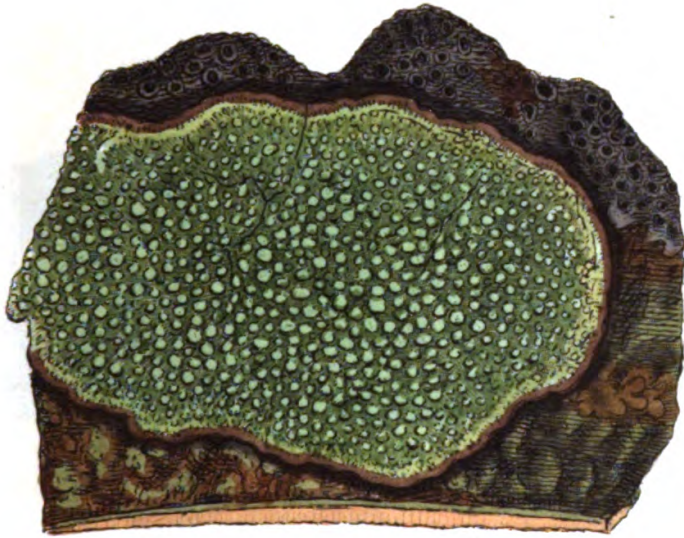
*Variolaria discoidea.*

Mar. 22. 97. Published by J. & S. Sowerby London.



1713

1996.



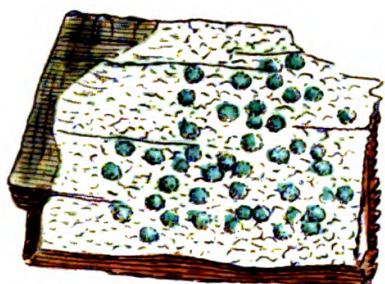
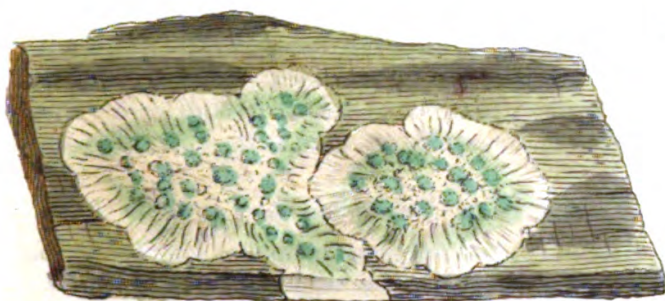
*Variolaria faginea.*

Mar. 12807. Published by J. & S. Doverby London.



2401.

1997.



*Variolaria aspergilla.*



*His. 1822, published by J. Sowerby, London.*





In general appearance it approaches the two following species, but is at once distinguishable from *V. faginea* by its insipidity, and from *V. discoidea* by the very prominent character of its apothecia.

**VARIOLARIA DISCOIDEA.** *Insipid-zoned Variolaria.* TAB. 1995.

Thallus orbicular, somewhat tartareous, thickish, glaucous-white, surrounded by a zonate border of various colours. Apothecia numerous, flat, with a thick border; powder snowy-white.

Lichen discoideus, *E. B.* 1714 *Variolaria discoidea*, *Persoon.* *Hooker Crypt. Part 1.* 169.

Common on the trunks of old trees, where, especially in wet weather, its whiteness renders it very conspicuous. It is said to grow also occasionally on pales and posts, and, more rarely, on walls and rocks. The flatness of the apothecia, added to their dilated and expanded margin, distinguishes it from both the preceding and following species; from the latter, however, to which it seems most nearly allied, and with which indeed it has sometimes been confounded, its insipid taste constitutes a more striking character of separation.

**VARIOLARIA FAGINEA.** *Bitter-zoned Variolaria.* TAB. 1996.

Thallus orbicular, somewhat tartareous, thickish, glaucous- or greenish-white, surrounded by a zonate border of various colours. Apothecia very abundant, subhemispherical, the border nearly obsolete; powder snowy-white.

Lichen fagineus, *Linn.* *E. B.* 1713. *Variolaria faginea*, *Persoon.* *Hooker Crypt. Part 1.* 169.

A very common lichen on the trunks of old trees, especially the beech; occasionally, it is said, found on posts and pales. Thallus mostly nearly circular, grey or greenish when young, rugged, with a thin, smooth, elegant border, coloured with concentric shades of brown. Apothecia very prominent and numerous, nearly covering the crust, with the exception of the coloured margin; their disc somewhat convex, very white in consequence of the powder which covers them, and that generally conceals the imperfect border. By age the whole plant becomes more or less of a snowy-white. It has a strong bitter flavour that affects the palate for hours after tasting, and is indeed the most remarkable point of distinction between this and the two preceding species, as remarked first by Mr. Borrer.

In France this lichen is collected in large quantities for the manufacture of oxalic acid, which exists in it partly free and partly in the state of oxalate of lime; according to M. Braconnot, who first detected it, 100 parts of the lichen yield 29.4 of acid and 18 of lime. Many other of the crustaceous species, however, contain an equal, and some even a larger proportion of the same acid, the utility of which, more especially in those growing upon rocks and stones, has been referred to in the introductory remarks upon the Order.

**VARIOLARIA ASPERGILLA.** *Sprinkled Variolaria.* TAB. 1997.

Thallus orbicular, somewhat tartareous, thickish, dull-white, wrinkled,

with a smooth, white, polished border. Apothecia scattered, elevated, hemispherical, with an obscure or obsolete border; powder very white.

*Variolaria aspergilla*, *Acharius Meth.* E. B. 2401. *Hooker Crypt. Part 1.* 170.

Found on old park-paling, and on the trunks of oaks and beeches, occasionally on rocks. Thallus spreading more or less circularly, greyish- or bluish-white, a little thick and tartareous, wrinkled and cracked; the margin thin, polished, white. Apothecia prominent, convex, rather scattered, never crowded; disc pale flesh-coloured when the white powder is removed.

Inspid to the taste, never bitter.

**VARIOLARIA LACTEA.** *Milky-white Variolaria.* **TAB. 1998.**

Thallus orbicular, tartareous, thick, white, smooth, cracked and areolate; thin, polished, zoned, and flesh-coloured in the circumference. Apothecia orbicular, flattish, with an elevated border when young; powder white.

*Variolaria lactea*, *Persoon.* E. B. 2410. *Hooker Crypt. Part 1.* 170. *Lichen lacteus*, *Linn. Mant.*

A native of rocks in mountainous and subalpine districts. Thallus cream-coloured, spreading widely in a circular form, gradually thinner towards the margin, which is polished, almost satin-like, marked with numerous concentric lines or plaits, and tinged at the edge with a delicate rose- or flesh-colour. The border of the apothecia disappears with age.

A variety, found by Mr. Borrer on sandstone rocks in Sussex, has the thallus continuous, of a dirty lead-colour, and the apothecia nearly spherical: it is probably the same with our next species.

**VARIOLARIA CINEREA.** *Ash-coloured Variolaria.* **TAB. 1999.**

Thallus orbicular, tartareous, thin, ash-coloured, cracked; its circumference indeterminate. Apothecia orbicular, very small, white, with an elevated margin and a flesh-coloured disc; powder white.

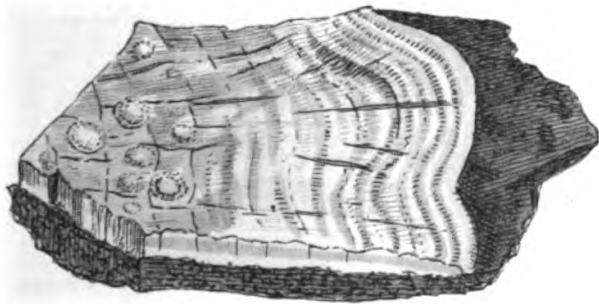
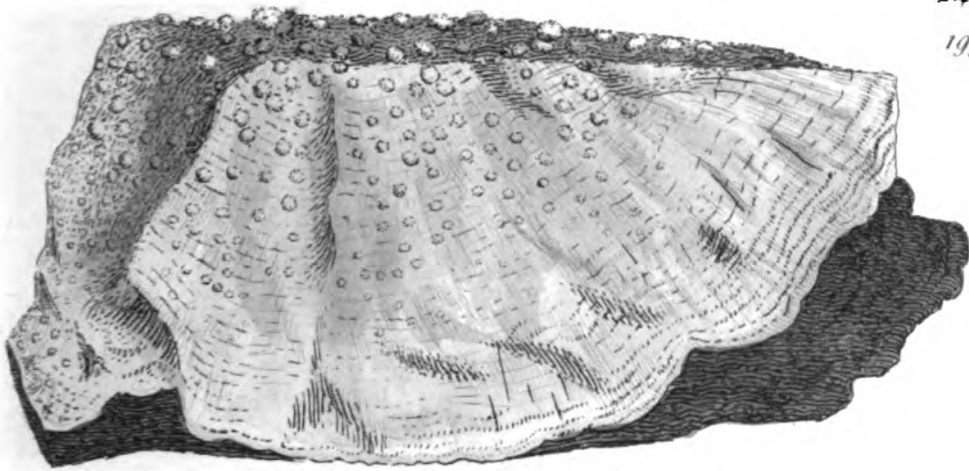
*Variolaria cinerea*, *Smith.* E. B. 2411. *Hooker Crypt. Part 1.* 170.

Found on whinstone, in the county of Durham, by the Rev. Mr. Harriman. It has been considered a variety of *V. lactea*, but differs from it in its ashy-grey colour, and especially in the margin being indeterminate, extending itself in dispersed spreading patches, unlimited by the thin, shining, zoned border, which is essential to the former. The fructification is copious, though very minute, and is seen, under a magnifier, to be orbicular and prominent, with an elevated entire border, of the substance of the crust, and a very distinct, solid, flesh-coloured disc, covered by a dense layer of very white powder, which easily rubs off, when the disc becomes conspicuous by its reddish hue.

**VARIOLARIA MULTIPUNCTATA.** *Many-dotted Variolaria.* **TAB. 2000.**

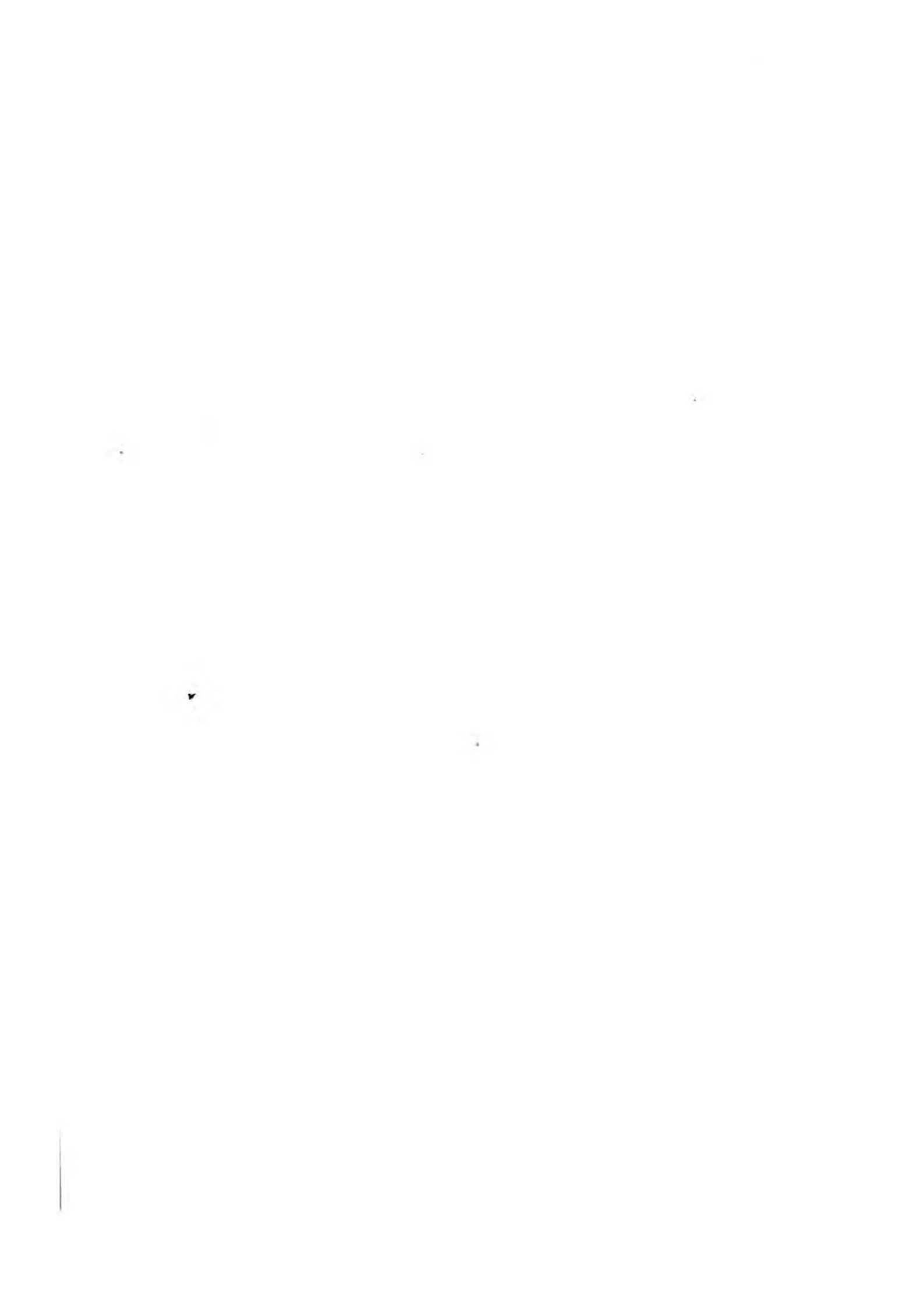
Thallus suborbicular, thin, tartareous, rugulose, glaucous-white, sur-

2410  
1998.

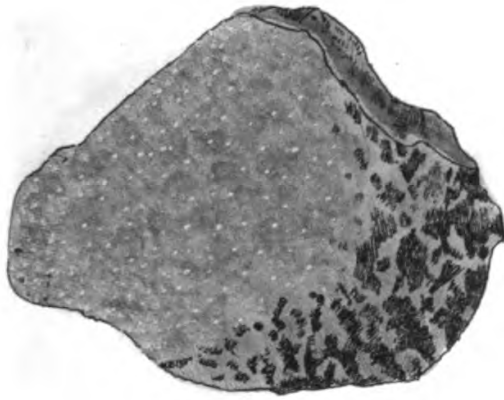


*Variolaria lactea.*

May 1872 published by J. S. Van der Linden.



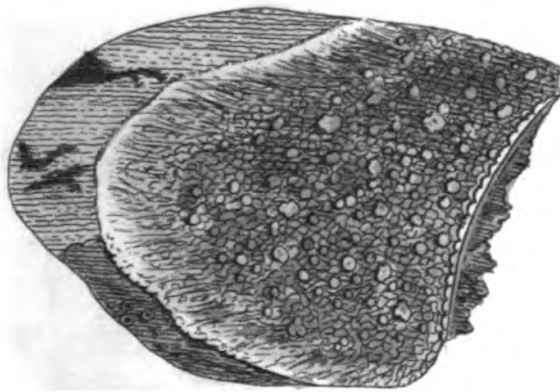
244.  
1999



*Variolaria cinerea.*  
Mey. 1812 published by J. S. Edwards, London



2061  
2000.



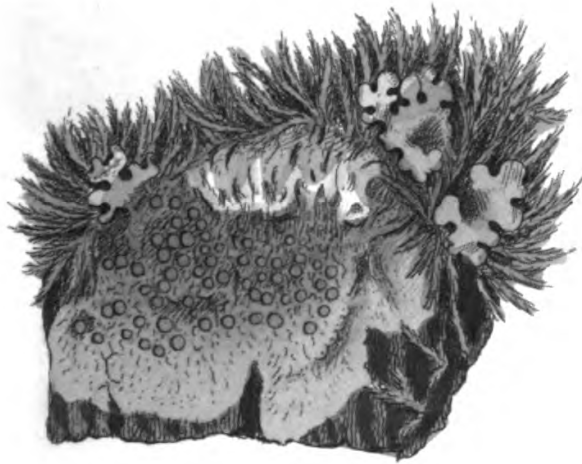
*Variolaria multipunctata.*

*Revised and published by J. Sowerby, London*



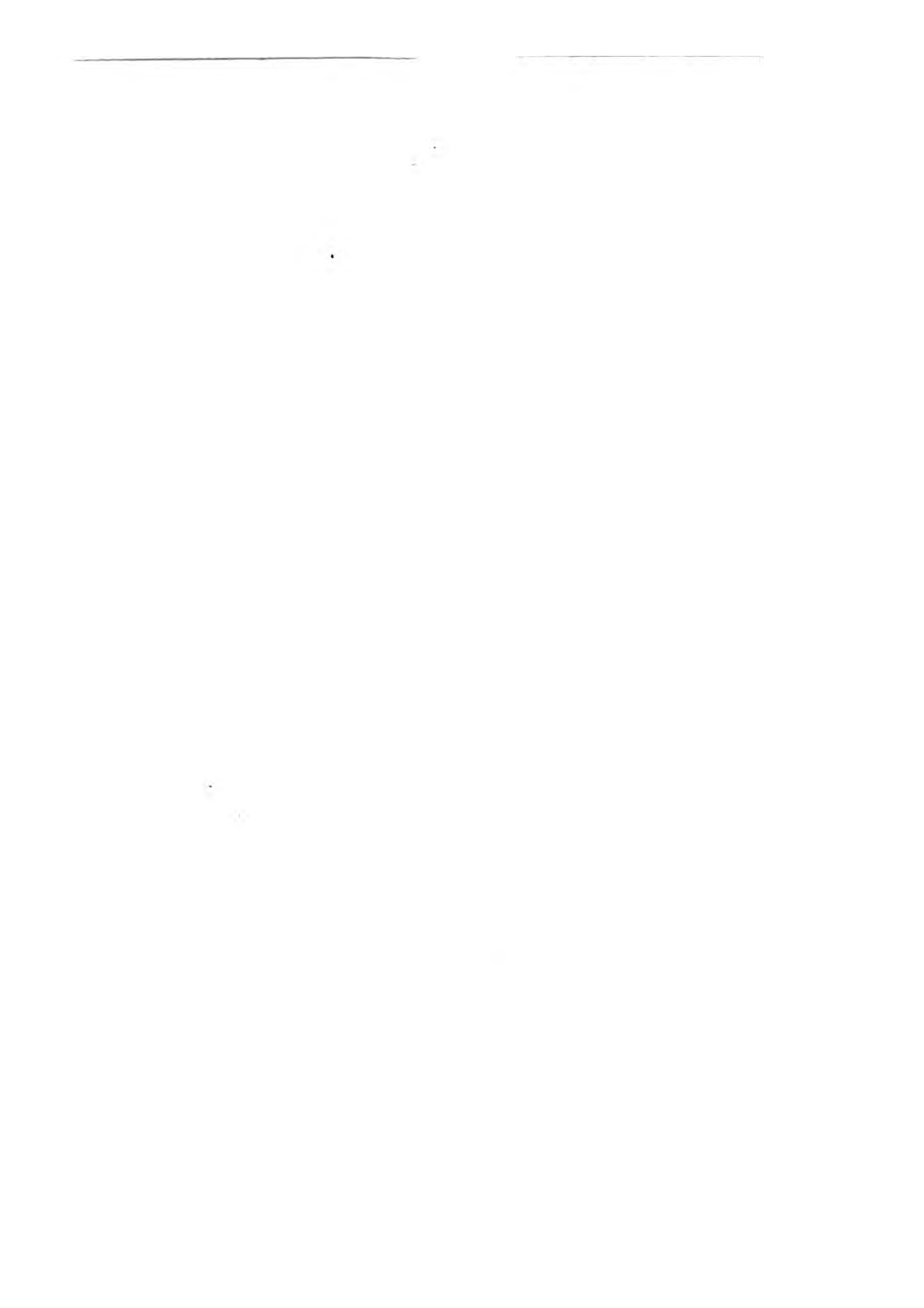


2002  
2001.



*Variolaria velata.*

*Sept. 11. 1811. published by J. Sowerby London.*



2002.



*Variolaria argenta?*



rounded by an even, very thin, glossy, white border. Apothecia numerous, hemispherical, compound, dotted, with an inflexed border; powder white, not copious.

Lichen multipunctus, *E. B.* 2061. *Variolaria multipunctata*, *Turner. Hooker Crypt. Part 1.* 170. *Acharius Syn.* 129.

Common on beech- and oak-trees in the forests of Sussex and Hampshire, and occasionally in other parts of the kingdom. Thallus of a greyish-white or cream-colour. Apothecia numerous, rather small, hemispherical, with a thick, smooth, lobed border; their disc white, rugged, generally marked with 3 or 4 dots in an early stage, which are subsequently found to be so many distinct discs, being separated from each other at the base internally by the fleshy substance of the thallus.

**VARIOLARIA VELATA.** *Veiled Variolaria.* **TAB. 2001.**

Thallus limited, thin, subtartareous, wrinkled, greyish, with a pale edge. Apothecia small, crowded, the disc yellowish, veiled with a white membrane; border thick, even, of the substance of the thallus; powder none.

Lichen velatus, *E. B.* 2062. *Variolaria velata*, *Acharius Syn.* 119. *Hooker Crypt. Part 1.* 170. *Parmelia velata*, *Turner in Linn. Trans.* 9. 143. *tab.* 12. *fig.* 1.

Found on ash-trees in Sussex. It has the crust and habit of *V. multipunctata*, but is of a greener hue. The apothecia are numerous, small, with a thick but not much elevated, smooth border, originating from the crust; their disc is flat, of a yellowish or pale salmon-colour, but entirely concealed by a white membranous veil, which seemingly supplies the place of the powder that covers that of other species.

A specimen now before me, on beech-bark, from St. Leonard's, forms part of a patch with *V. multipunctata*, and the thalli of the two species are scarcely separable under a good magnifier, in the dry state.

**VARIOLARIA ARGENA.** *Silvery Variolaria.* **TAB. 2002.**

Thallus suborbicular, between filmy and tartareous, very thin, rugulose, silvery-grey, covered here and there in patches with white powder, surrounded by a white fibrous border. Apothecia in scattered clusters, orbicular, flattish, with an inflexed border; powder white, scanty.

Lichen argenus, *Acharius Prod. E. B.* 1923. *Variolaria argena*, *Turner and Borrer. Hooker Crypt. Part 1.* 171. *Thelotrema variolarioides*,  $\beta$ . *Acharius Syn.* *Lecidea argena*, *Ach. Meth.* *Lecanora verrucosa*, *Ach. Lich. Univ.*

Not uncommon on the bark of the lime and other trees. The thallus forms broadish, rugged, mealy patches, of a greyish or silvery-white, with a margin fibrous at first, then smooth, even, and greenish or olive-coloured. Apothecia scattered, small; their border tumid, even or slightly rugged, of the hue and substance of the thallus.

VARIOLARIA AGELÆA. *Inlegant Variolaria.* TAB. 2003.

Thallus elliptical, almost filmy, whitish, surrounded by an obsolete border of the same hue. Apothecia very numerous, depressed, irregular, crowded, becoming confluent, so as to appear compound; border inflexed; powder white; the disc at length bare, blackish.

Lichen agelæus, *Acharius Prod. E. B.* 1730. *Variolaria agelæa*, *Turner and Borrer. Hooker Crypt. Part 1.* 171. *Urceolaria agelæa*, *Acharius Meth. Thelotrema variolarioides*,  $\beta$ . *agelæa*, *Ach. Syn.* 117. *Lecanora verrucosa*,  $\beta$ . *Ach. Lich. Univ.* 355.

Perhaps not unfrequent on the bark of trees, but hitherto so obscurely charactered, as to be scarcely identified as a distinct species from the last, with which, as the various synonyms express, it shares in the uncertainty of generic relation. It is described in the original edition of this work, as spreading in irregular, oblong, transverse patches round the stems of large trees; the thallus being thin, smooth, somewhat shining, of a pale greenish-white, sprinkled with roundish, white, warty cracks; these at length become more elevated, and are separated from one another by angular fissures, which render the crust tessellated: at length several small, blackish, depressed apothecia, irregular in size and shape, appear in each of the warts, every one of which is surmounted by a thick, inflexed margin, of the substance of the thallus.

Messrs. Turner and Borrer consider *V. agelæa* to differ from *V. argena* and *V. multipunctata* in its thinner and more even thallus, and in the shape and structure, as well as in the greater number of its apothecia; and they refer it to the present genus on account of the presence of the powdery covering of the disc in an early state.

The specific identity of the specimens figured on our Plate has been questioned, but I have not the means of deciding upon it.

The last three species of *Variolaria* seem to border very closely on the next family.

FAMILY VII. LECANOREÆ.

Apothecia bordered, discoid, sessile (*patellulæ*).

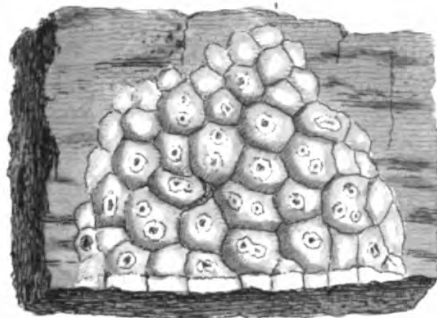
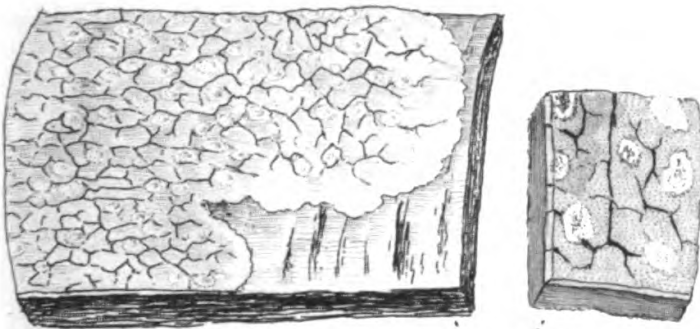
GENUS DLXXVII. URCEOLARIA. *Urceolaria.*

GEN. CHAR. *Thallus* crustaceous, spreading, adnate, uniform. *Apothecia* (*patellulæ*) orbicular; the disc concave, coloured, immersed in the crust; the border formed of the crust and of the same colour.

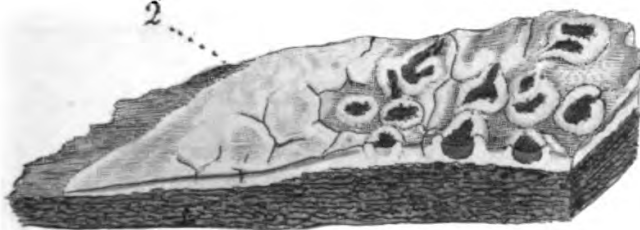
The more or less concave form of the apothecia, and its immersion in the thallus, distinguish this from the other ge-



2



2

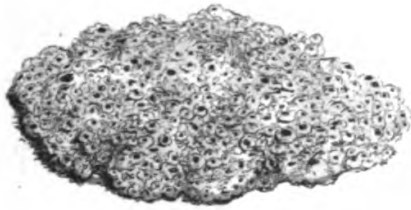


*Variolaria agelæa.*

*Apr. 1867, Published by J. Sowerby London.*







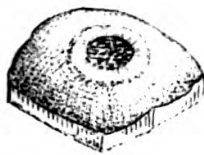
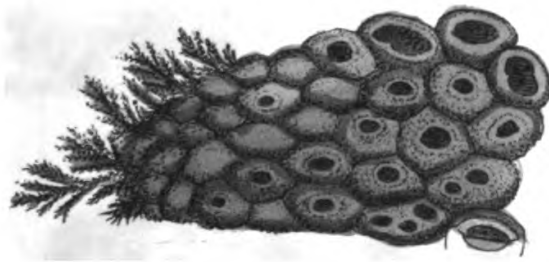
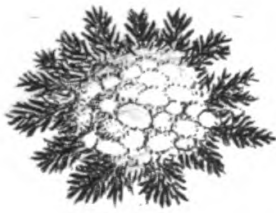
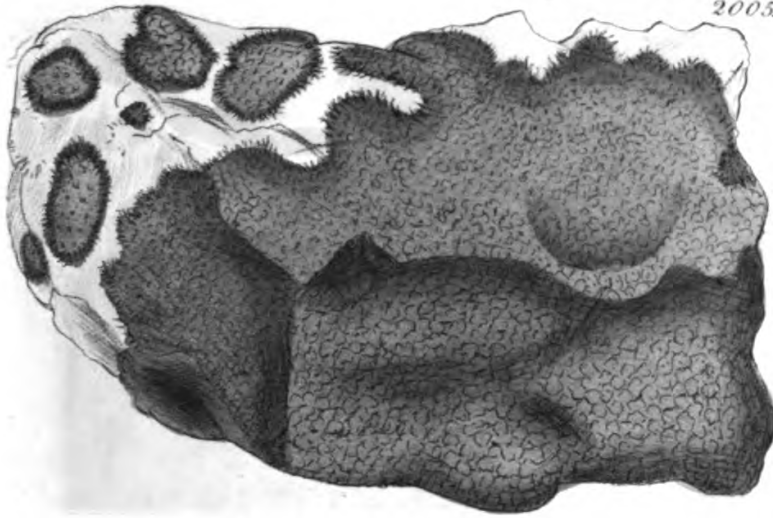
*Urceolaria scruposa.*

Fig. 1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12.



1732

2005

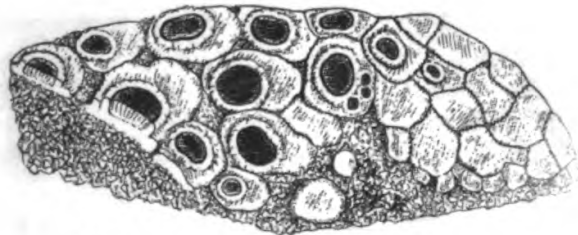
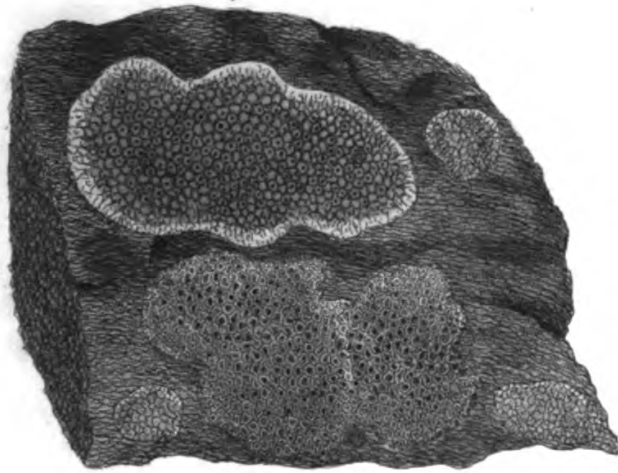


*Urceolaria gibbosa?*

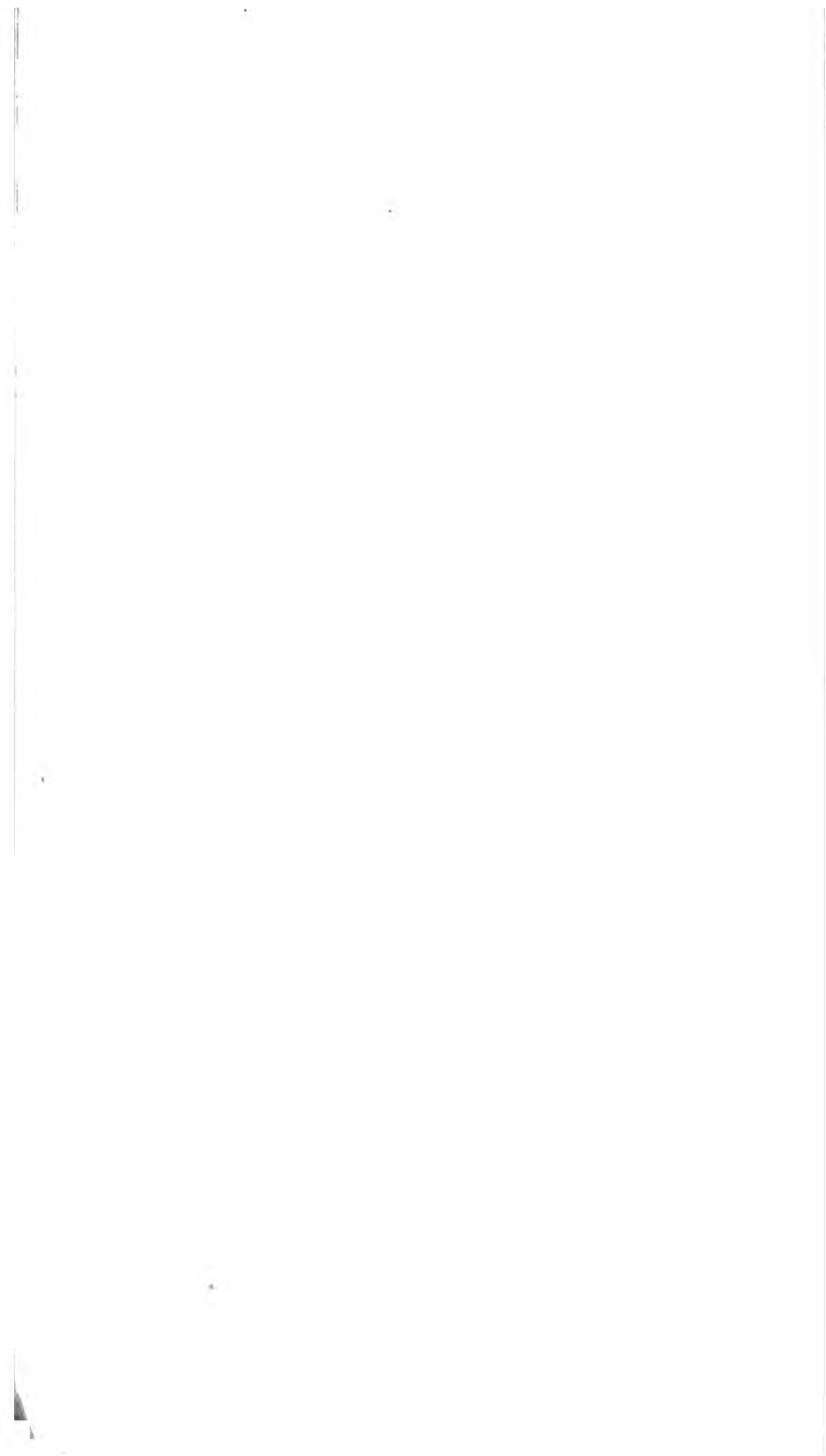
*Apr. 1. 1807. Published by J. S. Jowarby London.*



1940  
2006



*Urceolaria calcarea.*  
Nov. 2, 1868, Published by Jas. Sowerby, London.



nera of its family; and from *Lecidea* especially, it is further and more importantly characterized by their elevated border composed of the thallus, and resembling it in colour and texture. Name from the Latin, *urceolus*, a little pitcher, a fanciful allusion to the form of the fructification.

URCEOLARIA SCRUPOSA. *Common Urceolaria.* TAB. 2004.

Thallus greyish-white, rugose, granulated. Apothecia with the disc deeply immersed, concave, black; the border very thick, incurved, crenated.

Lichen scruposus, *Dickson. E. B.* 266. *Urceolaria scruposa*, *Acharius Syn.* 143. *Hooker Crypt. Part 1.* 172. *Gyalecta bryophila*, *Acharius Syn.* 10.

Not unfrequent on dry, chalky heaths, and walls, in the eastern counties of England especially. The crust varies in thickness, and has a mealy appearance, very white and chalk-like when dry, when moist more of an ash colour. Apothecia immersed; the disc very concave, brownish-black, at first concealed by the elevated, thick, incurved border.

URCEOLARIA GIBBOSA. *Gibbous-fruited Urceolaria.* TAB. 2005.

Thallus smoky-brown, formed of minute tessellated warts, with a radiated marginal fringe. Apothecia immersed in each wart, concave, blackish, with an undivided, elevated, pale border.

Lichen fibrosus, *E. B.* 1732. *Urceolaria gibbosa*, *Acharius Syn.* 139. *Hooker Crypt. Part 1.* 172. *U. fimbriata*, *Ach. Meth.* 145.

Frequent on flinty pebbles in exposed, sunny situations, as upon the South-downs, Sussex, where it was first observed by Mr. Borrer. Thallus light smoky-brown, curiously tessellated, the areolæ rising into angular or roundish convex warts, which are smaller towards the margin, decreasing gradually into a thin, dilated, inseparable border, sometimes coloured like the rest of the thallus, and rather granulated than fibrous; at other times, especially where the flint is broken and polished, blackish, and distinctly radiated like a fringe, bearing scattered rudiments of future warts. Apothecia generally solitary in each wart, rarely 2 or more.

URCEOLARIA CALCAREA. *Calcareous Urceolaria.* TAB. 2006.

Thallus indeterminate, greenish ash-coloured, or greyish, tessellated. Apothecia immersed in the raised centre of the areolæ, nearly flat, brownish, with an undivided, elevated, pale, powdery margin.

Lichen Hoffmanni, *E. B.* 1940. *Urceolaria calcarea*, *Acharius Syn.* 143. *Hooker Crypt. Part 1.* 172.

Found on rocks, stones, and walls in many parts of the kingdom. It varies much according to its different periods of growth. The thallus in a young state is of a pale greyish-green, and consists of numerous, angular, crowded, smooth areolæ, paler at their edges, raised



in their centre, where is lodged one, or occasionally two or three, small, immersed, grey, slightly concave apothecia, with a conspicuous, elevated, whitish, powdery border. By age the thallus becomes whiter, the areolæ more tumid, and the apothecia brown or blackish, and nearly flat\*.

It often overruns loose pebbles on all sides in a dispersed manner. *Lichen cinereus*, afterwards *multipunctus*, E. B. 820, unquestionably representing the same species in an advanced stage of growth, is omitted in this edition.

URCEOLARIA CINEREA. *Grey Urceolaria*. TAB. 2007.

Thallus grey, rugged and cracked, with a broad, greenish, undulated border. Apothecia immersed, solitary or clustered, slightly concave, black, with an elevated, entire margin.

*Lichen cinereus*, E. B. 1751. *Urceolaria cinerea*, *Acharius Syn.* 240. *Hooker Crypt Part 1.* 172.

Abundant on loose, exposed flints, both on the Downs and on the sea-shore of Sussex. Thallus grey, of a thin, hard substance, not regularly tessellated, but eventually cracked; towards the margin obscurely radiated, the edge dilated, undulated, dark-greenish, somewhat polished. Apothecia small, elevated, clustered or solitary, black, slightly concave, with an elevated, smooth, entire border, of the substance of the crust.

Sir W. J. Hooker regards this as one of the states of *U. calcarea*.

URCEOLARIA ACHARII. *Acharian Urceolaria*. TAB. 2008.

Thallus somewhat determinate, smooth, a little cracked, pale brick-coloured. Apothecia sunk in the thallus, reddish, the border tumid.

*Lichen Acharii*, *Wahlenberg Lapp.* E. B. 1087. *Urceolaria Acharii*, *Acharius Syn.* 137. *Hooker Crypt. Part 1.* 172.

A native of rocks and stones, especially granite, in alpine and sub-alpine districts, chiefly in places occasionally inundated, having in its most common state the appearance of an ochraceous deposit of the water. Colour variable, from a pale brick-colour to a yellowish-brown, or dirty white. Apothecia numerous, concave, surrounded at first by a pale, elevated border, which afterwards disappears.

Probably only a coloured variety of the next species, to which it is referred by some botanists.

URCEOLARIA PUNCTATA. *Dotted Urceolaria*. TAB. 2009.

Thallus somewhat determinate, rugged, greyish-white, with a very narrow black edge. Apothecia minute, very numerous, roundish, black, with a white margin incorporated with the crust.

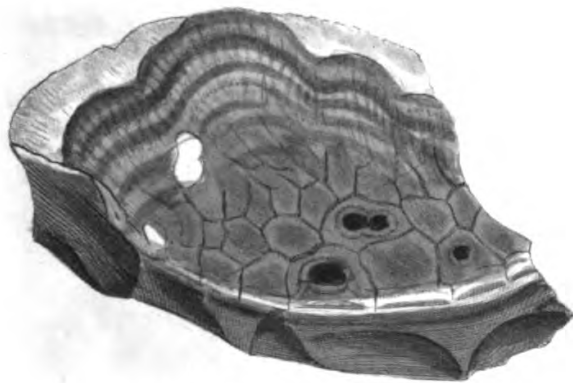
*Lichen punctatus*, *Dickson.* E. B. 450. *Urceolaria Acharii*,  $\beta$ . *cyr-*

\* "It may be said of this, and the following *Urceolaria*, that they have an equally strong claim to rank with *Lecidea*; or, if a slightly raised border of the crust be considered to belong to the apothecia, to *Lecanora*. In all, the apothecia are nearly level with the crust."—*Hooker*.



1751

2007



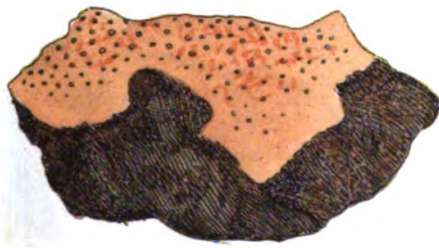
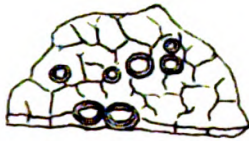
*Urceolaria cinerea.*

June 22<sup>nd</sup> 1867 Published by J. & S. Severby London.



1887

2008

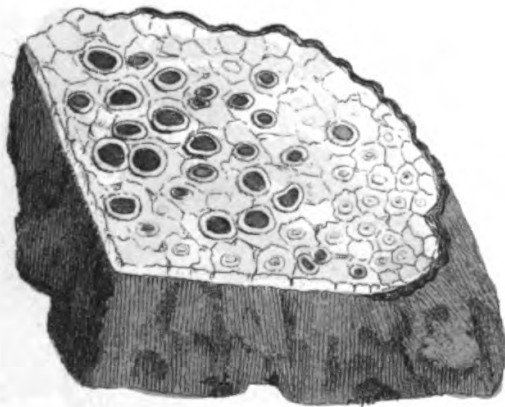
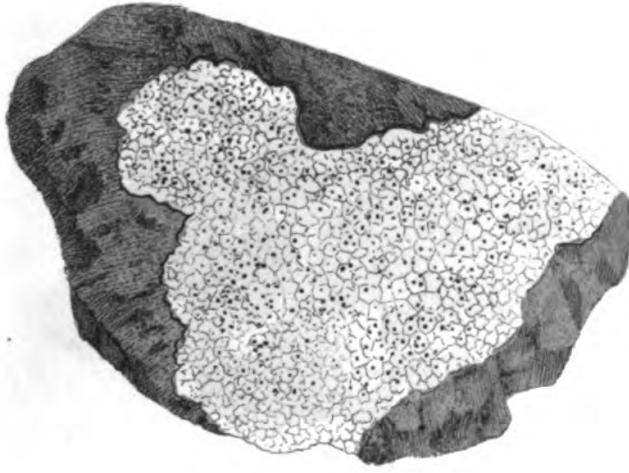


*Urceolaria Acharii.*

Nov 1 1802 Published by J<sup>r</sup> Sowerby London

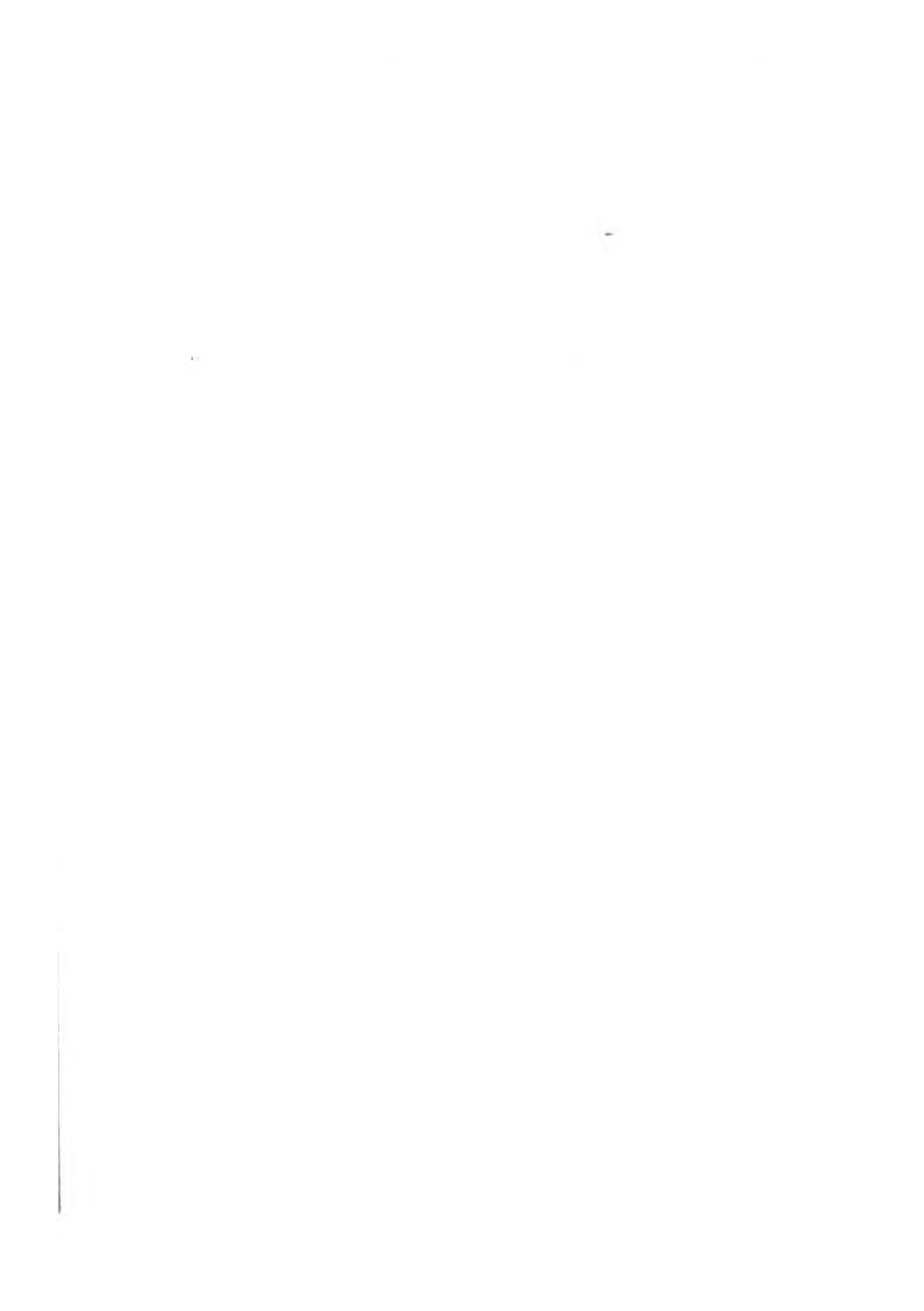


450.  
2009.



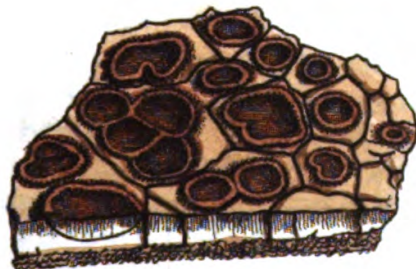
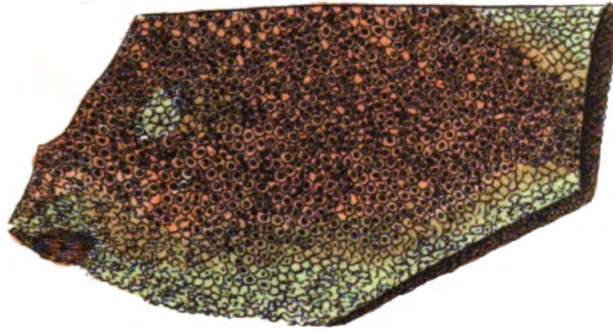
*Urceolaria punctata.*

Jan 7. 1790. Published by J. Swamy, London.



2657.

2010.



*Urceolaria rufescens.*

*August 7<sup>th</sup> 1890.*





taspis, *Acharius Syn.* 137. *Hooker Crypt. Part 1.* 172. *Lecanora cyrtaspis*, *Ach. Lich. Univ.*

Found on rocks and walls in several parts of the kingdom. The thallus forms a thin, hard crust, of a greyish-white hue, with a narrow black margin; so that when several plants grow together, they are separated by a black line. The whole surface is full of little fissures, dividing it into small angular areolæ, in the centre of each of which the apothecia appear, being at first a greenish speck, soon turning grey, then brownish-red, and finally black: in this last stage they rise out of the crust, and often become convex, having a broad, white, elevated margin, not visible in a young state, because incorporated with the thallus.

URCEOLARIA RUFESCENS. *Reddish Urceolaria.* TAB. 2010.

Thallus indeterminate, thin, tartareous, tessellated, brown. Apothecia small, dark chestnut, immersed, at length flat, with an elevated, entire margin.

*Lecidea rufescens*, *Borrer in E. B. Supp.* 2657. *Urceolaria rufescens*, *Hooker Crypt. Part 1.* 173. *Sagedia rufescens*, *Acharius Syn.* 135.

A distinct and apparently rare lichen, having only been found vegetating on sandstone at Gorleston, Suffolk. The thallus forms irregular patches, composed of small, flattish, angular areolæ, various in size and figure, smooth, reddish-brown. Apothecia often several in one areola of the crust; immersed at first, concave, at length flat; of a darker and redder brown than the thallus, almost black when dry.

In general the proper margin of the apothecia is so incorporated with the crust that its presence is not very decidedly evident.

### GENUS DLXXVIII. LECIDEA. *Lecidea.*

GEN. CHAR. *Thallus* crustaceous, spreading, adnate, uniform.

*Apothecia* (*patellulæ*) orbicular, sessile, plano-convex; border of the same colour as the disc.

Distinguished from the following genus, *Lecanora*, by the border of the apothecium resembling its disc, or at least being of a substance altogether different from that of the thallus. A spurious border is sometimes formed by the elevation of the crust. The species are very numerous, and grow for the most part, though far from exclusively, on rocks and stones.

Named from the Greek, *λεκίς*, a kind of small shield, and *εἶδος*, *form*, the character of the apothecia.

\* *Apothecia black.*

**LECIDEA ATRATA.** *Inky-crusted Lecidea.* TAB. 2011.

Thallus continuous, even, minutely tessellated, of a greyish, rather opaque black; its fragments angular, slightly concave. Apothecia in the interstices, half immersed, flattish, coal-black, with an elevated, entire, black border.

Lichen atratus, *E. B.* 2335. *Lecidea atrata*, *Hooker Crypt. Part 1.* 174. *L. coracina*, *Acharius Syn.* 11.

Found on granite rocks at the head of Loch Lee, in Glen Esk, Angusshire. Thallus thin, forming ink-like stains on the surface of the rock, very smooth, but not all glossy. Apothecia numerous, sunk in the cracks, scarcely raised above the surface, rather smaller than the minute areolæ, very black, slightly concave, with an elevated, thick, entire, smooth border, of their own colour and substance.

**LECIDEA ATRO-CINEREA.** *Ashy-black Lecidea.* TAB. 2012.

Thallus tessellated, greyish-black, smooth. Apothecia several together, depressed, brownish-black, with a paler border; at length crowded, elevated, the border being obliterated.

Lichen atro-cinereus, *Dickson Crypt. fasc. 3.* 14. *tab. 9. fig. 2.* *E. B.* 2096. *Lecidea atro-cinerea*, *Hooker Crypt. Part 1.* 174.

Found on rocks by Mr. Dickson, from one of whose specimens our figure was drawn. Thallus hard, dense, broken into variously sized, obtuse, angular areolæ, each of which bears two or more apothecia of a rusty-black colour, that eventually lose their margins and resemble so many tubercles.

**LECIDEA ATRO-ALBA.** *Black and white Lecidea.* TAB. 2013.

Thallus indeterminate, very thin, continuous, black, with grey, roughish, convex, crowded warts. Apothecia in the interstices, coal-black, flattish, at length convex, with an elevated black border.

Lichen atro-albus, *Lim.* *E. B.* 2336. *Lecidea atro-alba*, *Acharius Syn.* 11. *Hooker Crypt. Part 1.* 174.

A native of rocks in the north of England. Thallus black, thin, inseparable from the stone, more or less covered with crowded, convex, grey or brownish warts, which are rough with a sort of powder that may be rubbed off. Apothecia sessile between the warts, coal-black, flattish when young, with a thick, entire, nearly even border: when old, the disc becomes convex, and the border is often obliterated.

**LECIDEA VERRUCULOSA.** *White-warted Lecidea.* TAB. 2014.

Thallus indeterminate, very thin, fibrous, black, with white, convex, crowded, smooth warts. Apothecia solitary in each wart, depressed, coal-black, with a border of the same hue.

Lichen verruculosus, *E. B.* 2317. *Lecidea verruculosa*, "*Borrer MSS.*" *Hooker Crypt. Part 1.* 174.

A native of rocks in the western part of the county of Durham; likewise in Yorkshire. The thallus forms small indeterminate patches on the surfaces of the hardest rocks, and is extremely thin, black,

2335

2011.



*Lecidea atrata.*

*Det. 1891, published by J. S. Greville, London.*



2096.

2012.



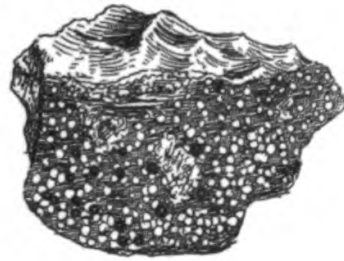
*Lecidea atro-cinerea.*

*Lec. recy. published by J. Sowerby London.*



2336

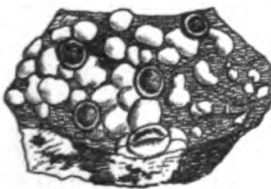
2013.



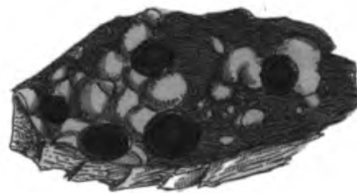
1.



2.



2.



1.

*Lecidea atro-alba.*

*Det. seen published by J. S. Burby London.*



Handwritten scribbles or faint markings, possibly illegible text or a signature.

2317

2014



*Lecidea verruculosa.*

*Aug. 1891 published by G. S. Harvey, London.*



1734

2015.



*Lecidea fusco-atra.*

*Apr. 12. 87. Publish'd by Ja. S. Sowerby London.*

1992

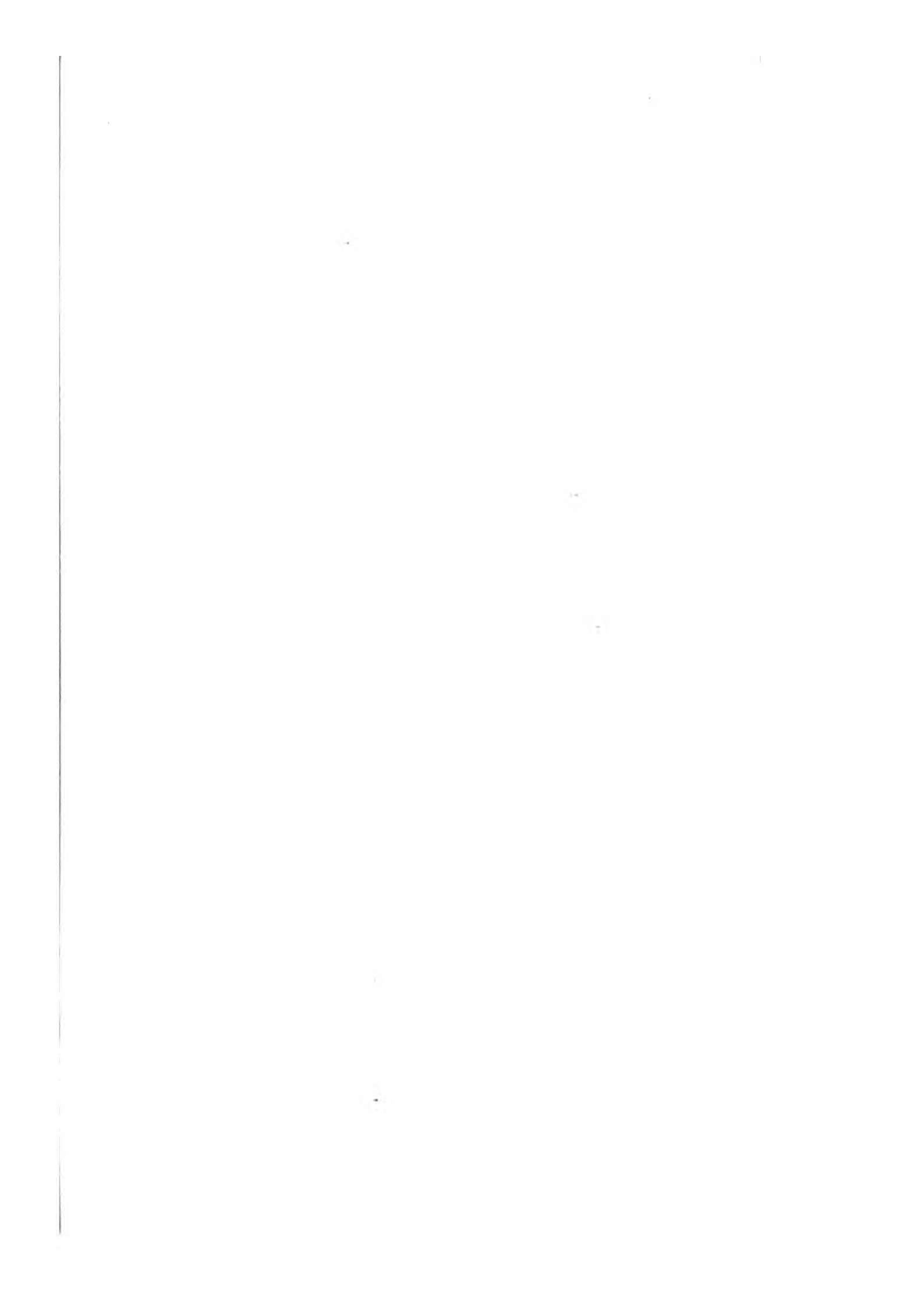
1734

2015.



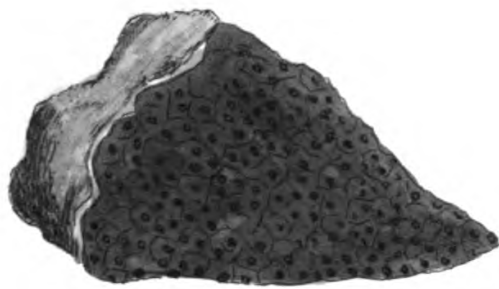
*Lecidea fusco-atra.*

*Apr. 1. 1807. Published by J. G. Sowerby London.*



1830

2016



*Lecidea cechumena.*

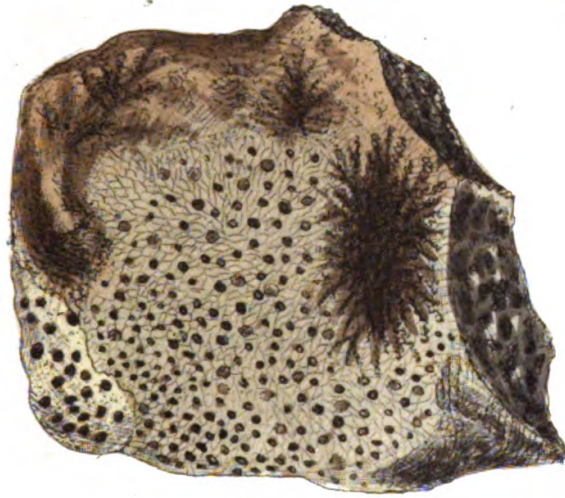
*Dec. 1. 1807. Publish'd by Jas. Sowerby, London.*





1829

2016.\*



*Lecidea athrocarpa*

*Des. & Schreb. Publish'd by J. Sowerby, London.*



fibrous about the edges, and inseparable from the stone. Warts cream-coloured, smooth, less prominent than in *L. atro alba*, and bearing each one central, small, very black, depressed apothecium.

**LECIDEA FUSCO-ATRA.** *Brownish-black Lecidea.* TAB. 2015.

Thallus greyish-black, thin, circular, with a fine, radiating, compound, inky border. Apothecia sessile, flattish, coal-black, with a thick elevated margin of their own substance and colour.

Lichen dendriticus, *Dickson Crypt. fasc. 4.* 21. *E. B.* 1734. *Lecidea fusco-atra*, *Acharius Syn.* 12. *Hooker Crypt. Part 1.* 174.

Not unfrequent on rocks and stones, in exposed situations, especially on flint and quartz pebbles on heaths and mountain moors. Thallus greyish, tessellated, thin, hard, smooth, occasionally almost white. Apothecia very black, flattish when young, rather convex when old.

**LECIDEA CECHUMENA.** *Confused black and olive Lecidea.* TAB. 2016.

Thallus determinate, tessellated, olive-grey with blackish cracks. Apothecia black, at length convex, with a black border of their own substance.

Lichen cechumenus, *E. B.* 1830. *Lecidea cechumena*, *Acharius Meth.* 48. *Hooker Crypt. Part 1.* 175. *L. fumosa*, *Acharius Syn.* 12.

Found on granite and whinstone rocks in the north of England. Thallus hard, uneven, of an olive or brownish-grey, somewhat glossy; broken into numerous small, angular areolæ, each of which is usually concave, and remarkable for being black-edged. Apothecia numerous.

**LECIDEA ATHROCARPA.** *Crowded sunk-shielded Lecidea.* TAB. 2016\*.

Thallus determinate, tessellated, pale brownish-olive, polished; its areolæ tumid and angular. Apothecia sunk, black, flattish, crowded, with a narrow, whitish, spurious border.

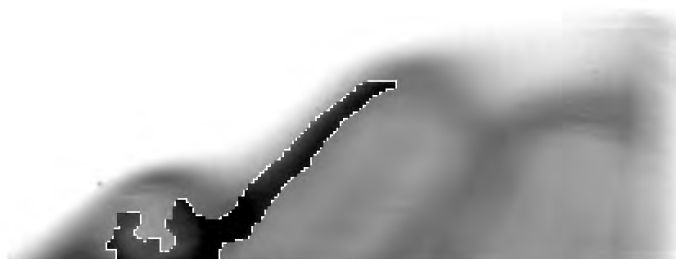
Lichen athrocarpus, *Acharius Prod.* 77. *E. B.* 1829. *Lecidea athrocarpa*, *Ach. Meth.* 41. *L. cechumena*,  $\beta$ . *athrocarpa*, *Ach. Lich. Univ.* 157. *Hooker Crypt. Part 1.* 175.

Met with on granite and schistose rocks, in the mountainous parts of Durham.

It appears to differ in so many points from *L. cechumena*, that, in the absence of intermediate specimens, I have considered it better to retain it still as a distinct species.

**LECIDEA PETRÆA.** *Rock Lecidea. Concentric Lecidea.* TAB. 2017.

Thallus thin, orbicular, minutely warted, somewhat powdery, white. Apothecia innate, with the crust protuberant, somewhat concentric, black.





Lichen concentricus, *Davies Trans. Linn. Soc. Dickson. E. B. 246.*

*Lecidea petræa, Acharius Syn. 13. Hooker Crypt. Part 1. 175.*

A native of whinstone and other rocks in Wales and the north of England. Thallus somewhat mealy, very thin, greyish-white. Apothecia imbedded, arranged more or less concentrically, sometimes forming regular circles, one within another; they are small, black, circular at first, but afterwards often becoming almost confluent and angular by pressing against each other.

**LECIDEA CONFLUENS.** *Confluent-shielded Lecidea. TAB. 2018.*

Thallus somewhat uneven, tessellated, of a smoky-white. Apothecia sessile, black, with a black border, at length convex, confluent and angular.

Lichen confluens, *Weber. Dickson Crypt. fasc. 1. 9. E. B. 1964.*

*Lecidea confluens, Acharius Syn. 16. Hooker Crypt. Part 1. 175.*

Frequent on rocks and stones, in alpine and subalpine districts. Thallus easily separable from the stone when moist, soft and friable when dry, white within, its surface of a grey or smoky hue, uneven, but not granulated. Apothecia black, closely adherent, more or less clustered; at first flat and greyish, with an elevated, smooth, black border; afterwards convex, and by mutual pressure angular, being often so crowded together, as for four or five of them to make one aggregate tessellated shield.

**LECIDEA LAPICIDA.** *Contiguous-shielded Lecidea. TAB. 2019.*

Thallus glaucous-white, tessellated and granulated. Apothecia clustered, depressed, flattish, angular, black, with a narrow, black, elevated margin.

Lichen contiguus, *E. B. 821. Lecidea contigua, Acharius Syn. 13. Hooker Crypt. Part 1. 175.*

Grows on old brick walls, on which it forms large greenish or glaucous white patches, composed of variously angular areolæ. Apothecia numerous, more or less crowded or clustered together as they advance in age, which renders them very irregular in outline; disc depressed, eventually a little convex and rugged, black, surrounded by a thin, elevated margin.

**LECIDEA DIACAPSI.** *Twofold-shielded Lecidea. TAB. 2020.*

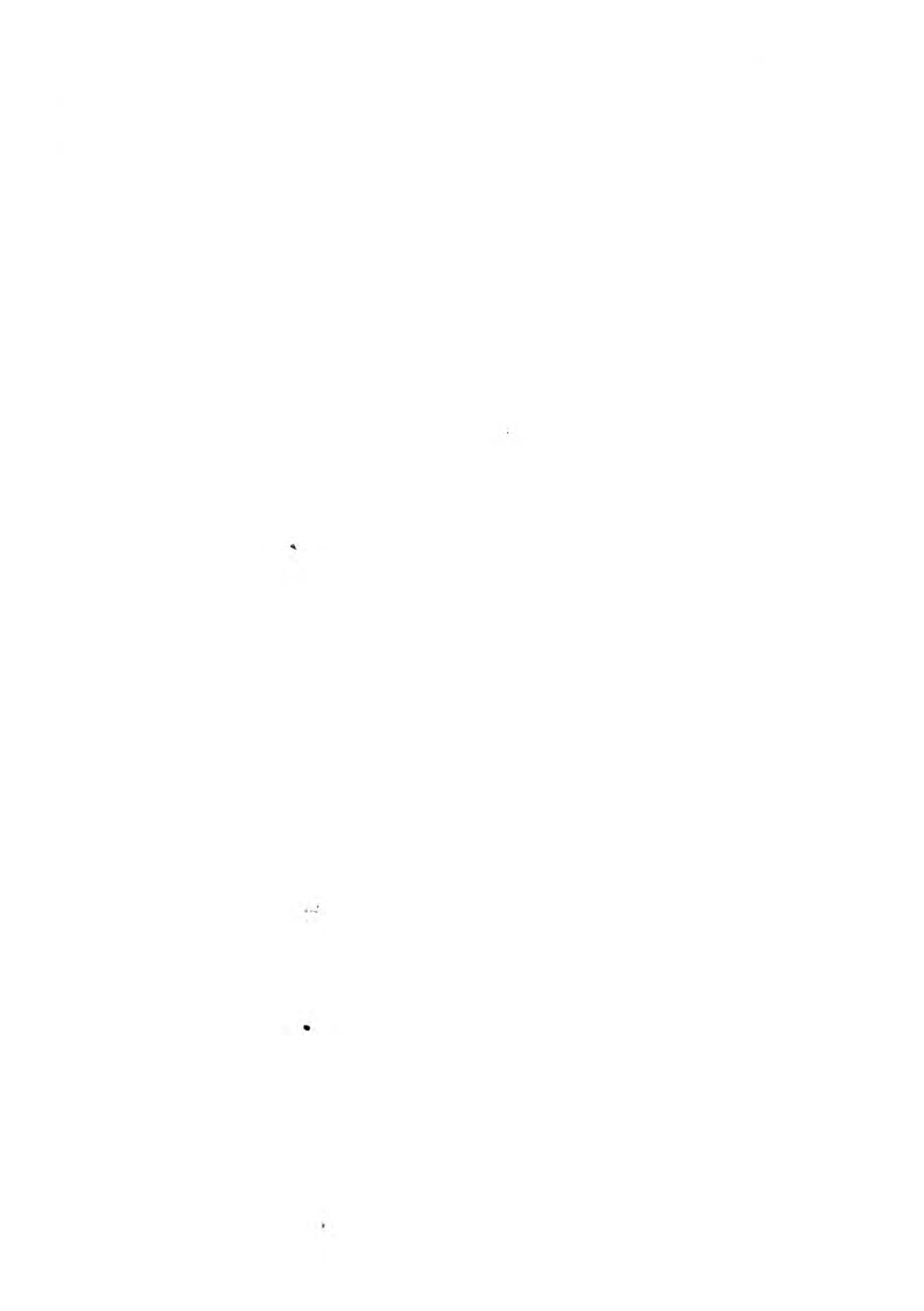
Thallus bluish-white, tartareous, its surface composed of minute undulations. Apothecia clustered, somewhat sunk; their disc flat, black or brown; their margin thick, externally black, its inner edge whitish.

Lichen diacapsis, *E. B. 1954. Lecidea lapicida, β. diacapsis, Hooker Crypt. Part 1. 175. Urceolaria diacapsis, Acharius Syn. 142.*

A native of rocks and stones in Lancashire and Durham. Thallus uninterrupted, not mealy, curiously and minutely wrinkled, plaited, or tuberculated all over. Apothecia small, sessile, or partly sunk in the crust; their margin very thick and tumid, black or greyish externally, its inner edge undulated, grey or white.

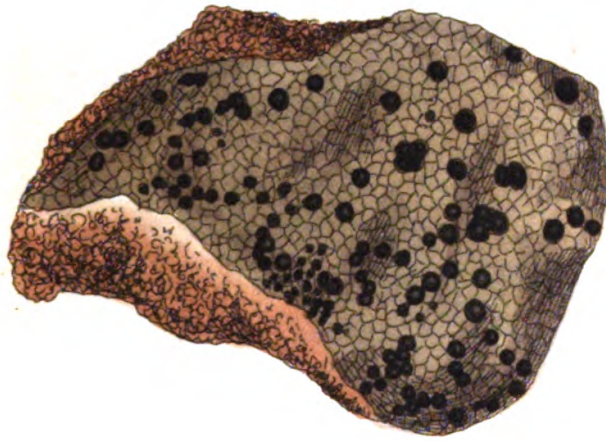






1964

2018.



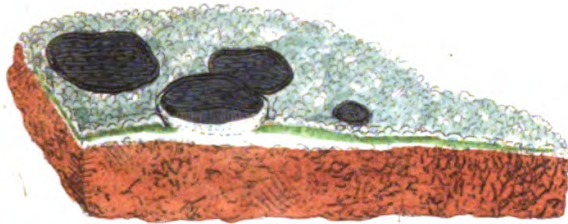
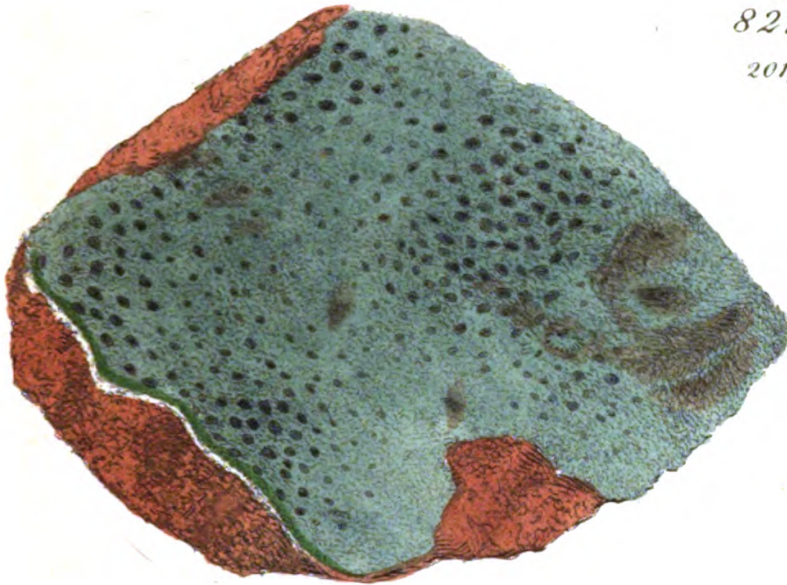
*Lecidea confluens.*

*Det. as det. Published by J. S. Sowerby, London.*

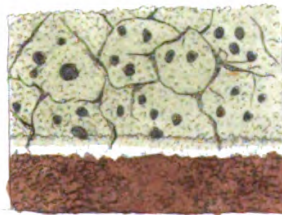
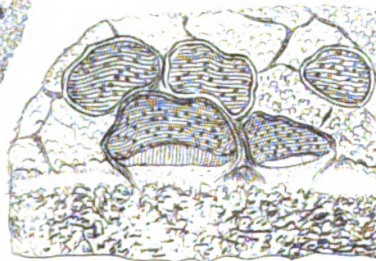
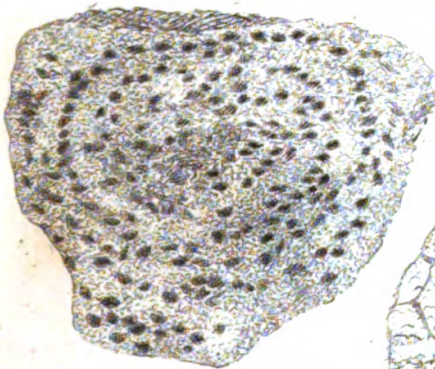


821

2019.



*Lecidea lapicida?*

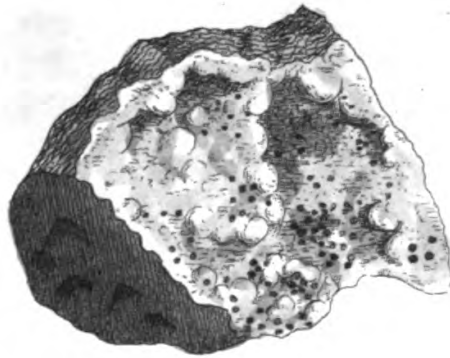


Dec. 1. 1800. Published by Jas. Seworby, London.



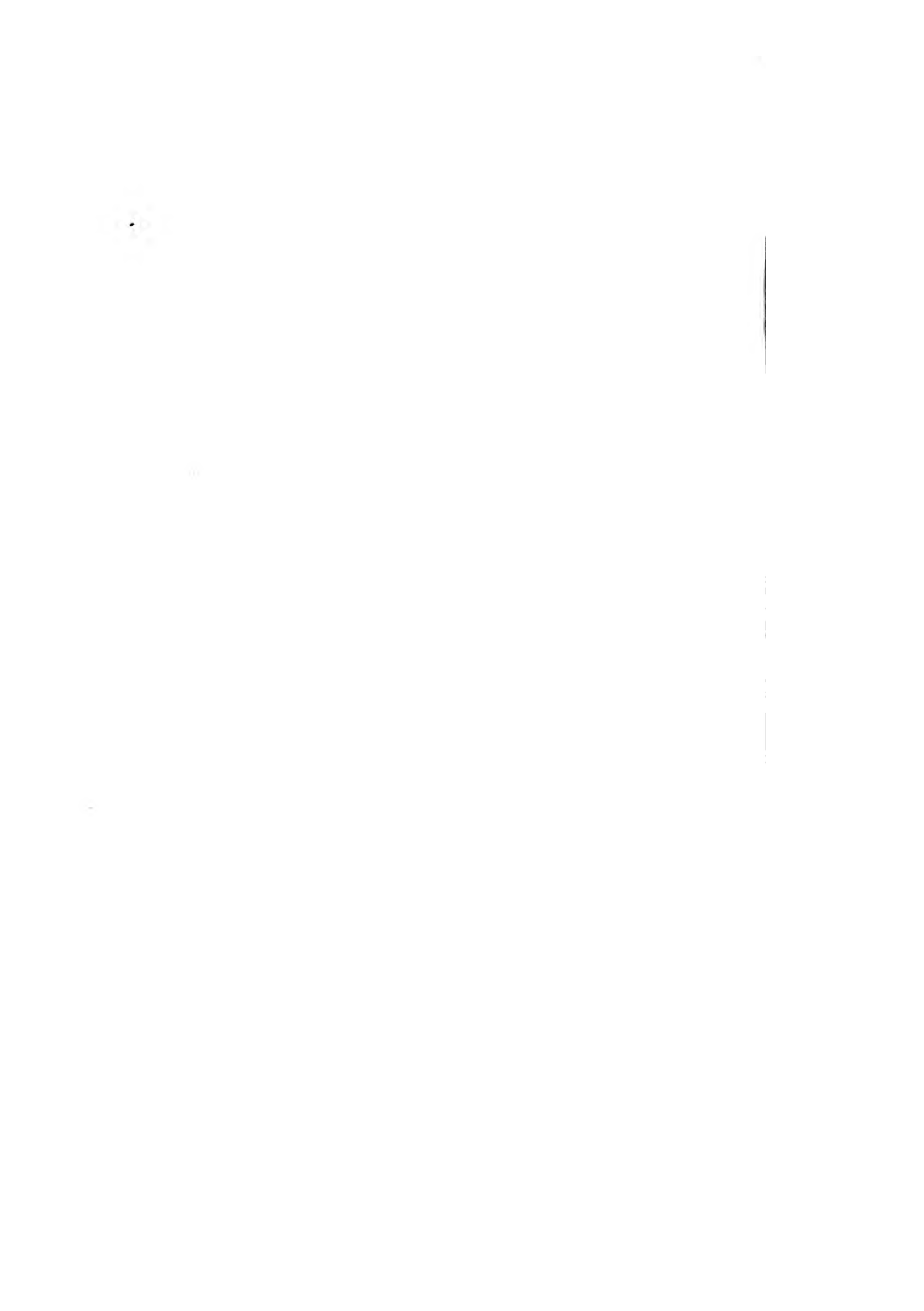
1954

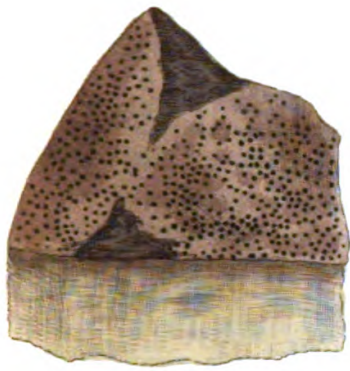
2020.



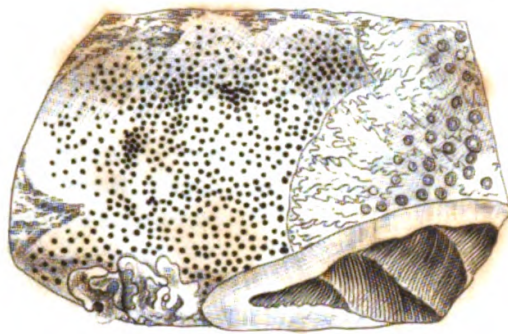
*Lecidea diacapsis*

*Nov. 1. 1868, Publish'd by Ja. Sowerby London.*



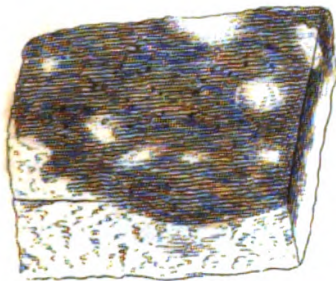
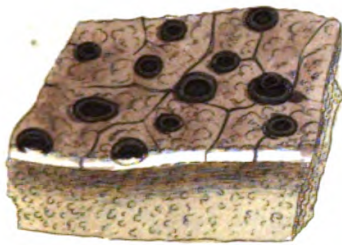


$\beta$

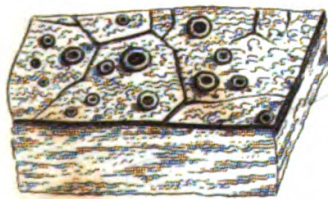


$\alpha$

*Fig. 1.*



*Fig. 2.*



*Lecidea prominula* Fig. 1.

— *chalybæa* Fig. 2.

March 1<sup>st</sup> 1882.





The structure both of the thallus and fructification will distinguish this from all the varieties of the preceding.

LECIDEA PROMINULA. *Prominent small-shielded warty Lecidea.*

TAB. 2021. fig. 1.

Thallus thin, somewhat tartareous, minutely warty, smoky-grey or brownish. Apothecia superficial, small, black, internally grey; disc flat; border slightly elevated, mostly entire.

*Lecidea prominula*, Borrer in *E. B. Supp. tab. 2687. fig. 1.* Hooker *Crypt. Part 1. 175.*

Occasionally met with on the Sussex Downs, on flints that have been long exposed to the weather. The thallus forms patches of a roundish figure, 2 or 3 inches in diameter, composed of minute, convex, somewhat tartareous warts, of a smoky- or ashy-grey, green within, more or less dispersed or confluent on an obscure lead-coloured substratum. Apothecia black, a little tinged with brown when dry, about as large as poppy-seed, numerous, often crowded in the central parts of the patch, superficial, contracted at the base; their margin obtuse, nearly entire; their disc concave in young patellulæ, in full-grown ones flat and nearly level with the margin, with which it agrees in hue, but under a magnifier appears roughish, as if minutely dotted.

Mr. Borrer considers this species well distinguished from *L. atroalba*, by the more obscure substratum of the thallus, minute warts, and superficial apothecia.

β. Thallus browner, more level, minutely cracked.

This supposed variety, represented in our two left-hand figures, marked β, was found on a block of close-grained sandstone, on the sea-shore near Rye. In it no traces of the dark substratum are discoverable, and the warts are more confluent and flattened, so as to form a more even and rather thicker crust, divided into small irregular areolæ. The apothecia are somewhat immersed at the base, both margin and disc mostly rugose, and the former often indistinct.

Perhaps a distinct species.

LECIDEA CHALYBEA. *Metallic-black Lecidea.* TAB. 2021. fig. 2.

Thallus thin, leaden-black, glossy; at length subtartareous, minutely cracked and opaque. Apothecia superficial, minute, black; disc flat; border slightly elevated, entire.

*Lecidea chalybea*, Borrer in *E. B. Supp. tab. 2687. fig. 2.* Hooker *Crypt. Part 1. 176.*

Found in various places in Sussex, growing on tiles, and occasionally on flints, and probably, Mr. Borrer observes, not uncommon elsewhere, having been overlooked among other minute lichens which form the incipient vegetation of such habitats. Thallus forming small round patches that subsequently become confluent, very dark lead-colour, with a metallic gloss when dry, faintly greenish when wet. Apothecia smaller than poppy-seed, scattered, rarely crowded; their margin entire, black, inconspicuous when wet, from the swelling of the disc.

**LECIDEA PARASEMA.** *Common black-shielded Lecidea.* TAB. 2022.

Thallus thin, greyish, uninterrupted, somewhat granulated, black-edged. Apothecia sessile, flat, opaque, black, with a black smooth border; at length convex.

Lichen parasemus, *Acharius Prod.* 64. *E. B.* 1450. *Lecidea parasema*, *Acharius Meth.* 35. *Ach. Syn.* 17.? *Hooker Crypt. Part 1.* 176.

One of the most common of the crustaceous lichens, growing on the smooth bark of trees in most parts of the country, usually, however, intermixed with other thin-crust species, from the patches of which it is distinguishable by its greener-grey colour, and a thin black line that marks its edge. Thallus thin, inseparable from the bark, slightly rugged and cracked. Apothecia numerous, irregularly crowded, small, sessile, but not at all sunk in the crust, of a deep dull black; when young flat or rather concave, with a smooth black border; when old convex, rugged, and with the border obliterated: being formed in the winter, and lasting for a year or longer, they are often separated, by the stretching of the bark, into oblong clusters.

**LECIDEA PINICOLA.** *Pine-bark Lecidea.* TAB. 2023.

Thallus diffuse, thin, brownish-white, somewhat tartareous. Apothecia numerous, very minute, very black, opaque, with a smooth, black, elevated border.

Lichen pinicola, *Ach Prod.* 66. *E. B.* 1851. *Lecidea pinicola*, *Borrer in Hooker Crypt. Part 1.* 176. *Lecidea parasema, b. and d.* *Acharius Syn.* 17 and 18?

Not uncommon on the bark of old pine-trees. Except in the colour of the thallus, there seems to be very little reason for considering it distinct from *L. parasema*.

**LECIDEA DUBIA.** *Doubtful board Lecidea.* TAB. 2024.

Thallus leprous, pale brownish-grey, indeterminate. Apothecia black, convex, slightly immersed in the crust; bordered when young.

Lichen dubius, *E. B.* 2547. *Lecidea dubia*, *Turner and Borrer. Hooker Crypt. Part 1.* 176.

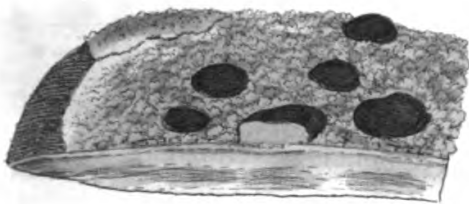
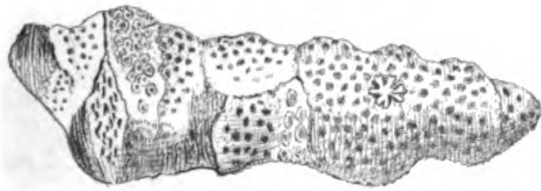
Common on boarded buildings, old paling, &c. The thallus consists of minute, elevated, compound granulations, forming indeterminate confluent patches. Apothecia partly sunk in the crust, minute, often clustered; with a very evident raised, blackish border when young.

**LECIDEA GRIFFITHII.** *Griffithian Lecidea.* TAB. 2025.

Thallus thin, white, smooth. Apothecia sessile, scattered, pale purplish waxy-brown, with a smooth border of the same hue; blackened in decay.

Lichen Griffithii, *E. B.* 1735. *Lecidea Griffithii*, *Hooker Crypt.*

1450  
2022.



*Lecidea parasema.*

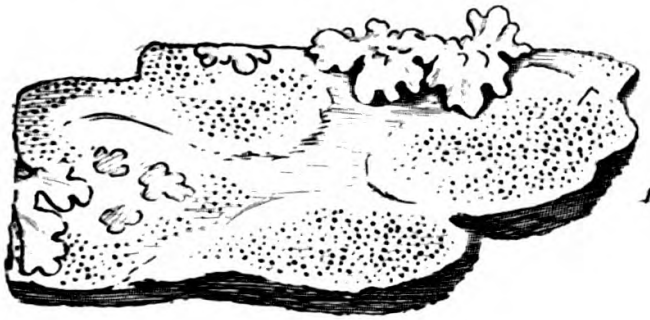
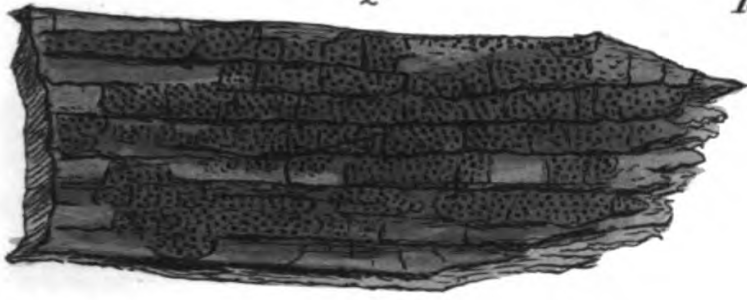
May 1 1865 Published by J. & W. G. Spon, London



2

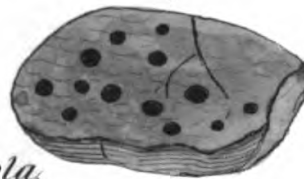
1851.

2023.



2

1

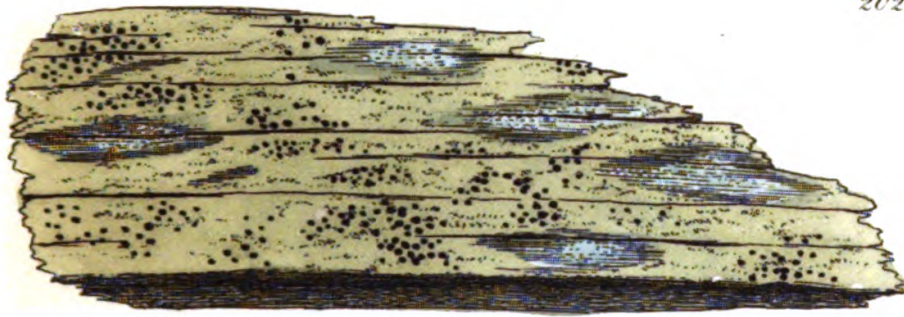


*Lecidea pinicola.*  
 Feb. 1. 1850. Published by J. S. Jewarby, London.



2547.

2024.



*Lecidea dubia.*

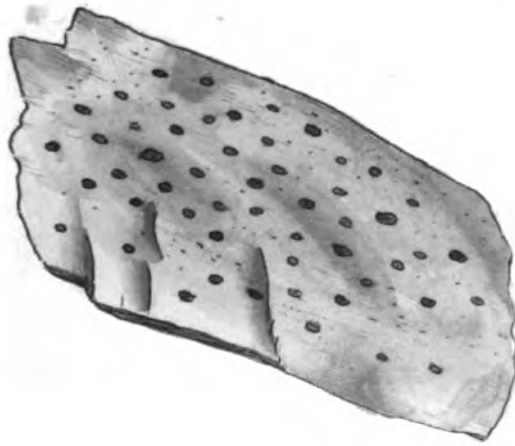
May 1813 published by J. A. Sowerby London.





1735

2023.

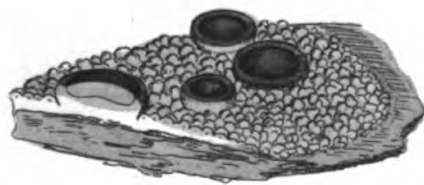


*Lecidea Griffithii.*  
May 1867, Published by J. S. Seaver, London.



2581

2026.



*Lecidea Gagei.*

*det. at herbar. by J. S. Lowry, London.*



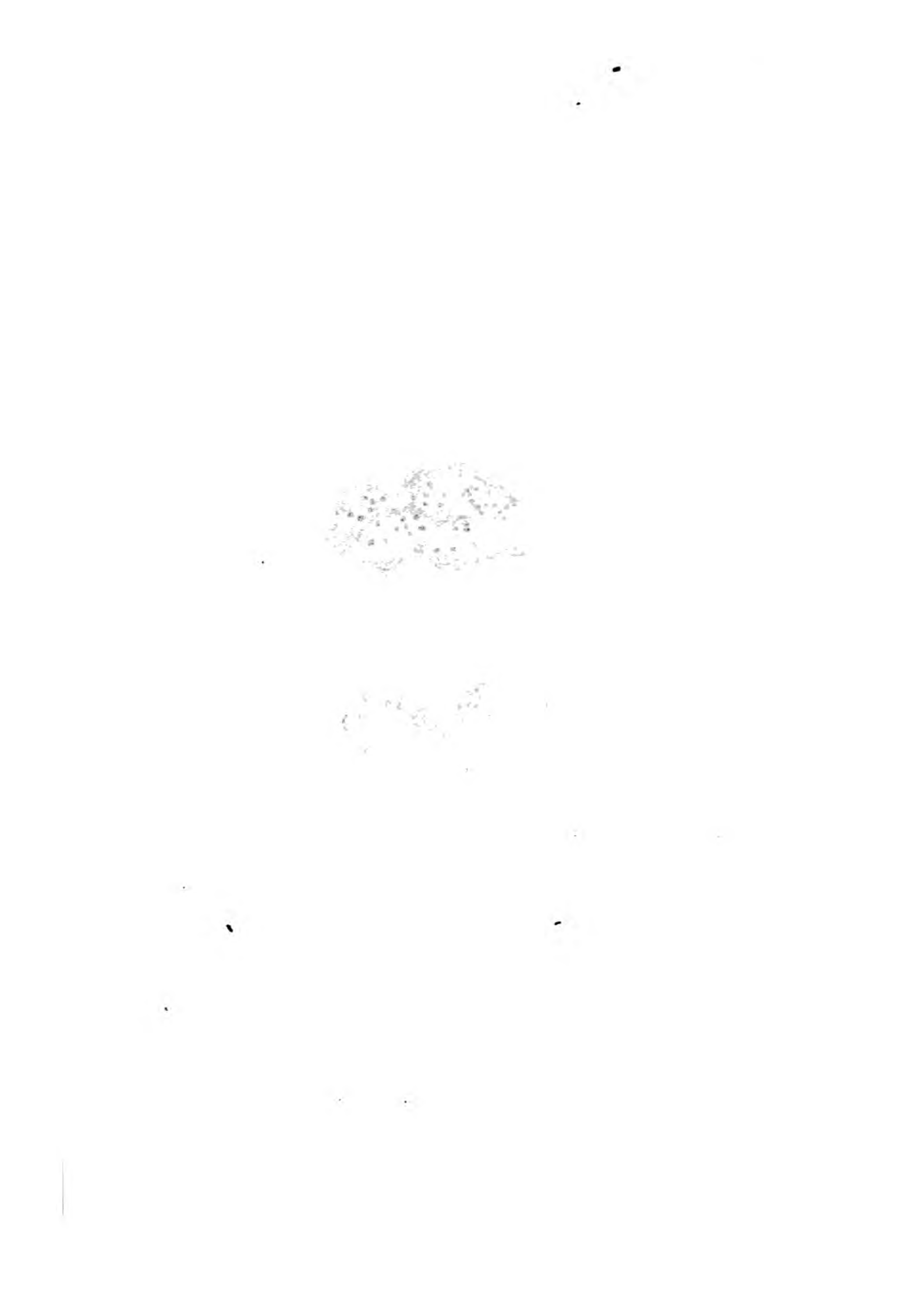
1777

2027.

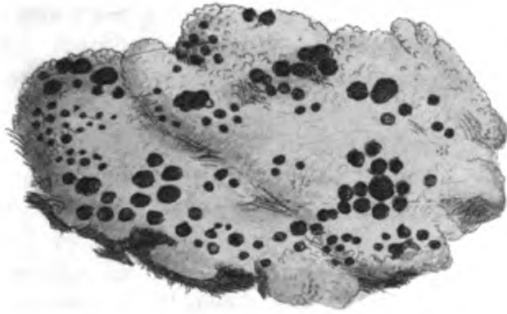


*Lecidea aromatica.*

*Aug. 1807. Published by J. Sowerby London.*



2028.



*Lecidea sanguinaria.*





*Part 1. 177. Lecidea enteroleuca, Acharius Syn. 19. Lichen corneus, Withering 4. 20. tab. 31. fig. 3. not E. B. 965.*

Far from unfrequent on the bark of oaks and birches. Thallus thin, whitish, indeterminate. Apothecia flat, irregular in shape and size, of a pale purplish-brown, with a waxy transparency; in age the whole, beginning with the border, turns black.

**LECIDEA GAGEI.** *Rusty spongy-cruled Lecidea.* **TAB. 2026.**

Thallus dispersed, minutely granulated, somewhat fibrous, bibulous, of a tawny olive. Apothecia minute, blackish-brown, with a paler border of their own substance; finally convex, and the border obliterated.

Lichen dolosus, *E. B. 2581. Lecidea Gagei, Hooker Crypt. Part 1. 177. L. dolosa, Acharius Meth. Supp. 11.* ["The *Lecidea dolosa* of Acharius, Mr. Borrer informs me, is only a variety of *L. parasema.*"—Hooker.]

First observed by the late Sir T. Gage, Bart., growing, in great abundance, on a rock called O'Donoghue's Prison, at Killarney, Ireland. The thallus forms wide, broken patches on the uneven surface of the grey slate-rock, is of a tawny olive-brown hue, here and there yellowish, and consists of fine, spongy, almost downy, inseparable granulations, readily imbibing moisture. Apothecia sessile, minute, dark-brown when young, with a paler border: their disc, at first nearly flat, becomes subsequently more convex, and black, without any remains of the border.

**LECIDEA AROMATICA.** *Aromatic Lecidea.* **TAB. 2027.**

Thallus strongly rooted, indeterminate, of irregular, minute, crowded, smooth, greyish-white portions. Apothecia in the interstices, black, round, concave, with a thick black border.

Lichen aromaticus, *E. B. 1777. Lecidea aromatica, Turner. Hooker Crypt. Part 1. 177.*

Found on old flint walls, especially where there is a stratum of earth or moss, chiefly in the eastern counties of England. Its most striking peculiarity is the powerful and highly fragrant scent which it gives out, in a recent or moist state more especially, when rubbed or bruised.

**LECIDEA SANGUINARIA.** *Sanguineous Lecidea.* **TAB. 2028.**

Thallus thickish, rugulose, or worted, greyish-white, somewhat polished.

Apothecia at length convex, hemispherical, subtuberculated, black, horny within upon a bright red stratum.

Lichen sanguinarius, *Linn.? E. B. 155. Lecidea sanguinaria, Acharius Syn. 19. Hooker Crypt. Part 1. 177.*

Occasionally met with on rocks and the trunks of trees, especially in subalpine districts; Sir J. E. Smith first remarked it on the granite rocks of Cromford Moor, near Matlock. Thallus white, glossy, not mealy, often of considerable thickness, its surface consisting of minute unequal rugæ; its substance very white internally, but occasionally stained with vermilion. Apothecia very variable in size, im-

at  
le  
is  
re  
to

nd  
at

er

Syn. 20.

growing mosses,  
reproducible, finely granu-  
lar, the branches or leaves of  
lobed or branched appearance.  
on a conical base in maturity, black,  
in young; in an advanced state convex,

subalpine districts.

**VIRIDI-ATRA.** *Rough tartar-crust Lichen.* TAB.

continued, tartareous, cracked, tumid, uneven and granulated,  
pale brownish-grey. Apothecia in the interstices, crowded, flattish,  
black; at length convex, with a very thin black border.  
Lichen miscellus, E. B. 1831. Lecidea viridi-atra, Acharius Syn. 21.  
According to Hooker Crypt. Part 1. 177. L. miscella, Acharius,  
according to E. B. Patellaria contigua, Hoffmann.  
A native of whinstone rocks, in Durham and elsewhere in the  
north of England. The thallus forms large, uninterrupted, irregu-  
larly shaped patches, of a thickish tartareous substance; its surface  
irregularly swollen and cracked, of a pale brownish-grey, scarcely  
glossy, but not powdery, each fragment very convex, and minutely  
granulated and wrinkled. Apothecia sunk between the fragments of  
the crust, often crowded or aggregate, deep black, but somewhat  
polished; at first flat or rather concave; afterwards convex, with an  
extremely narrow, black, wavy border.

**LECIDEA GEOGRAPHICA.** *Map Lecidea.* TAB. 2031.

Thallus bright yellow, smooth, cracked and tessellated, with a black  
margin, and black between the areolæ. Apothecia imbedded in the  
crust, flat, irregular, often confluent, black.  
Lichen geographicus, Linn. E. B. 245. Lecidea geographica, Hooker  
Crypt. Part 1. 178. L. atro-virens, var. b. geographicus, Acharius  
Syn. 21. Lichen atro-virens, Linn.  
Found in mountainous or subalpine districts, growing on the harder  
kinds of rocks, especially those of the trap formation; never, it is be-  
lieved, on limestone. The thallus forms large, smooth, level patches

LECIDEA.  
Froelich, Acharius Syn. 19. Lichen  
fig. 3. not E. B. 965. Thallus  
of oaks and birches. Thallus  
irregular in shape and  
variety; in age the

626.

2020

61



*Lecidea muscorum.*

Aug. 1. 1790. Publication of Linnaeus.

2026.

bedded at first among the inequalities of the crust, but becoming at length very convex, sometimes even globose, without any perceptible border, very black, scarcely shining. When their black surface is pared off, a thicker layer of grey appears, and under that a mixture of red and white, appearing to be the crust of the plant, elevated into the centre of the tubercle.

**LECIDEA MUSCORUM.** *Moss Lecidea.* TAB. 2029.

Thallus leprous, granulated, greyish-white, somewhat lobed and branched, determinate. Apothecia crowded, black, elevated; at length more or less turbinated.

Lichen muscorum, *Linn. E. B.* 626. *Lecidea muscorum*, *Hooker Crypt. Part 1.* 177. *L. sabuletorum*, *Flörke. Acharius Syn.* 20.

This species inhabits damp shady places, overrunning mosses, which it clothes, in large patches, with its thin, leprous, finely granulated, grey crust, that, taking the form of the branches or leaves of the moss underneath, assumes a lobed or branched appearance. Apothecia numerous, elevated on a conical base in maturity, black, very slightly margined when young; in an advanced state convex, and turbinated.

Not uncommon in subalpine districts.

**LECIDEA VIRIDI-ATRA.** *Rough tartar-crusted Lichen.* TAB. 2030.

Thallus continued, tartareous, cracked, tumid, uneven and granulated, pale brownish-grey. Apothecia in the interstices, crowded, flattish, black; at length convex, with a very thin black border.

Lichen miscellus, *E. B.* 1831. *Lecidea viridi-atra*, *Acharius Syn.* 21. according to *Hooker Crypt. Part 1.* 177. *L. miscella*, *Acharius*, according to *E. B.* *Patellaria contigua*, *Hoffmann.*

A native of whinstone rocks, in Durham and elsewhere in the north of England. The thallus forms large, uninterrupted, irregularly shaped patches, of a thickish tartareous substance; its surface irregularly swollen and cracked, of a pale brownish-grey, scarcely glossy, but not powdery, each fragment very convex, and minutely granulated and wrinkled. Apothecia sunk between the fragments of the crust, often crowded or aggregate, deep black, but somewhat polished; at first flat or rather concave; afterwards convex, with an extremely narrow, black, wavy border.

**LECIDEA GEOGRAPHICA.** *Map Lecidea.* TAB. 2031.

Thallus bright yellow, smooth, cracked and tessellated, with a black margin, and black between the areolæ. Apothecia imbedded in the crust, flat, irregular, often confluent, black.

Lichen geographicus, *Linn. E. B.* 245. *Lecidea geographica*, *Hooker Crypt. Part 1.* 178. *L. atro-virens*, var. *b. geographica*, *Acharius Syn.* 21. *Lichen atro-virens*, *Linn.*

Found in mountainous or subalpine districts, growing on the harder kinds of rocks, especially those of the trap formation; never, it is believed, on limestone. The thallus forms large, smooth, level patches

626.

2029



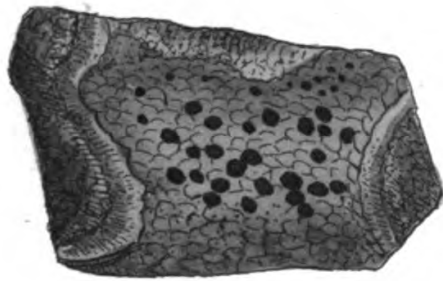
*Lecidea muscorum.*

Aug 1, 1900. Bull. Bot. Soc. Japan. 7. 1901. p. 111.



1831

2030.



*Lecidea viridi - atra.*

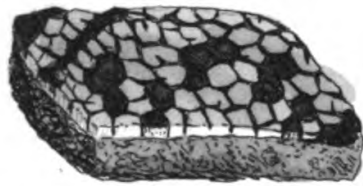
*Jan. 1868. Published by J. Sowerby London.*





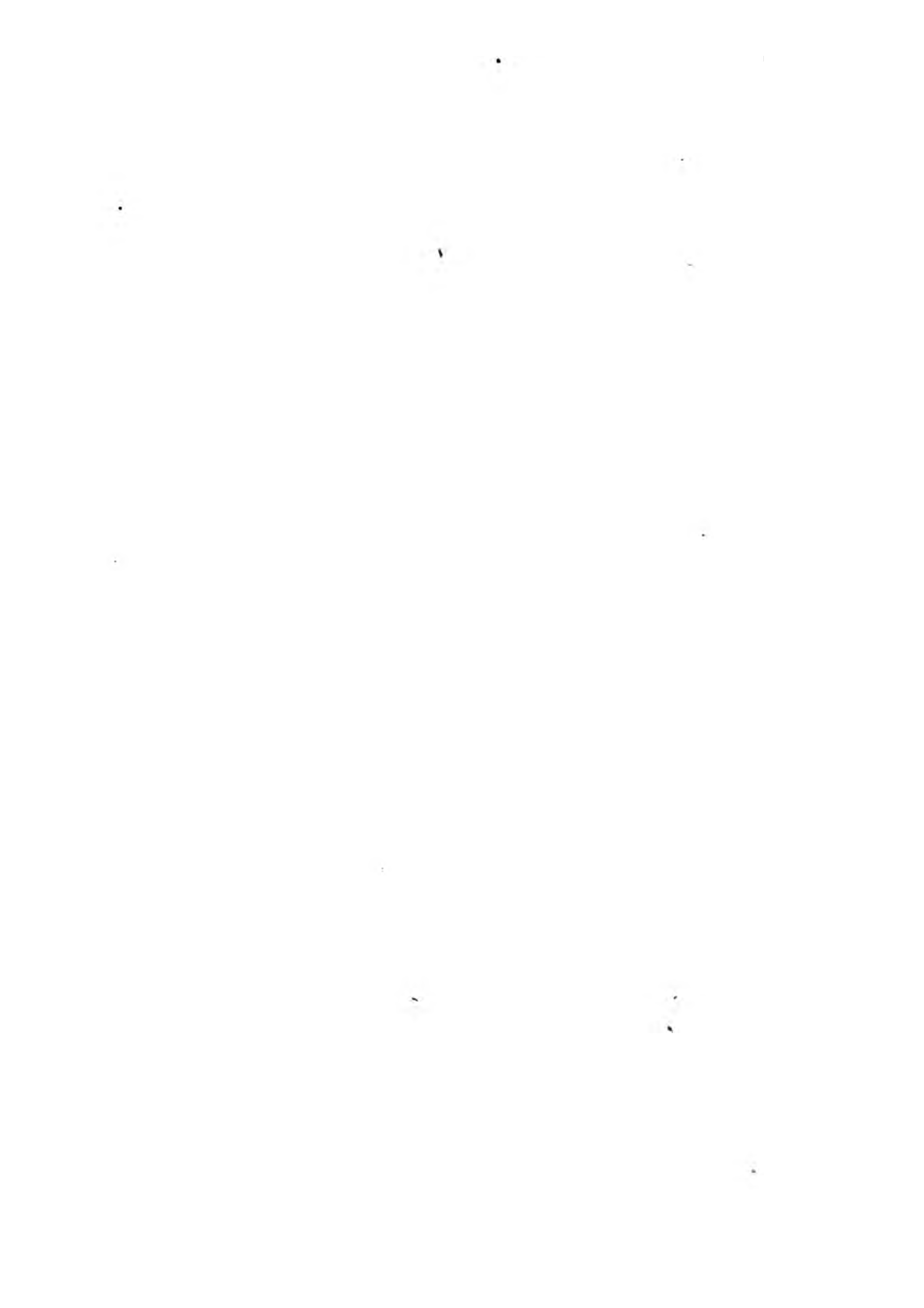
265.

2031.



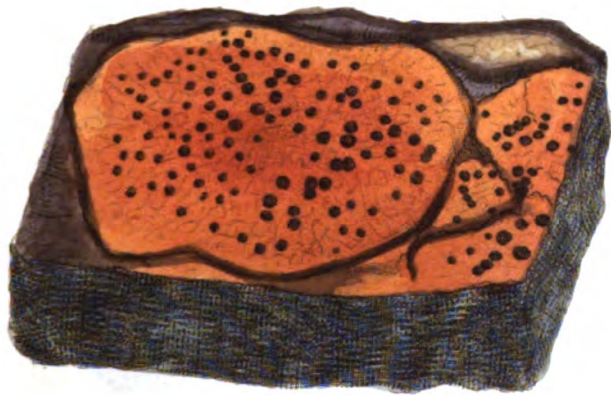
*Lecidea geographica.*

April 1793 Published by J. Bowerby London



1118

2032



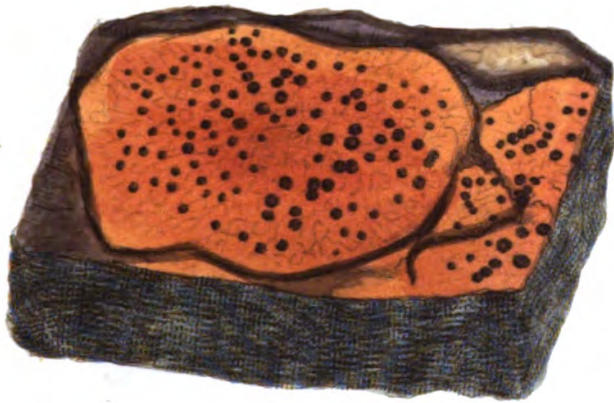
*Lecidea silacea.*

*Jan. 1. 1803. Published by Ja. Sowerby, London.*

Vertical line on the left side of the page.

118

2032



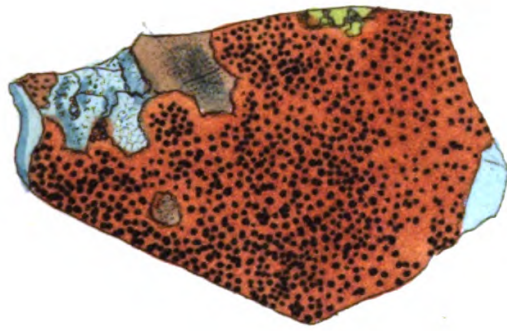
*Lecidea silacea.*

Jan. 1. 1803. Published by Ja. Sowerby, London.



III 7

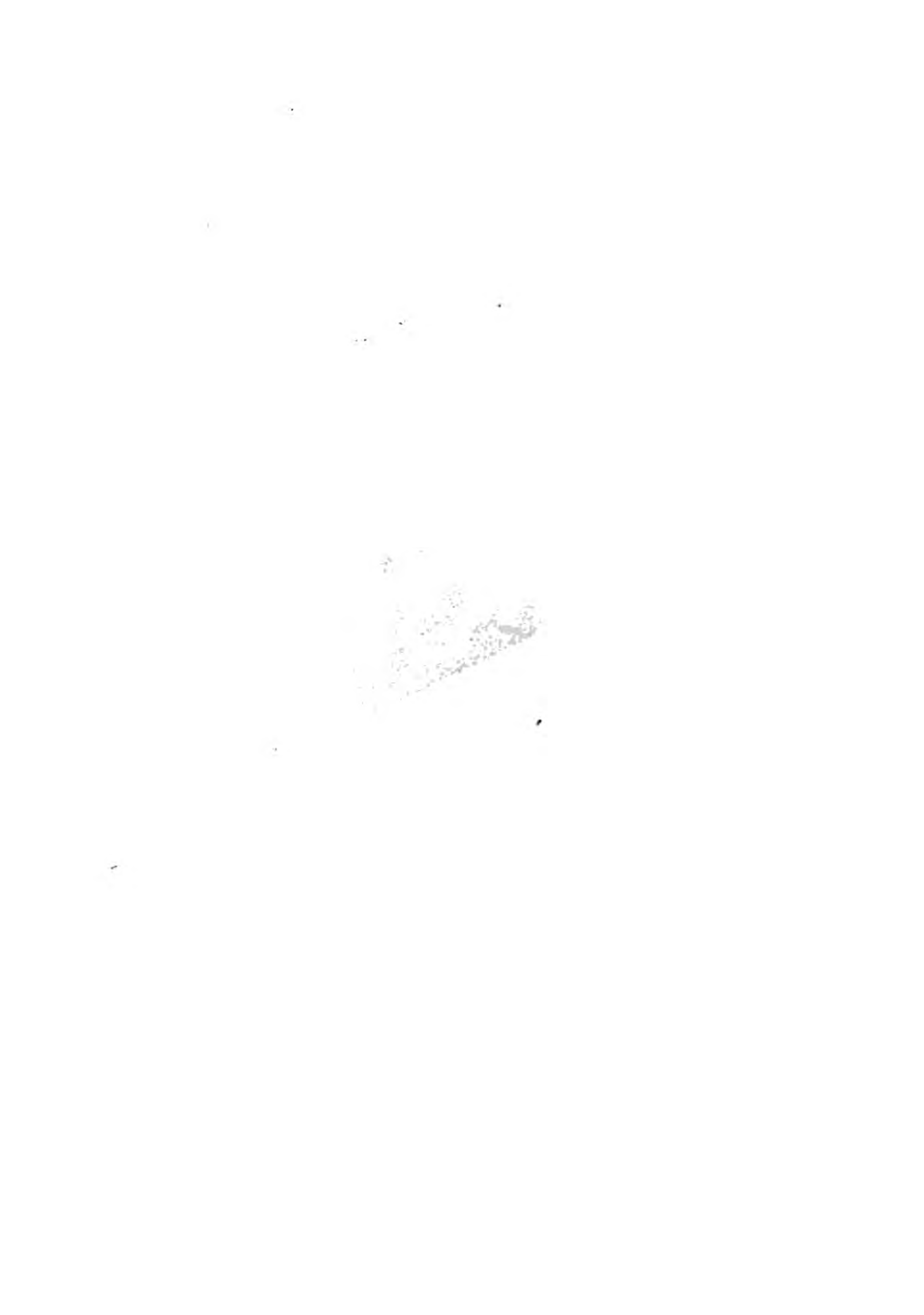
2033.



*Lecidea Oederi.*

*Jan. 1. 1803. Published by Ja. Sowerby. London.*





1877

2034.



*Lecidea flavo-virescens.*

*Apr. 1808. Published by J. Sowerby London.*



of a bright yellow or greenish colour. Apothecia black, opaque, imbedded, the disc exactly on a level with the surface of the crust, several of them very often confluent.

When several plants grow together, their black margins and the interstices of the areolæ, interspersed with the spots of fructification, give to the whole the appearance of a map, sprinkled with towns, and intersected with rivers and boundaries of countries; hence the specific name.

The yellow hue of the crust sometimes changes to grey by age or exposure.

LECIDEA SILACEA. *Yellow ochrey Lecidea.* TAB. 2032.

Thallus uneven, tessellated, yellowish-red. Apothecia sessile, black, at length convex, often confluent; their border narrow, black.

Lichen silaceus, *Acharius Prod.* 66. *E. B.* 1118. *Lecidea silacea*, *Ach. Syn.* 22. *Hooker Crypt. Part 1.* 178. *Patellaria silacea*, *Hoffmann.* Lichen *Æderi*, *Dickson Crypt. fasc. 2.* 17. ? not of *E. B.*

Frequent on rocks in the mountainous districts of England and Scotland. Not very unlike the next species, *L. Æderi*, in general appearance, or at first sight, but well distinguished by the thallus being thicker, more uneven, and deeply cracked, and by its colour being rather buff than red: the apothecia, too, are three or four times larger, and sessile, not immersed; their disc, though flat at first, eventually convex and mammillary in the centre, and the border thin; in all of which features *L. Æderi* is the reverse.

LECIDEA ÆDERI. *Æderian Lecidea.* TAB. 2033.

Thallus thin, tessellated, of a rusty red. Apothecia minute, somewhat globose, a little immersed, concave, black, with a thick black border.

Lichen *Æderi*, *Acharius Prod.* 66. *E. B.* 1117. *Lecidea Æderi*, *Ach. Syn.* 22. *Hooker Crypt. Part 1.* 178. Lichen *cæsius*, *Dickson Crypt. fasc. 2.* 19. *tab. b. fig. 6.* *L. Dicksoni*, *Withering.*

Found on rocks in the north of England and Scotland. The very thin thallus forms patches from half an inch to two inches in diameter, inseparable from the stone, of a uniform rusty-red, tessellated, but not rugged, except when very old. Apothecia numerous, very small, partly sunk in the crust, partly prominent, and either quite black or very slightly glaucous; the border even, and extremely thick in proportion to the size of the disc, which is concave, like that of an *Urceolaria*; to which genus the plant would be unhesitatingly referred, were it not on account of the border being of the same hue and substance as the disc.

LECIDEA FLAVO-VIRESCENS. *Lemon-coloured Lecidea.* TAB. 2034.

Thallus leprous, granulated, friable, lemon-coloured. Apothecia black, globose, solitary or aggregated.

Lichen *citrinellus*, *Acharius Prod.* *E. B.* 1877. *Lecidea flavo-vires-*

can. *Borrer in Emmer Crypt. Part 1. 178.* *L. citrinella, Ach. Syn. 25.* *Lichen flavo-virescens, Dawson Crypt. fasc. 3. 13. tab. 8. fig. 1.*

Grows in the ground, in sandy places. Thallus thickish, friable, spreading irregularly, of the usual greenish-yellow of a scarcely ripe lemon, and composed of smooth, round granulations, intermixed with some powdery particles. Apothecia very black; when separate small; mostly in clusters, forming a ragged mass, often broken by intervening particles of the crust.

**LECIDEA SCABROSA.** *Rippet-stunted Sulphur Lecidea.* TAB. 2035.

Thallus powdery, pale yellowish-green. Apothecia sunk in the crust, aggregate, black, with an elevated black border.

*Lichen scabrosus, E. B. 1873.* *Lecidea scabrosa, Acharius Meth. Hooker Crypt. Part 1. 178.* *L. citrinella, f. scabrosa, Ach. Syn. 25.*

Not so frequent on tiled roofs, and on flints in Sussex and other parts of the south of England. Somewhat resembling the last species, but the crust is thinner, of a greener hue, more truly powdery, and not granulated; the apothecia are sunk in its substance, so as to be level with the surface, and they have a thick, raised, black border.

**LECIDEA ULIGINOSA.** *Early Marsh Lecidea.* TAB. 2036.

Thallus olive-brown, granulated, subgelatinous. Apothecia black, flattish, with a black, smooth border; eventually convex, and clustered.

*Lichen uliginosus, Schrader. E. B. 1466.* *Lecidea uliginosa, Acharius Syn. 25.* *Hooker Crypt. Part 1. 179.* *L. humosa, Ehrhart.*

A native of wet sandy heaths, in the eastern and southern counties of England. Thallus, when moist, of a dull olive or rusty green; the granulated surface somewhat gelatinous, soft and slimy to the touch.

**LECIDEA SYNOTHEA.** *Minute crowded Lecidea.* TAB. 2037.

Thallus indeterminate, somewhat gelatinous, minutely granulose, uneven, sooty-brown. Apothecia minute, dull brownish-black, pale within, at length convex; the border narrow, evanescent.

*Lecidea synothea, Acharius Syn. 26.* *Borrer in E. B. Supp. 2711.* *Hooker Crypt. Part 1. 179.*

Found growing on the surface of squared rails, of oak and deal, at Esher, Surrey, and about Henfield and Boxgrove, Sussex. Thallus composed of extremely minute granulations, thin, rugged, of an obscure dark-brown or sooty-black, subgelatinous when moist. Apothecia numerous, usually clustered, minute, barely distinguishable by the naked eye from the granulations of the crust, among which they spring.

Very nearly allied to *L. uliginosa*.

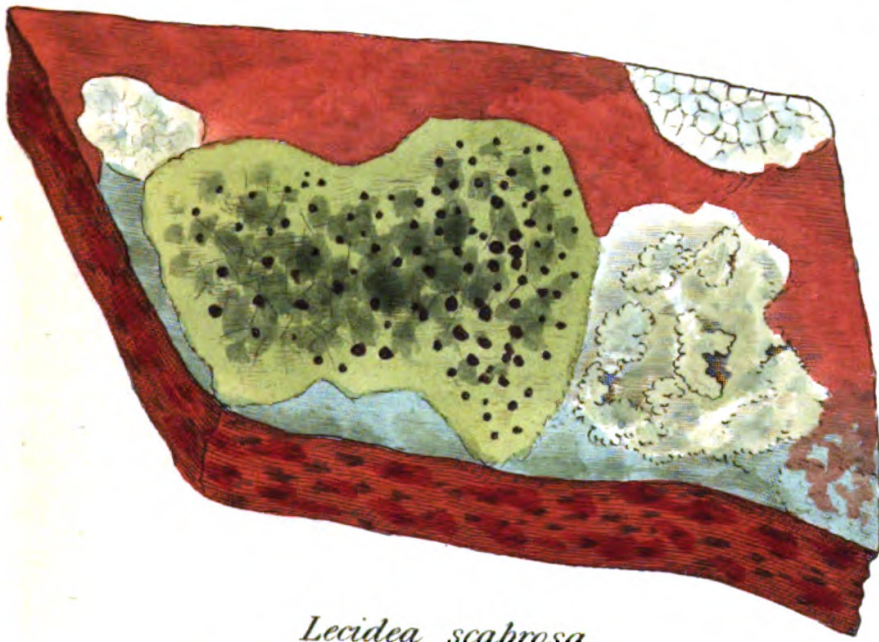
**LECIDEA SIMPLEX.** *Simple black-shielded Lecidea.* TAB. 2038.

(The 2nd left-hand fig. on slate.)

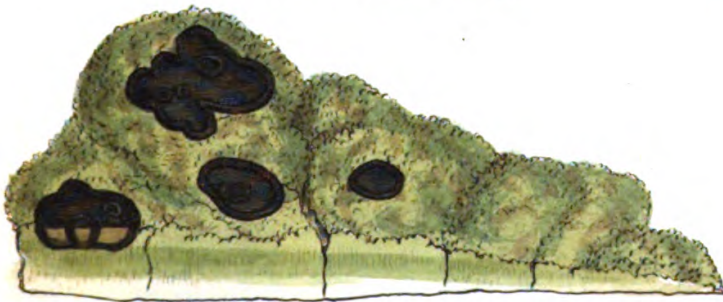
Thallus olive-coloured, thin, smooth, scattered, soon disappearing.

1878

2035.



*Lecidea scabrosa.*

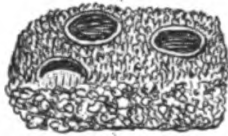
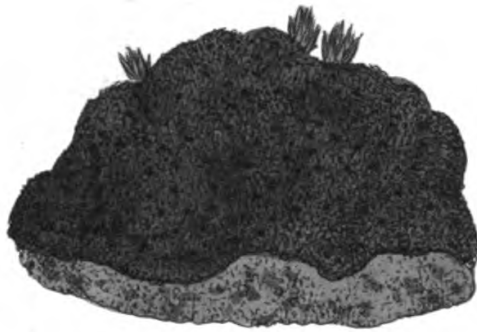


*Apr. 1. 1868. Published by J. Sowerby London.*



1466

2036



*Lecidea uliginosa.*

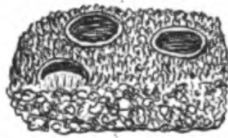
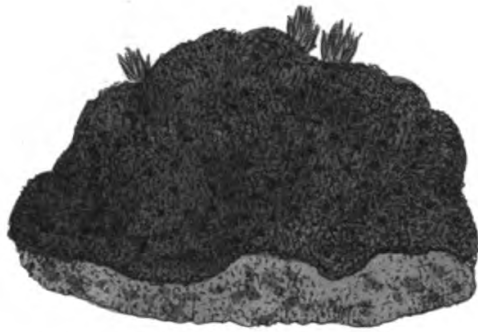
June 1. 1865. Published by T. S. J. Sowerby, London.





1466

2036



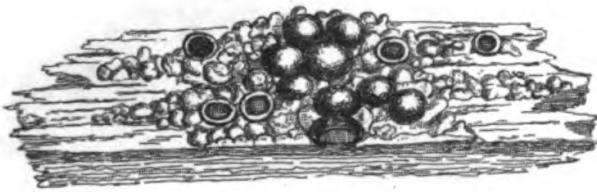
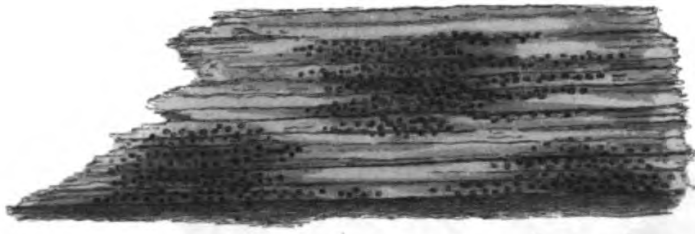
*Lecidea uliginosa.*

*June 1. 1805. Published by J. Sowerby, London.*



2711.

2037.



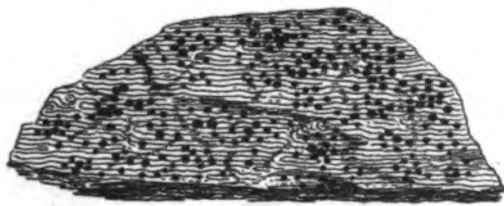
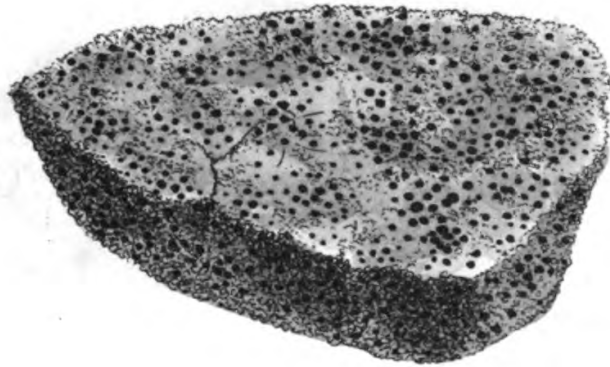
*Lecidea synothesa.*

Sept. 1<sup>st</sup> 1881.



2152.

2038.



*Lecidea simplex* Fig. 1.

— *privigna* Fig. 2.



Fig. 1.



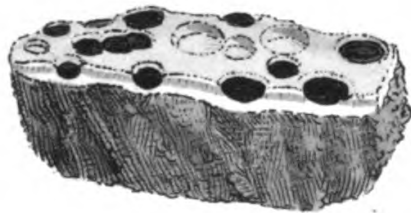
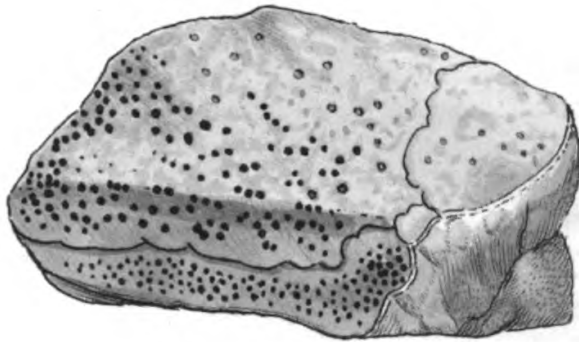
Fig. 2.

May 1, 1900, published by J. Swerty, London.



193

2039.



*Lecidea immersa.*

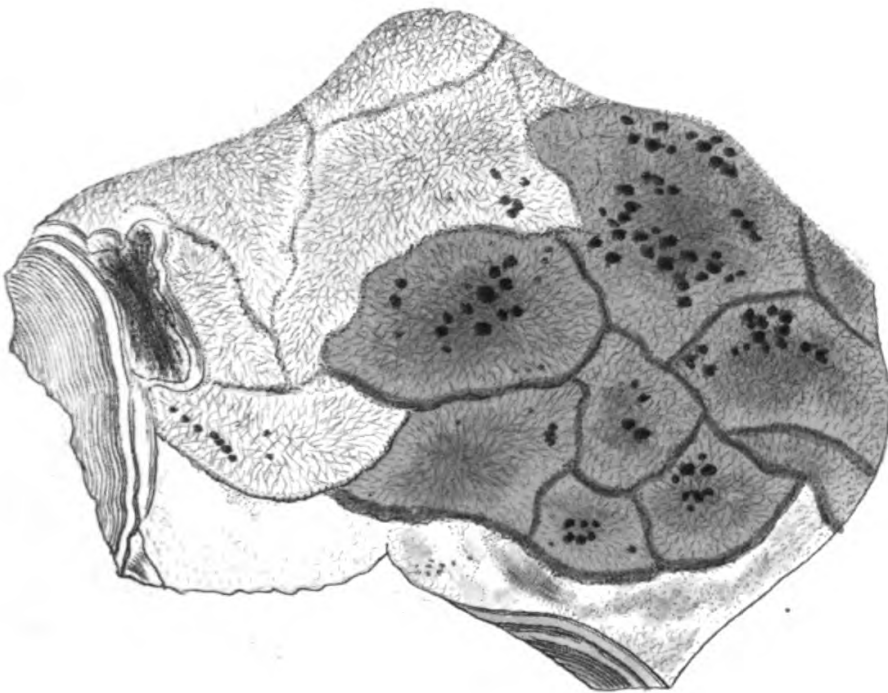
*W. Swartz del. A. G. 1794*





1737

2040.



*Lecidea rivulosa.*

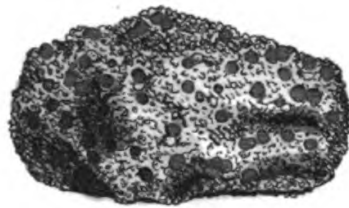


May 2287. Published by J. Sowerby London.



2244

2041.



*Lecidea pruinosa.*

*Pl. 1121 published by J. Sowerby London.*



Apothecia scattered or crowded, olive-black; border thick, elevated, blackish, eventually rugged and contorted.

Lichen simplex, *Davies in Linn. Trans.* 2. 283. *tab. 28. fig. 2.* E. B. 2152, the 2 left-hand fig. *Lecidea simplex*, *Borrer in Hooker Crypt. Part 1.* 179. *Opegrapha Persoonii*,  $\beta$ . *Acharius Syn.* 71.

Found on slate rocks in the mountainous parts of Great Britain. The thallus is thin, smooth, dark olive-coloured; it eventually breaks into small fragments, scaling off, except round the fructification. Apothecia numerous, small, sessile, but prominent; border elevated, thick, very black, at first even, but soon becoming wrinkled and deformed.

**LECIDEA IMMERSA.** *Sunken-shielded Lecidea.* TAB. 2039.

Thallus spreading, thin, subcontinuous, whitish. Apothecia plano-convex, immersed, bordered, black; disc subpruinose, blackish-red when moist, subsequently rather convex, whitish within.

Lichen immersus, *Withering.* E. B. 193. *Lecidea immersa*, *Acharius Syn.* 27. *Hooker Crypt. Part 1.* 179.

Apparently confined to limestone and other calcareous rocks. Thallus very hard, white, smooth, full of little hemispherical cavities of various sizes and depths, the bottom of each of which is occupied by a black or reddish-black, smooth apothecium, with an entire margin of a more intense black than the disc. The apothecia in time fall out, leaving the durable crust full of cavities, which, if the edge be cautiously pared away, will often be found to extend even into the substance of the stone.

**LECIDEA RIVULOSA.** *Branching-lined Lecidea.* TAB. 2040.

Thallus brownish-grey, cracked, bordered and intersected by dark, serpentine, branching lines. Apothecia scattered, sessile, black, flat, with a wavy border of their own substance, but somewhat paler.

Lichen rivulosus, E. B. 1737. *Lecidea rivulosa*, *Acharius Syn.* 28. *Hooker Crypt. Part 1.* 179.

Frequent on rocks in alpine districts. Specimens of this Lichen are in general composed of several individual plants growing crowded into one mass, and their dark undulating edges joined together, form the several branching lines by which the crust is intersected, a character by no means peculiar to this species. Surface hard, minutely cracked and tessellated, of a smoky-grey. Apothecia sessile, not at all immersed, coal-black, and flattish in the disc; their border elevated, wavy, paler. A succession of small young apothecia is always seen interspersed between the old ones.

The specific name, *rivulosus*, bears no relation to the habitat, but applies to the wavy lines on the surface of the crust, which resemble the rivers marked on a map.

**LECIDEA PRUINOSA.** *Frosty-shielded Lichen.* TAB. 2041.

Thallus leprous, thin, scattered, greyish-white. Apothecia slightly

convex, irregularly shaped, rusty-black, with a grey bloom when dry, and a thin, black, smooth border.

Lichen pruinus, *Acharius Prod. E. B.* 2244. *Lecidea pruinosa*, *Ach. Meth. Hooker Crypt. Part 1.* 179. *L. albo-cærulescens*, *Ach. Syn.* 29. Lichen pruinatus, *Dickson Crypt. fasc. 3.* 15. *tab. 9. fig. 4.*

Found by the Rev. Mr. Harriman, on a limestone wall, near Gainford, Durham. Thallus white or ash-coloured, inseparable from the stone. Apothecia various in shape and size; their disc somewhat convex, of a rusty-brown when wet, black when dry, with a peculiar grey bloom like that on a plum.

**LECIDEA ABIETINA.** *Spruce-bark Lecidea.* **TAB. 2042.**

Thallus spreading, very thin, smooth, even, pale glaucous. Apothecia sessile, flattish, black, clothed with a pale powder; their border black.

Lichen abietinus, *Acharius Prod. E. B.* 1682. *Lecidea abietina*, *Ach. Syn.* 30. *Hooker Crypt. Part 1.* 179.

Grows on the bark of different species of fir, and occasionally on the dead wood. Thallus extremely thin and uniform, spreading indeterminately over the bark and inseparable from it, of a very pale greenish-grey, smooth, or slightly powdery. Apothecia scattered, sessile, black; the flat disc rising somewhat in the centre when mature, clothed with a fine grey powder, which easily rubs off; border elevated, at length flexuose, and partly crenate.

**LECIDEA SPEIREA.** *Veiled black-shielded Lecidea.* **TAB. 2043.**

Thallus tartareous, uninterrupted, slightly tessellated, very white. Apothecia flat at first, sessile, covered with a grey bloom; eventually convex, elevated, black, with a whitish border.

Lichen speireus, *Acharius Prod. E. B.* 1864. *Lecidea speirea*, *Ach. Syn.* 31. *Hooker Crypt. Part 1.* 180.

Found by Mr. Borrer, clothing flinty pebbles on the summits of the cliffs by the sea, near Newhaven, Sussex. *Acharius* mentions it as a maritime lichen. Thallus very white and chalk-like, spreading in uninterrupted, roundish patches, with a thin, white edge; its surface slightly tessellated when old, rugged, not mealy. Apothecia numerous, sessile, and veiled when young with a grey bloom; when mature, raised so as almost to appear stalked, becoming convex, roughish, and coal-black, with a thin, pale, depressed border.

**LECIDEA RIMOSA.** *Cracked chalky Lecidea.* **TAB. 2044.**

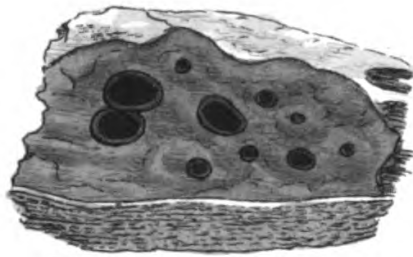
Thallus more or less circular, white, chalky, tessellated, the margin crenated. Apothecia depressed, black; their border greyish-white. Lichen rimosus, *Acharius Prod.?* *E. B.* 1736. *Dickson Crypt. fasc.*

1. 12. *Lecidea speirea*, *Ach. Syn.* 31. *Hooker Crypt. Part 1.* 180.

Far from unfrequent on limestone rocks in the north of England. Very much resembling the preceding, but the apothecia never become convex, and remain sessile, if not sunk in the crust; border whitish,

1682

2042.



*Lecidea abietina.*

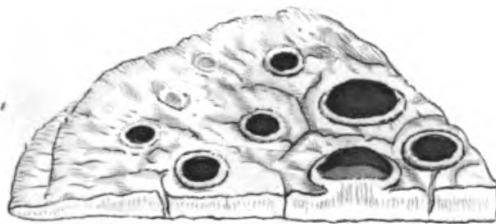
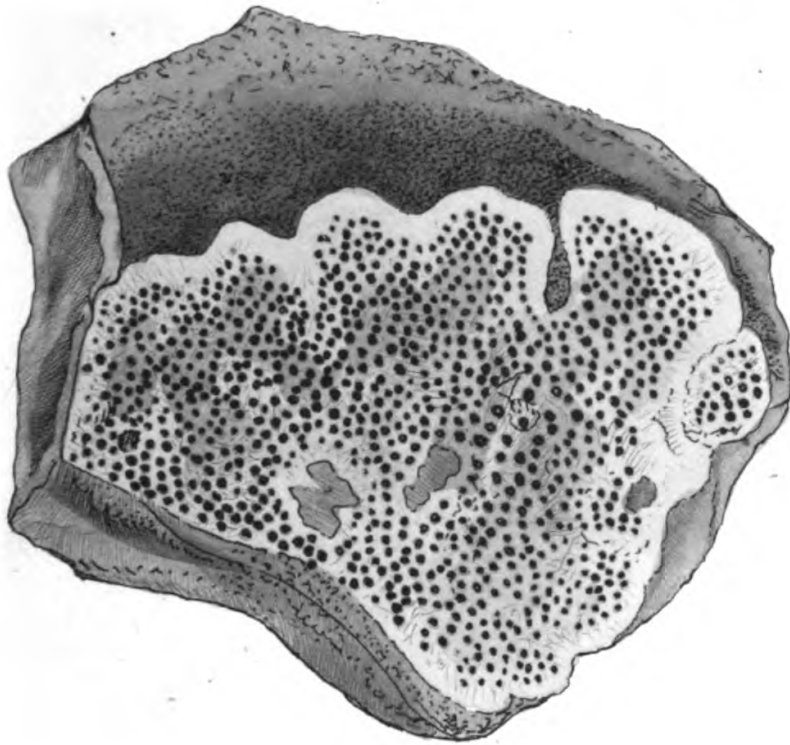
Dec. 2. 1806. Published by J. Sowerby, London.





1864

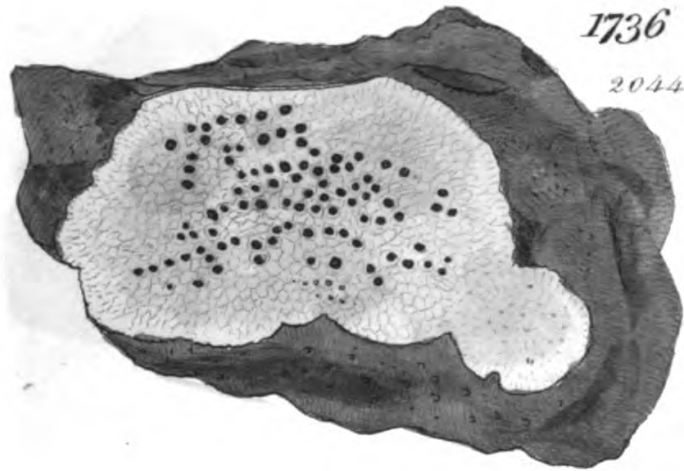
2043.



*Lecidea speirea.*

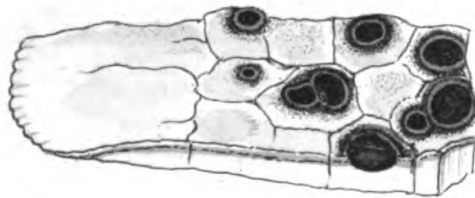
*Mura. u. 88. Publish'd by J. Sowerby, London.*





1736

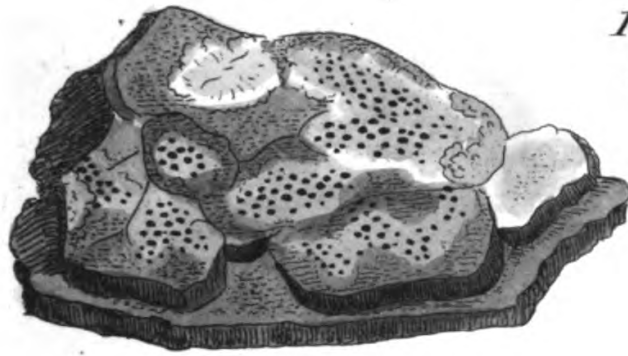
2044.



*Lecidea rimosa*

May 12 1867, published by J. A. Sowerby, London.





1892

2045.



*Lecidea albo-atra?*

June 12508. Published by J. Sowerby, London.



1137

2046.



*Lecidea epipolea.*

March 1 1863. Published by J. S. Sowerby. London.





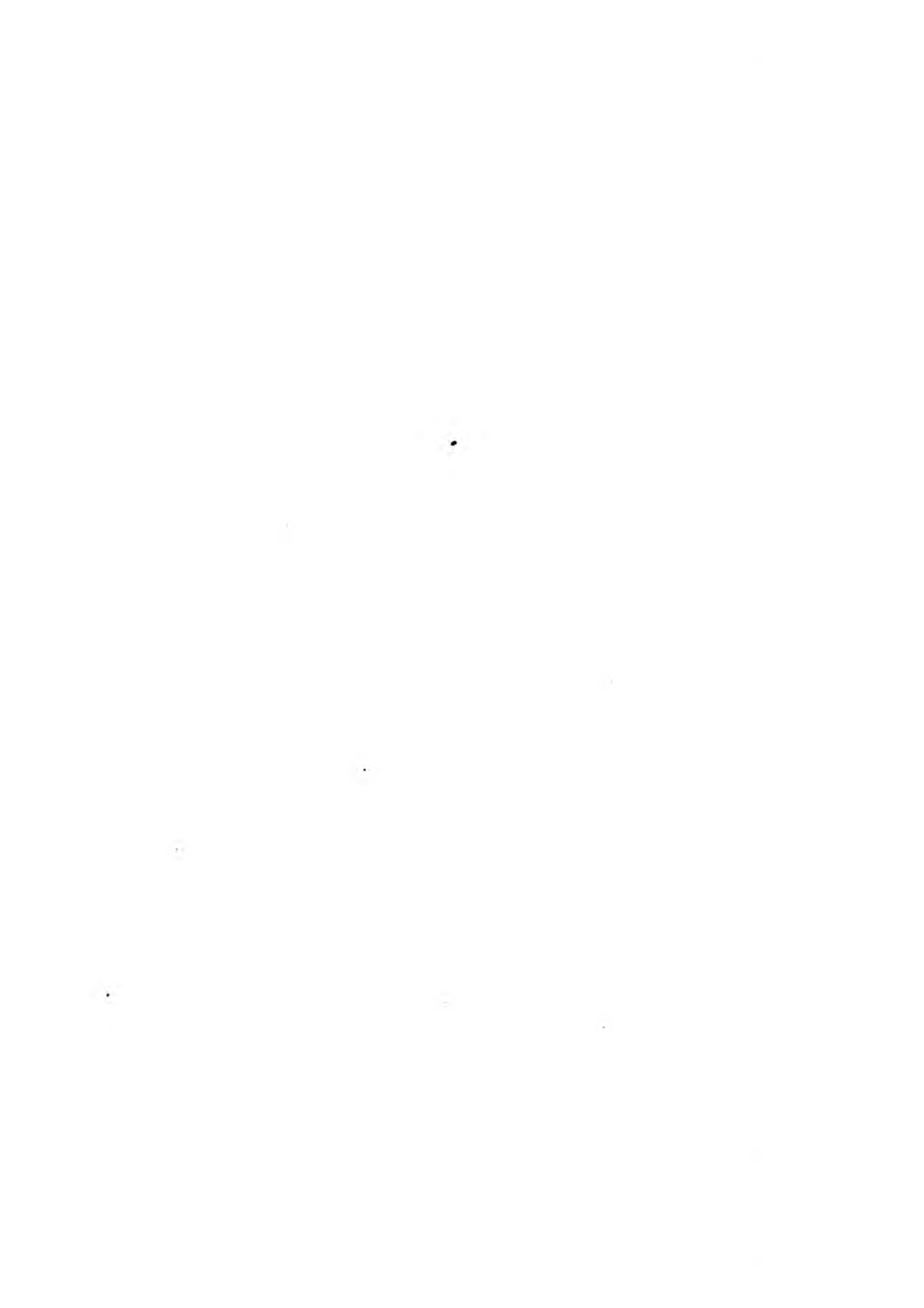
1451

2047



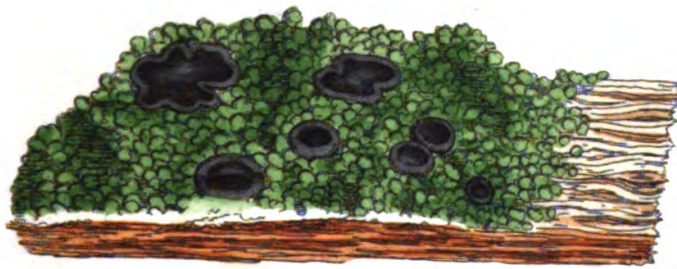
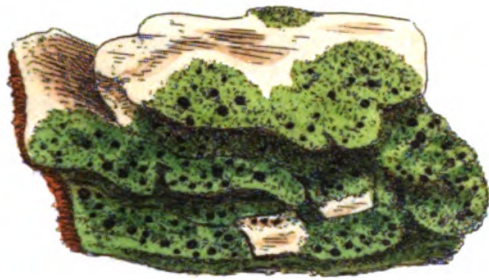
*Lecidea Lightfootii?*

*May 1. 1868. Published by J. L. Sewerby, London.*



2699.

2048.



*Lecidea incompita.*

July 1<sup>st</sup> 1831



stained with grey, which colour is often extended to the crust immediately surrounding each, as in the magnified figure.

**LECIDEA ALBO-ATRA.** *Black and white Bark Lecidea.* TAB. 2045.

Thallus spreading, cracked, mealy, very white. Apothecia sunk even with the crust, small, crowded, black, clothed with a grey bloom; border black.

Lichen corticola, *Acharius Prod.* E. B. 1892. *Lecidea albo-atra*, *Borrer in Hooker Crypt. Part 1.* 180. *L. corticola*, *Ach. Syn.* 32. *Verrucaria albo-atra*, *Hoffmann.*

Frequent on old trees, especially rugged oaks. Thallus white, thin, and mealy, sometimes rather rugged. Apothecia partly sunk in the crust, flattish when young, and clothed with a bluish-grey mealiness, except their border, which is always black; disc eventually convex, intensely black as well as the border, which seems to be the chief distinction between this species and the next, *L. epipolia*.

**LECIDEA EPIPOLIA.** *Silver-grey Lecidea.* TAB. 2046.

Thallus white, tessellated, somewhat imbricated. Apothecia sessile, uniform, round, convex, blackish, clothed with a grey bloom; border white.

Lichen epipolius, *Acharius Prod.* E. B. 1137. *Lecidea epipolia*, *Acharius Syn.* 32. *L. albo-atra*,  $\beta$ . *saxicola*, *Hooker Crypt. Part 1.* 180.

Frequent on churches and other buildings of calcareous stone, in Suffolk and Norfolk especially. Thallus spreading circularly, of a fine tartareous texture, but thin, greyish-white when moist, finely tessellated, scarcely imbricated or rugose. Apothecia sessile, or partly sunk, convex, clothed with a silvery-grey mealiness, which is with difficulty rubbed off, leaving the disc almost black; border narrow, white.

Lichen candidus, E. B. 1138, is referred to this species or variety by Sir W. J. Hooker, on the authority of Mr. Borrer; the figure is not sufficiently satisfactory to reprint.

**LECIDEA LIGHTFOOTII.** *Lightfootian Lecidea.* TAB. 2047.

Thallus tartareous, granulated, greenish-white, black-edged. Apothecia sunk, flat, eventually convex, with a smooth, black border.

Lichen Lightfootii, E. B. 145 l. *Lecidea Lightfootii*, *Acharius Syn.* 34. *Hooker Crypt. Part 1.* 180.

Not very unfrequent on the bark of trees. Thallus pale green, granulated. Apothecia immersed, overtopped by the granulations of the crust, black, rather shining, somewhat concave when young, with a very thin, smooth, black border; when old they become slightly convex and rugged.

**LECIDEA INCOMPTA.** *Loose mealy-crustec Lecidea.* TAB. 2048.

Thallus indeterminate, coarsely mealy, uneven, olive-green. Apo-

which colour is often observed in the bark of old oaks  
 which are in the neighbourhood of the sea  
 LECIDEA  
 Black and white bark  
 dry, very white, hyaline, or  
 black, or black with a green tinge  
 in some places, the bark is  
 very soft, and the fungus  
 is very common in the  
 bark of old oaks, in the  
 neighbourhood of the sea

character-  
 tion from that spe-

*Oak Lecidea.* TAB. 2049.

Thallus brownish-yellow. Apothecia slightly immersed  
 convex, dark brown, nearly black when dry; border

*Lecidea quercea*, Dickson *Crypt. fasc.* 1.9. tab. 2. fig. 3. E. B. 485.  
*Lecidea quercea*, Acharius *Syn.* 36. *Hooker Crypt. Part* 1. 180.  
 Unfrequent in the clefts of the bark of old oaks, in exposed  
 situations. The thallus spreads over the dead external angulated  
 pieces of bark, in the form of a dull sulphur-coloured mealy crust.  
 Apothecia minute, regular, more or less convex, of a dark brown hue,  
 becoming nearly black in drying, without any perceptible border.

**LECIDEA VIRIDESCENS.** *Greenish horny-tubercled Lecidea.*  
 TAB. 2050.

Thallus thin, mealy, indeterminate, scattered, pale green. Apothe-  
 cia numerous, convex, rugged, brown, semitransparent; at length  
 blackish.

*Lichen viridescens*, Schrader. E. B. 2217. *Lecidea viridescens*,  
*Acharius Syn.* 36. *Hooker Crypt. Part* 1. 180.

Found on old walls and ruins in Norfolk, being most apparent in  
 damp autumnal weather. The thallus overruns the irregular surface  
 of decayed *Hypna*, and is consequently scattered, friable, and inde-  
 terminate; it is of a mealy substance and pale, dirty green hue.  
 Apothecia flat when young, light brown, with a paler, but not at all  
 elevated border; they afterwards grow convex, more or less rugged,  
 but retain their original horny semitransparency; finally they become  
 nearly black, and almost spherical.

Mr. Turner, who first observed this species in England, considered

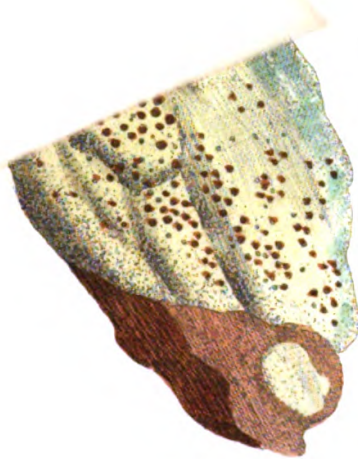
405.

2049.

LECIDIA.  
colour is often extended to the crust itself  
in the magnified figure  
and white Bark Lecidea.

117

Superficial view with  
magnified figure of  
the same



*Lecidea quercea*

*Lecidea quercea* (Lecanora)



thecia superficial, small, purplish-black ; disc eventually convex ; border narrow, flexuose.

*Lecidea incompta*, Borrer in *E. B. Supp.* 2699. *Hooker Crypt. Part 1.* 180.

It forms large patches on shaded parts of the rugged trunks of old elms, at Shermanbury and Hurst Pierpoint, Sussex. Thallus irregularly spreading, composed of coarse particles, appearing almost like minute crenate scales under a moderate magnifier, forming an uneven crust, more or less coherent, and of a dark olive-green, changing in long-dried specimens to a dull ash-colour. Apothecia numerous, dull black with a tinge of purple when wet, flattish when regular, with a narrow, slightly raised, waved margin ; often confluent in clusters, convex, rugged, and variously deformed.

Mr. Borrer observes that "the apothecia bear much resemblance to those of *L. æruginosa* and *L. Lightfootii* ; but the thallus is essentially different in structure, being formed from the first of coarse loose particles, not of granules scattered on a filmy substance."

The resemblance to *L. Lightfootii* is so striking in general characters, as well as in aspect, as to render its distinction from that species very doubtful.

**LECIDEA QUERNEA.** *Oak Lecidea.* TAB. 2049.

Thallus leprous, pale brownish-yellow. Apothecia slightly immersed in the crust, convex, dark brown, nearly black when dry ; border obsolete.

*Lichen querneus*, Dickson *Crypt. fasc.* 1.9. tab. 2. fig. 3. *E. B.* 485.

*Lecidea quernea*, Acharius *Syn.* 36. *Hooker Crypt. Part 1.* 180.

Not unfrequent in the clefts of the bark of old oaks, in exposed situations. The thallus spreads over the dead external angulated layers of bark, in the form of a dull sulphur-coloured mealy crust. Apothecia minute, regular, more or less convex, of a dark brown hue, becoming nearly black in drying, without any perceptible border.

**LECIDEA VIRIDESCENS.** *Greenish horny-tubercled Lecidea.* TAB. 2050.

Thallus thin, mealy, indeterminate, scattered, pale green. Apothecia numerous, convex, rugged, brown, semitransparent ; at length blackish.

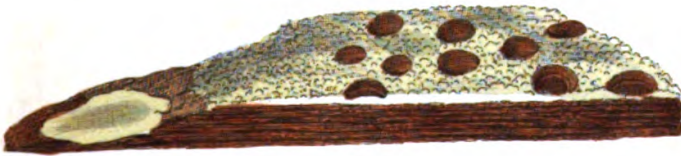
*Lichen viridescens*, Schrader. *E. B.* 2217. *Lecidea viridescens*, Acharius *Syn.* 36. *Hooker Crypt. Part 1.* 180.

Found on old walls and ruins in Norfolk, being most apparent in damp autumnal weather. The thallus overruns the irregular surface of decayed *Hypna*, and is consequently scattered, friable, and indeterminate ; it is of a mealy substance and pale, dirty green hue. Apothecia flat when young, light brown, with a paler, but not at all elevated border ; they afterwards grow convex, more or less rugged, but retain their original horny semitransparency ; finally they become nearly black, and almost spherical.

Mr. Turner, who first observed this species in England, considered

405.

2049.



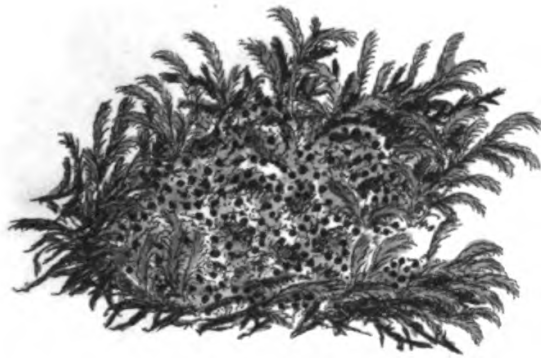
*Lecidea quercea*

*Lecidea quercea* (L.) Ach.



2217

2050.



*Lecidea viridescens.*

*Now 11200 published by J. S. Perry, London.*



2726.

2051.



*Lecidea pulverea?*

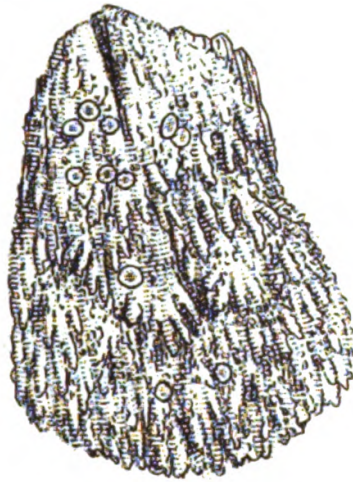
December 1<sup>st</sup> 1831.





1683

2052.



*Lecidea incana?*

Dec 1806 Published by J. Sowerby, London.





it nearly allied, if not identical with *L. vernalis*, see Tab. 2063 ; but Sir J. E. Smith remarks, that its apothecia have not an elevated border, as in that species, neither are they, when full-grown, of so light a colour.

**LECIDEA PULVEREA.** *Pale-green mealy black-shielded Lecidea.*  
TAB. 2051.

Thallus indeterminate, soft, mealy, pale greyish-green. Apothecia sessile, largish, black, internally pale ; border livid, slightly raised, evanescent.

*Lecidea pulverea*, *Borrer in E. B. Supp.* 2726. *Hooker Crypt. Part* 1. 181.

Found on oak-bark in the New Forest, Hampshire, by C. Lyell, Esq., and in the south of Ireland, spreading over moss, by Miss Hutchins. Thallus composed of minute powdery particles, pale greyish-green or yellowish when living, greyish-white after drying. No filmy substratum has been observed. Apothecia orbicular at first, with a slightly elevated, narrow, somewhat livid or brownish border, and an unpolished, black, flat disc ; subsequently irregular, the border disappearing, and the disc becoming more or less convex. The largest patellulæ almost equal a hemp-seed in diameter.

It has been suspected to be a variety of *Lecidea incana*, but Mr. Lyell sent it as distinct, and Miss Hutchins observed that she found the apothecia of all ages black. "It may be added that their substance is not so thick, and their margin, especially when young, narrower and less rounded."--*Borrer*.

The principal difference after all is in the hue of the disc,—a character, the importance and constancy of which is very equivocal.

\* \* "Apothecia brown, reddish-yellow or flesh-coloured, never (or rarely) black."

Though useful as a general character, this must not be too strictly depended upon, the apothecia in many instances becoming black, or very nearly so, as they approach maturity.

**LECIDEA INCANA.** *Soft mealy-crusted Lecidea.* TAB. 2052.

Thallus indeterminate, leprous, very mealy, soft, uneven, greenish-grey. Apothecia scattered, largish, sessile, brown, internally pale ; border pale brown, even, smooth.

*Lichen incanus*, *Acharius Prod.* E. B. 1683. *Lepraria incana*, *Ach. Lich. Univ.* *Hooker Crypt. Part* 1. 181. *Byssus incana*, *Linnaeus?* *Hudson, Lightfoot, &c.*

Very common on trees, shady rocks, banks, &c., often running loosely over mosses, and forming patches several inches broad, of a light glaucous-green hue when wet, greyish when dry, and of a very soft, loose, mealy, and friable texture. Apothecia scattered, sometimes rather clustered, sessile, brown, nearly flat, and of a horny or waxy consistence ; the border thick, smooth, elevated, rather paler than the disc.

Fructification of rare occurrence, and first noticed by C. Lyell, Esq. on beeches in the New Forest, Hampshire.

**LECIDEA SULPHUREA.** *Sulphureous Lecidea.* TAB. 2053.

Thallus thick, cracked, rugged, dull sulphur-coloured. Apothecia convex, blackish-brown, mealy, with a paler margin.

Lichen sulphureus, *Acharius Prod. E. B.* 1186. *Lecidea sulphurea, Ach. Syn.* 37. *Hooker Crypt. Part 1.* 181. *Verrucaria sulphurea, Hoffmann.*

Far from uncommon on brick-walls, in open situations; likewise on rocks and stones, especially near the sea. Thallus determinate, spreading circularly, very rugged, uneven, and cracked, not mealy, dull or greenish-sulphur-colour; white and chalky within. Apothecia numerous, clustered, variously shaped; their border immersed in the crust, and often scarcely distinguishable from it; disc blackish-brown, covered with a fine mealiness which easily rubs off.

**LICHEN EXPALLENS.** *Pale yellow-green Lecidea.* TAB. 2054.

Thallus thin, powdery, spreading, pale greenish-sulphur-coloured. Apothecia sessile, pale buff, with a powdery edge; eventually convex, rugged, without a border.

Lichen orostheus, *E. B.* 1549. *Lecidea expallens, Borrer in Hooker Crypt. Part 1.* 181. *Lecanora expallens, Acharius Syn.* 171.

Met with occasionally on trees and old paling; likewise on rocks in shady situations. Thallus widely spreading, thin, pale sulphur-coloured, a little greenish when wet; surface powdery. Apothecia numerous, small, flat, very pale buff-colour, with a powdery border; in maturity the border is obliterated and the disc convex.

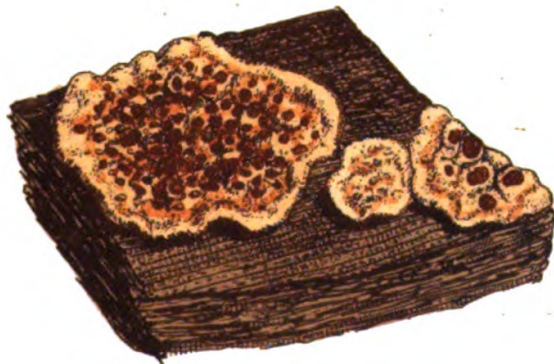
**LECIDEA ÆRUGINOSA.** *Dark-green powdery Lecidea.* TAB. 2055.

Thallus indeterminate, granulose, greenish-grey; eventually covered with æruginose powder. Apothecia superficial, small, dull-black, brownish or reddish; disc flat; margin elevated, somewhat flexuose.

*Lecidea æruginosa, Borrer in E. B. Supp.* 2682. *Hooker Crypt. Part 1.* 181.

Common in Sussex on decaying rails, but rarely producing apothecia. The irregular thallus consists of an obscure cyanescent film, more or less covered with numerous extremely small granulations of a greyish-green colour, which eventually burst and scatter a verdigris-green powder; this, together with the granules from which it proceeds, forms a very uneven crust. Apothecia, rarely produced, about the size of poppy-seed, black, with a brownish or greenish tinge when dry; when wet varying from black to reddish-brown, or dull flesh-colour: their border thickish, uneven.

“ In the structure of the thallus this lichen differs but little from *L. scabrosa*, Tab. 2035, which, when growing on a compact substance, is found to begin in the same manner with a film and minute granulations: but the powder which soon covers the surface is, in that species, of a paler and more yellow hue, and the structure of its apo-



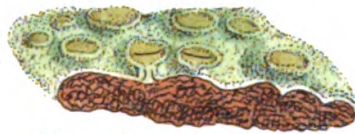
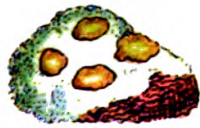
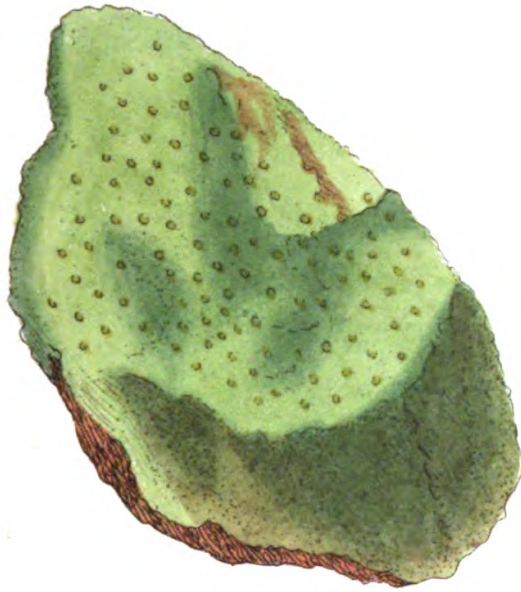
*Lecidea sulphurea?*

July 1. 1803. Published by J<sup>n</sup> Sowerby, London



1549

2054.



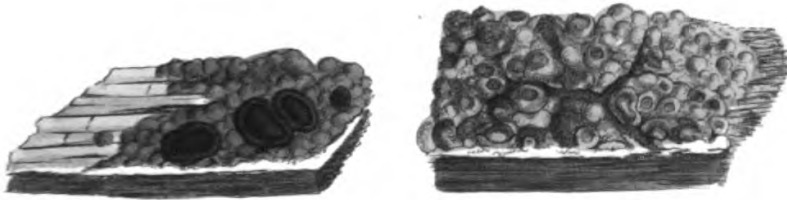
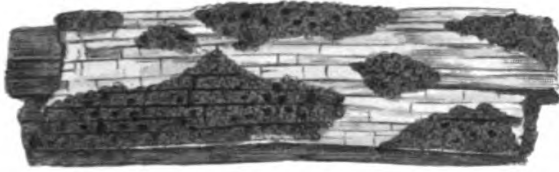
*Lecidea expallens.*

*Jan. 1. 1806. Published by J. Sowerby. London.*



2682.

2055.



*Lecidea aruginosa.*?

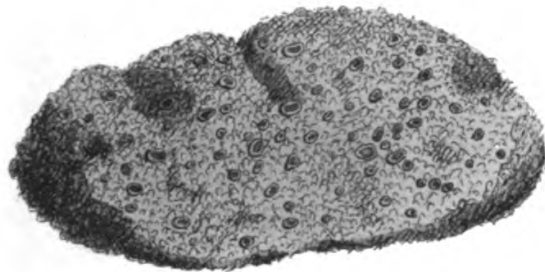
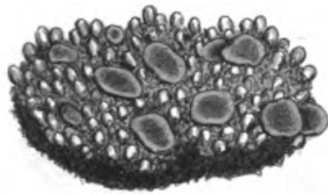
February 1<sup>st</sup> 1831.





1183

2056.



*Lecidea quadricolor.*

July-1 1803 Published by Ja<sup>s</sup> Sawerby, London



1246

2057.



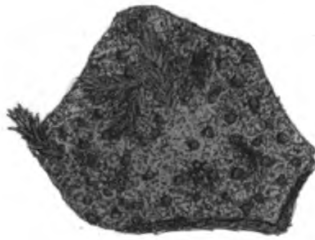
*Lecidea coronata?*

*Dec. 1 1809. Published by Jas. Sowerby, London.*



1246

2057.



*Lecidea coronata?*

*Dec. 1. 1809. Published by Jas. Sowerby, London.*



thecia is different. *L. æruginosa* is more nearly allied, perhaps, to the following species, *L. quadricolor*. Indeed it must be admitted that these two recede more in general appearance than in any essential character; yet it would scarcely be justifiable to regard them as but one species. In *L. æruginosa* the granulations of the thallus are smaller, more crowded and confluent, and of a greener hue, and the powder they produce is much more copious and of a dark verdigris-green, whilst that in *L. quadricolor* is not much darker than the granules. The apothecia also are smaller in *L. æruginosa*, their border, perhaps, more elevated, and their colour not altogether so variable. From another nearly allied species, *L. Lightfootii*, Tab. 2047, it differs in most of these and in some additional particulars."—*Borrer*.

In barren specimens the powder is often collected into roundish clusters, not unlike the fructification of a *Spiloma*.

LECIDEA QUADRICOLOR. *Four-coloured Lecidea*. TAB. 2056.

Thallus leprous, grey, with white granulations. Apothecia, when young, gelatinous, flesh-coloured, with a pale border; when old, blackish.

Lichen quadricolor, *Dickson Crypt. fasc. 3. 15. tab. 9. fig. 3. E. B. 1185.* *Lecidea quadricolor*, *Borrer in Hooker Crypt. Part 1. 182.*  
*L. decolorans*, *Flörke. Acharius Syn. 37.*

First observed by Mr. Dickson on the Scottish mountains, but not very unfrequent in other parts of the kingdom, growing on the ground in heathy, sandy places, and being chiefly in perfection during the moist months of winter. Thallus thin, inseparable from the light crumbling soil, of a grey or brownish hue, thickly sprinkled with minute white granulations. Apothecia small, rather numerous, sessile, when moist gelatinous and convex, in a dry state nearly flat: when young of a yellowish or flesh-colour, with a smooth, narrow, white border; by age both disc and border become of a brownish-black.

LECIDEA CORONATA. *Crenate-shielded Lecidea*. TAB. 2057.

Thallus of minute, subimbricated, granular, sublobate, olive-brown scales. Apothecia crowded, flattish, red-brown; their border elevated, narrow, crenate.

Lichen brunneus, *Acharius Prod. E. B. 1246.* *Lecidea coronata*, *Borrer in Hooker Crypt. Part 1. 182.* *Lecanora brunnea*,  $\beta$ . *coronata*, *Ach. Syn. 192.* *Lichen pezizoides*, *Dickson.* *Psora coronata*, *Hoffmann.*

It generally grows on the earth, among turf or decayed mosses, in moist situations; and sometimes clothes foliaceous lichens, looking like their fructification. The thallus consists of minute, more or less lobed and imbricated warts or scales, of a somewhat glaucous olive-brown hue. Apothecia often so crowded as to become angular by their mutual pressure, various in size and colour, being sometimes pale brick-coloured, sometimes dark chestnut: disc nearly flat, with an elevated, rather narrow, crenate, almost beaded border.



**LECIDEA ESCHAROIDES.** *Coralline-crusted Lichen.* TAB. 2058.

Thallus tartareous, brownish ash-coloured, composed of granulated warts. Apothecia convex, irregular, black, with an obsolete black border.

Lichen escharoides, *Ehrhart?* *E. B.* 1247. *Lecidea coronata*,  $\beta$ . *escharoides*, *Hooker Crypt. Part 1.* 182.

Found by Mr. Turner on turfy ground and on rocks in Cornwall and near Yarmouth. Thallus from a quarter to half an inch in thickness, composed of tartareous granulations, ash-coloured or brownish, various in size and shape, but externally rounded or tumid, with a glaucous tinge. Apothecia imbedded among the warts or granules of the crust, sessile, quite black, convex, with a scarcely perceptible border of the same hue.

In the thickness of the crust, the hue of the apothecia, and the absence of the crenated border, this seems to differ considerably from the last species.

**LECIDEA ANOMALA.** *Tumid brown-shielded Lecidea.* TAB. 2059.

Thallus very thin, continued, smoothish, glaucous white. Apothecia scattered, small, sessile, brown, with a lighter border of their own substance; eventually hemispherical, blackish, the border disappearing.

Lichen cyrtellus, *E. B.* 2155. *Lecidea anomala*, *Acharius Syn.* 38. *Hooker Crypt. Part 1.* 182.

Grows upon the trunks of trees. Thallus thin, continuous, rather glaucous and mealy when young, subsequently smoother and of a pure white. Apothecia flat, light brown, with a thick, smooth, lighter-coloured border, which becomes blackened, thinner, and at length nearly obliterated by age, the disc growing convex and brownish-black.

The next two species, figured on the following Plate, are perhaps only varieties of this, but their general aspect is very different.

**LECIDEA EFFUSA.** *Spreading green Lecidea.* TAB. 2060, 3 upper fig.

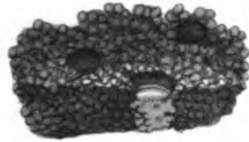
Thallus indeterminate, thin, powdery, light green. Apothecia pale waxy-brown, with a paler border; eventually convex, without a border.

Lichen effusus, *Acharius Prod. E. B.* 1863, 3 upper fig. *Lecidea anomala*,  $\beta$ . *effusa*, *Hooker Crypt. Part 1.* 182. *Lecanora effusa*, *Ach. Syn.* 159.

Not infrequent on the trunks of trees. Thallus widely diffused, thin, powdery, soft, of a light green, darker when wet, in which state it exhales a peculiar fragrant odour. Apothecia small, scattered, sessile, when young pale waxy-brown or flesh-colour, with a still paler, smooth, elevated border; by age they become darker, convex, and their border often disappears.

1247

2058.



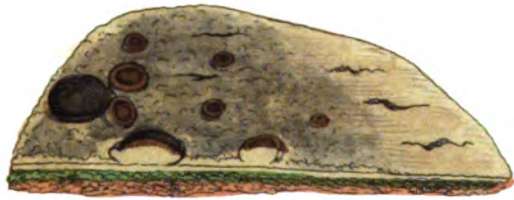
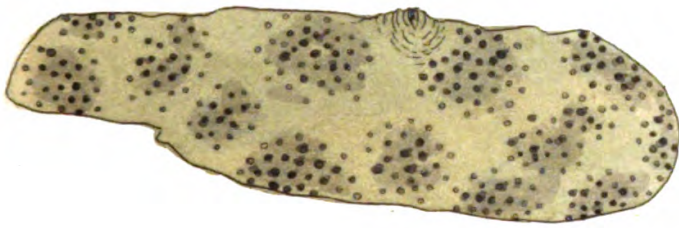
*Lecidea escharoides.*

*Dec 1. 1803 Published by Jas Sowerby, London.*



2155

2059.



*Lecidea anomala.*

Jan. 11 1852, published by J. S. Kew, by London.



1863

2060

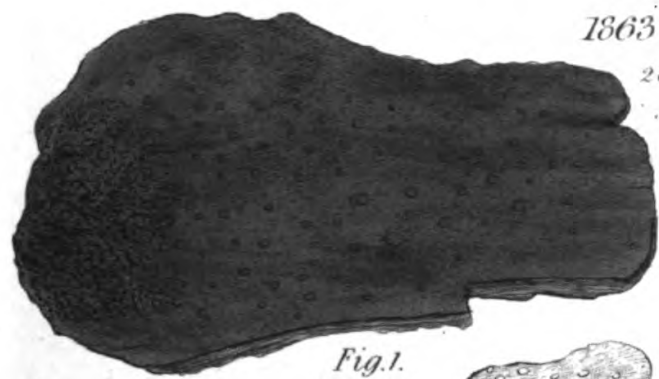


Fig. 1.

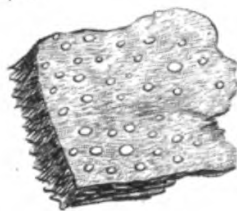
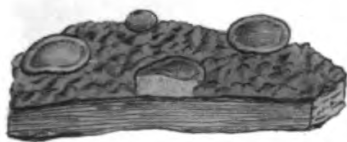
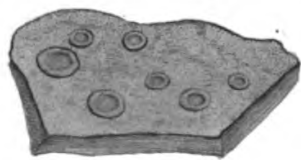
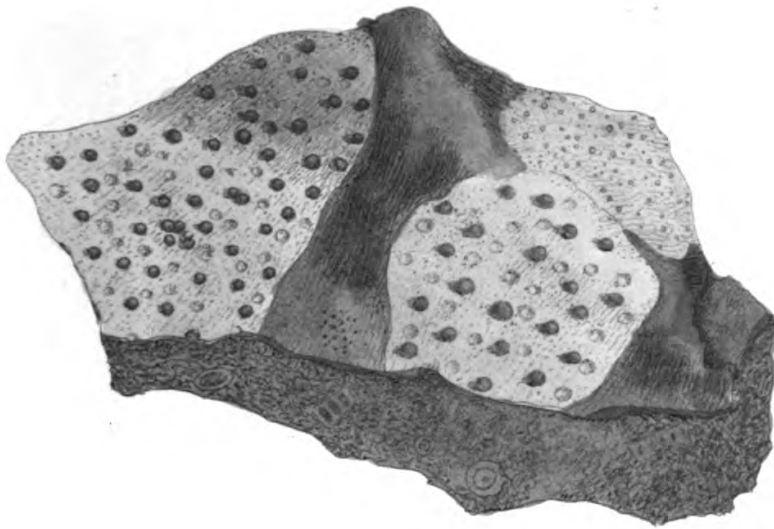


Fig. 2.



*Lecidea effusa*. Fig. 1.  
----- *pineti*. Fig. 2.





*Lecidea rupestris.*





2215

2062.



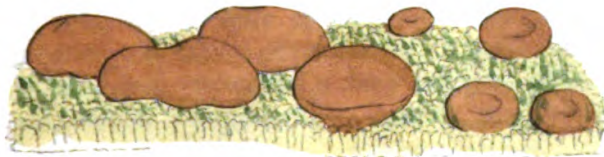
*Lecidea irrubata?*

*Tuberis irrubata* lect. by J. B. Sowerby, L. 1811.



845

2063.



*Lecidea vernalis.*

Feb 1. 1861. Published by Jaf. Sowerby, London.



**LECIDEA PINETI.** *Waxy-shielded Pine Lecidea.* TAB. 2060,  
2 lower fig.

"Thallus very thin, sordid, greenish-grey. Apothecia sessile, minute, waxy, urceolate, yellow flesh-colour, with an entire border."

*Lecidea pineti*, *Acharius Syn.* 41. *Hooker Crypt. Part 1.* 183. *Lichen effusus*, *E. B.* 1863, 2 lower fig.

Found on the bark of firs, near the ground, at Costessy, near Norwich. Apothecia so transparent when wet as to be scarcely discernible.

Very doubtfully separable from *L. effusus*, with which it was confounded by Sir J. E. Smith in the previous edition of *Engl. Bot.*

**LECIDEA RUPESTRIS.** *Rock Lecidea.* TAB. 2061.

Thallus thin, tartareous, greyish-white. Apothecia minute, immersed, scattered, plane, eventually convex, tawny-red; with a subsistent border of the same colour.

*Lichen calvus*, *Dickson Crypt. fasc. 2.* 18. *tab. 6. fig. 4.* *E. B.* 948.

*Lecidea rupestris*, *Acharius Syn.* 39. *Hooker Crypt. Part 1.* 183.

Found on calcareous rocks, in mountainous and subalpine districts. Thallus hard, inseparable from the stone, marked by little round depressions, left by the falling off of the fructification, pale greyish- or brownish-white. Apothecia sessile, hemispherical, hard, dull orange or tawny-red.

**LECIDEA IRRUBATA.** *Orange-red Lecidea.* TAB. 2062.

Thallus thin, dispersed, greenish-grey. Apothecia sunk, flat, bordered; eventually convex, smooth, deprived of their border, reddish orange-coloured.

*Lichen rupestris*, *E. B.* 2245. *Lecidea irrubata*, *Acharius Syn.* 40. *Hooker Crypt. Part 1.* 183.

Found by Mr. Winch, on walls at Beamish, Durham. Thallus greenish-grey, interrupted, often evanescent. Apothecia sessile or immersed, nearly flat when young, of a deep orange, with a border of the same colour, which disappears by age as the disc becomes almost globular.

**LECIDEA VERNALIS.** *Vernal Lecidea.* TAB. 2063.

Thallus thin, powdery, whitish-green. Apothecia eventually almost globular, clustered, of a brownish or rusty flesh-colour.

*Lichen vernalis*, *Linn. E. B.* 845. *Lecidea vernalis*, *Borrer in Hooker Crypt. Part 1.* 183. *L. luteola*, *Acharius Syn.* 41. *Lichen sphæroides*, *Dickson Crypt. fasc. 1.* 9. *tab. 2. fig. 2.*

Not unfrequent on the bark of trees, or overrunning mosses in low damp habitats. Thallus irregular, thin, powdery or granulated, of a pale dull olive-green, whitish when dry. Apothecia flattish when young, with a thick border of their own colour, which is however soon obliterated, as the disc becomes convex, or almost globose: they are generally of a pale rusty hue, verging towards flesh-colour, but sometimes resembling yellow ochre, and often brown.

**LECIDEA CORNEA.** *Horny-cupped Lecidea.* TAB. 2064.

Thallus mealy, thin, white. Apothecia a little elevated, brown, semi-transparent, with a thick, elevated, even, smooth, paler border.

Lichen corneus, *Withering* 4. 20. tab. 31. fig. 3. *E. B.* 965. *Lecidea cornea*, *Acharius Meth. Hooker Crypt. Part 1.* 183. *L. carneola*, *Ach. Syn.* 42.

Found on oaks in Denbighshire and in the north of England. The thin, mealy, white, or greenish-white thallus spreads over the inequalities of the bark in small interrupted patches. Apothecia numerous, scattered, elevated on little protuberances of the crust which infold them at the base, nearly uniform, concave, of a brown, horn-like colour, in some degree transparent, especially the border, which is paler and rather waxy, much elevated, smooth, and even.

**LECIDEA FUSCO-LUTEA.** *Brownish-yellow Lecidea.* TAB. 2065.

Thallus thin, continued, even, very white and smooth. Apothecia elevated, flat, dull yellow or reddish-brown, with a border of the same colour.

Lichen fusco-luteus, *Dickson Crypt. fasc. 2.* 18. tab. 6. fig. 2. *E. B.* 1007. *Lecidea fusco-lutea*, *Acharius Syn.* 42. *Hooker Crypt. Part 1.* 183.

Frequent on the more elevated mountains of Scotland. The thallus spreads widely over decayed mosses, sprigs of heath, and other small plants, closely enveloping them so as to assume a branched shrubby appearance: when separately examined, it is found to be very thin, even, and delicate, almost membranaceous, very white, and somewhat glossy. Apothecia scattered, or clustered; when young, subsessile, roundish, with a thick, inflexed border, dull yellow, being clothed with ochrey powder which is easily rubbed off; when mature, elevated on a short thick pedicel, their disc flat, brown or reddish, their margin waved.

**LECIDEA FERRUGINEA.** *Rusty-shielded Lecidea.* TAB. 2066.

Thallus rather thin, spreading, greyish-white, rugged. Apothecia rusty-orange, eventually convex, with a waved border of the same colour.

Lichen ferrugineus, *Hudson.* *E. B.* 1650. *Lecidea ferruginea*, *Hooker Crypt. Part 1.* 184. *Lecanora cinereo-fusca*, *Acharius Syn.* 43. *L. cæsio-rufa*, *Ach. Syn.* 44, according to *Hooker.*

Found in various habitats, growing on rocks and stones, as well as on the bark of trees. Thallus more or less cracked and rugged, never mealy, greyish-white, passing sometimes to a lead-colour, with a blackish edge. Apothecia rusty-orange, but occasionally darker and more inclining to brown, especially on sandstone specimens; disc flat when young, mostly convex when old; margin elevated, waved and crenated, of the same colour as the disc or brighter.

**LECIDEA ICMADOPHILA.** *Heath Lecidea.* TAB. 2067.

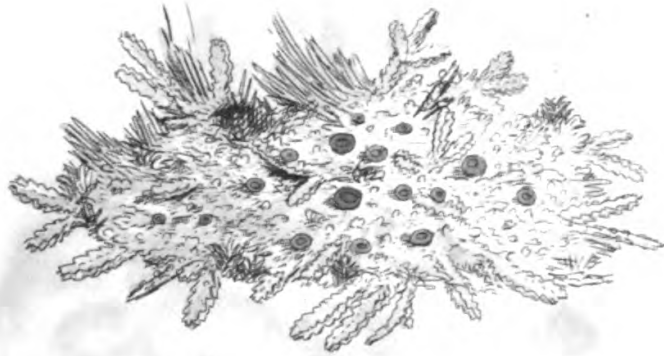
Thallus leprous, granulated, greenish-white. Apothecia nearly ses-







2065.



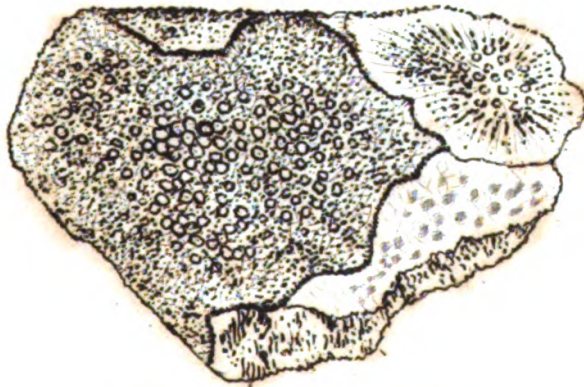
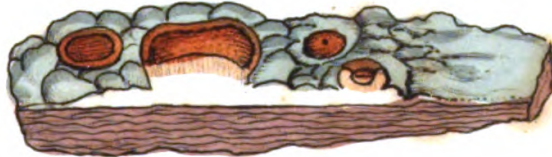
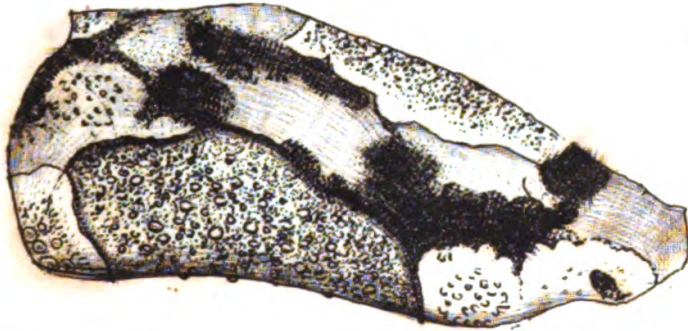
*Lecidea fusc-atra?*

April 1 1802. Published by Jas. Sowerby, London



1650

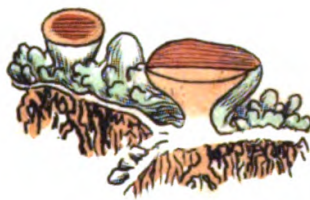
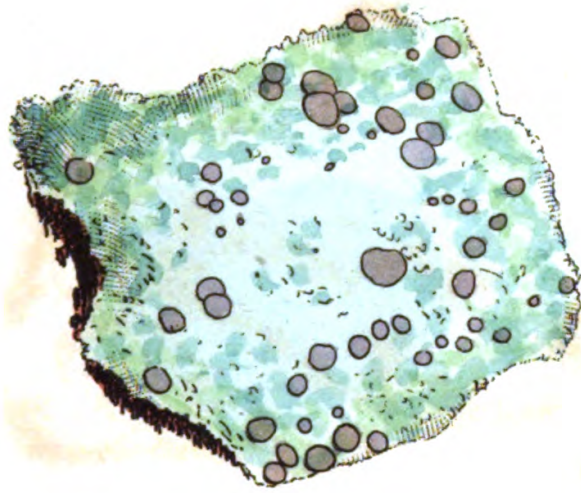
2066



*Lecidea ferruginea*

*Sept. 1866. Published by J. S. Sowerby, London.*



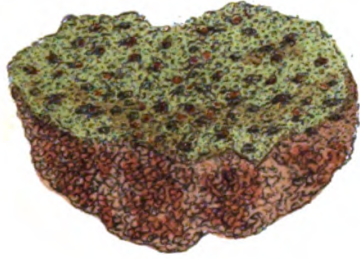


*Lecidea icmadophila?*



739.

2068.



*Lecidea marmorea*?

*Lecidea*





sile, plane, smooth, flesh-coloured, eventually wrinkled, with an obsolete whitish border.

Lichen ericetorum, *Ehrhart. E. B.* 372. *Lecidea icmadophila, Acharius Syn.* 45. *Hooker Crypt. Part 1.* 184. Lichen icmadophila, *Linnæus Suppl.* 450.

Frequent on turf heaths, where it forms large white or greenish patches, very conspicuous and beautiful in damp weather. Thallus attached to the ground by numerous fibres from the under surface. Apothecia occasionally sunk in the crust, sometimes sessile, less frequently elevated on short pedicels; disc quite flat at first, smooth, and somewhat glaucous; the border very narrow, whitish, and soon becoming obsolete.

There is much superficial resemblance between this species and *Bæomyces roseus*, *Tab.* 1893, a lichen with which Linnæus at one time confounded it; the flexuose and wrinkled character of the old apothecia renders them, especially when stalked, very like the *mycinæ* of that curious genus, and their colour is nearly the same, as well as that of the granulated crust.

**LECIDEA PRIVIGNA.** *Obsolete-cruled Lecidea. TAB. 2038.*  
(2 right-hand fig. on sandstone).

Thallus scarcely any. Apothecia sessile, concave, olive-brown, with a thick elevated border darker than the disc.

Lichen simplex, *E. B.* 2152. (two right-hand fig. on sandstone). *Lecidea privigna, Acharius Meth. Hooker Crypt. Part 1.* 184. *Lecanora milvina, β. privigna, Ach. Syn.* 151.

Found by the Rev. Mr. Harriman, growing on white sandstone in the county of Durham, and confounded in the first edition of *Eng. Bot.* with *L. simplex*, figured on the same plate. Thallus nearly obsolete. Apothecia numerous, more or less crowded, sessile, cup-like.

**LECIDEA MARMOREA.** *Salmon-coloured Lecidea. TAB. 2068.*

Thallus thin, scattered, pale. Apothecia subglobose, at length urceolate, salmon-coloured; with a very thick, elevated, inflexed, pale flesh-coloured, often crenate, border.

Lichen marmoreus, *Dickson Crypt. fasc. 2.* 18. *E. B.* 739. *Lecidea marmorea, Acharius Syn.* 46. *Hooker Crypt. Part 1.* 184. Lichen cupularis, *Hedwig. L. tricolor, Withering.*

Chiefly found in mountainous and subalpine districts, growing on schistose and calcareous rocks, or scattered over decayed mosses in wet shady places: in the latter habitat the thallus is very fugitive, a small portion only remaining attached to the base of each apothecium. Apothecia very minute, prominent, concave, of a bright salmon- or aurora-colour, encompassed by a thick, elevated, inflexed, pale flesh-coloured margin, of a marble-like semitransparency, and externally a little pulverulent: the disc eventually falls out.

Compare with this the doubtful *Thelotrema exanthematicum*, *Tab.* 1971.

**LECIDEA ROSELLA.** *Little rosy-shielded Lecidea.* TAB. 2069.

Thallus thin, somewhat mealy or granulated, greyish-white. Apothecia slightly convex, pale rose-colour, with a thick, but eventually evanescent, paler, smooth border.

Lichen rosellus, *Acharius Prod.* E. B. 1651. *Lecidea rosella*, *Ach. Meth.* *L. alabastrina?* *Ach. Syn.* 46. *Hooker Crypt. Part 1.* 184.

Found on trees in the New Forest, Hampshire, and in Scotland. Thallus thin, greyish-white or ash-coloured, spreading regularly over smooth bark, but broken and almost obliterated on old trees. Apothecia numerous, small, sessile; their disc almost from the first slightly convex, smooth; their margin in a young state very thick, smooth, even, pale or whitish, somewhat waxy, growing thinner by age, and at length obliterated by the swelling of the disc.

**LECIDEA LUTEA.** *Yellow-shielded Lecidea.* TAB. 2070.

Thallus thin, powdery, pale ash-coloured. Apothecia slightly convex, deep yellow, with a paler border.

Lichen luteus, *Dickson Crypt. fasc. 1.* 11. *tab. 2. fig. 6.* E. B. 1263.

*Lecidea lutea*, *Borrer in Hooker Crypt. Part 1.* 185. *L. melizea*, *Acharius Syn.* 47.

A native of the mossy trunks of trees. Thallus mealy, thin, sometimes scattered, pale grey or ash-coloured. Apothecia numerous, rather small, sessile, with a flattish, smooth disc of a deep yellow colour inclining to orange; their border elevated, the colour of the disc, but paler.

**LECIDEA EHRHARTIANA.** *Ehrhartian Lecidea.* TAB. 2071.

Thallus rugged, granulated, greenish-white. Apothecia bordered, yellowish; eventually convex, waved, deformed and clustered.

Lichen Ehrhartianus, *Acharius Prod.* E. B. 1136. *Lecidea Ehrhartiana*, *Ach. Syn.* 47. *Hooker Crypt. Part 1.* 185.

Found by Mr. Turner, at Acle, in Norfolk, growing profusely on a wooden barn. The thallus covers the wood in level, cracked, granulated patches, and is composed of uniform, smooth, roundish granulations. Apothecia variable in size and figure, of a yellowish buff-colour, at first surrounded by a zigzag, white, narrow border; afterwards convex, variously waved and wrinkled, the border being obliterated.

Many of the granulations, in the specimen figured, bore each a little black wart, probably a fungus parasite.

Acharius suspected *L. granularis* of Hagen to be only the rudiment of this species.

**LECIDEA INTRICATA.** *Variable Lecidea.* TAB. 2072. (2 upper fig.)

Thallus tessellated, smooth, greenish sulphur-coloured and black.

Apothecia numerous, convex, bordered, angular, yellowish flesh-coloured, turning to olive, dark purple, and black.

Lichen polytypus, E. B. 1264. (2 upper fig.) *Lecidea intricata*,

1651

2069.



*Lecidea rosella?*

*Occid. Publ. by Ja. Sowerby, London.*



1263

2070.



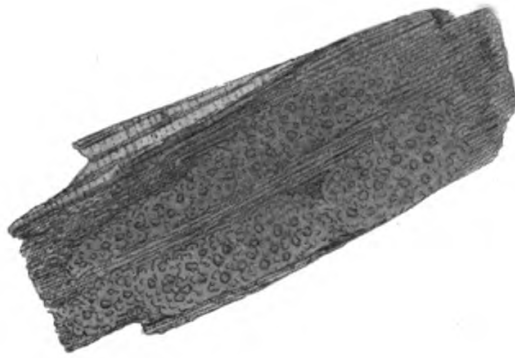
*Lecidea lutea?*

*Jan. 1. 1804. Published by Ja. Sowerby, London.*



1130

2071

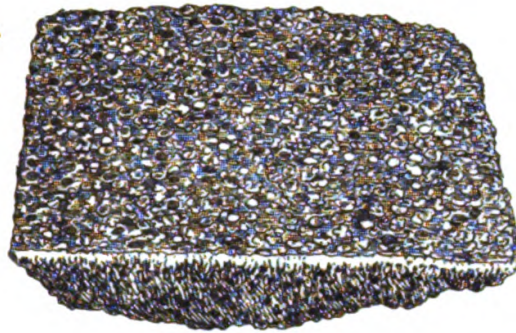


*Lecidea Ehrhartiana*

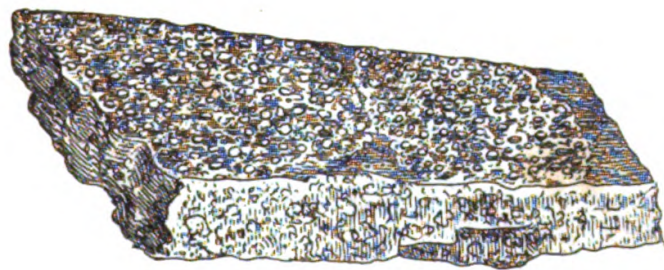
March 1 1803 Published by J. Sowerby, London.



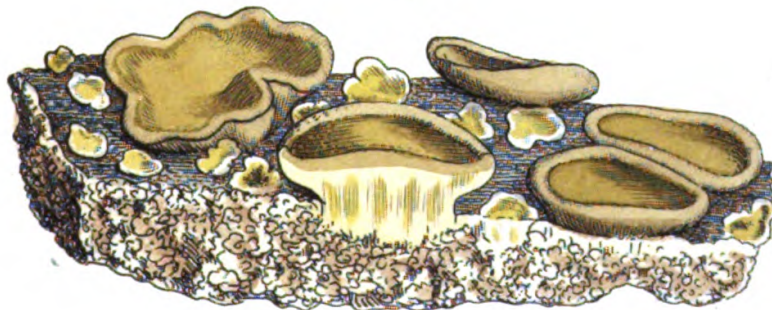




*Fig. 1.*



*Fig. 2.*



*Lecidea intricata*..... *Fig. 1.*

————— *polytropa*..... *Fig. 2.*

*Tent. 1. 1804. Published by J. Sowerby, London.*



1550  
2073



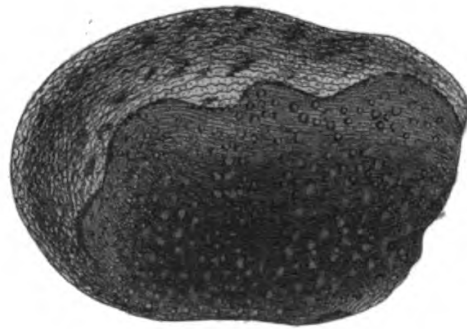
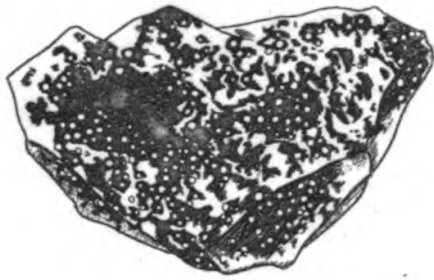
*Lecidea lucida?*

*Jan's shot. Published by J. Sowerby, London.*



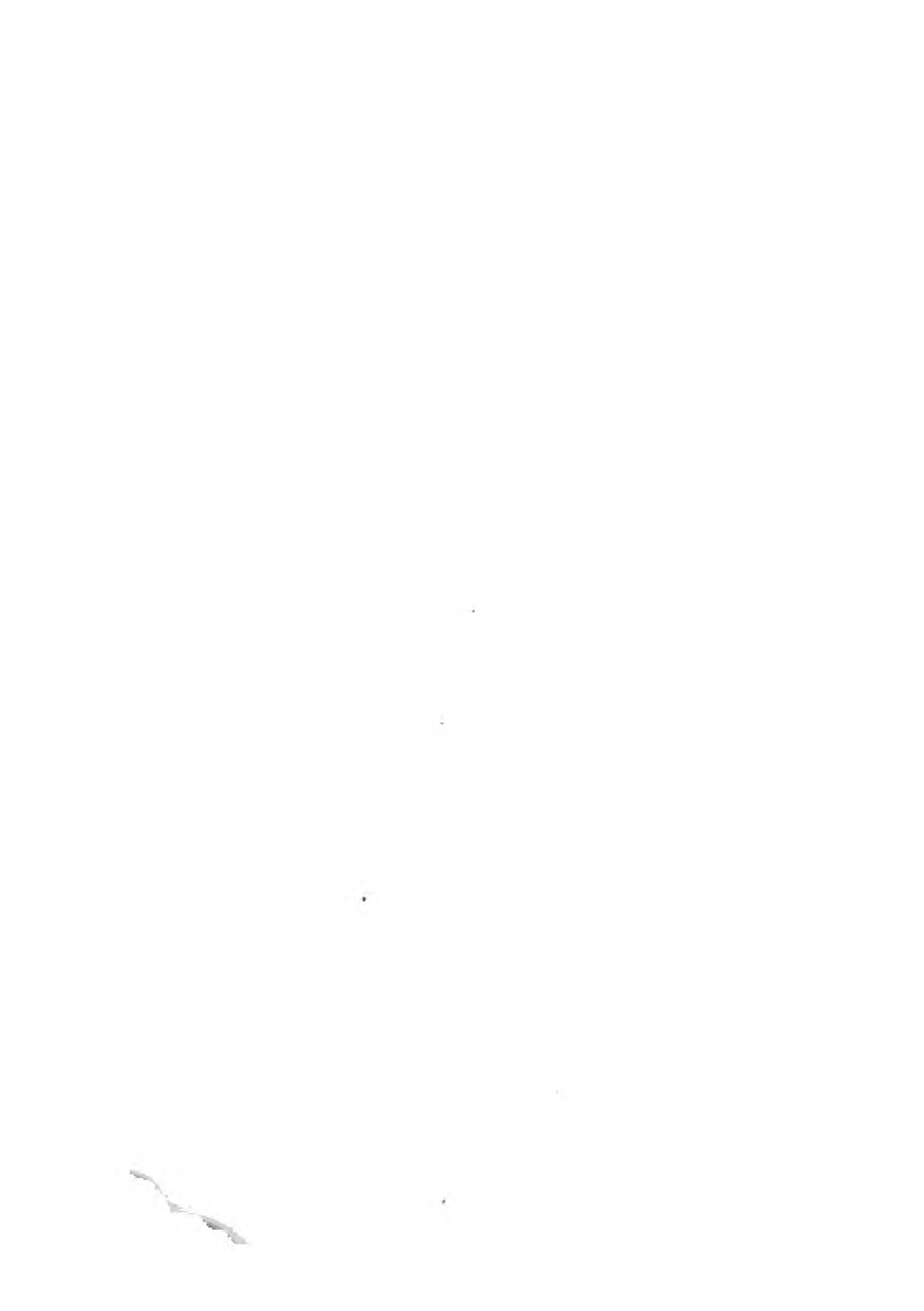
2009

2074.



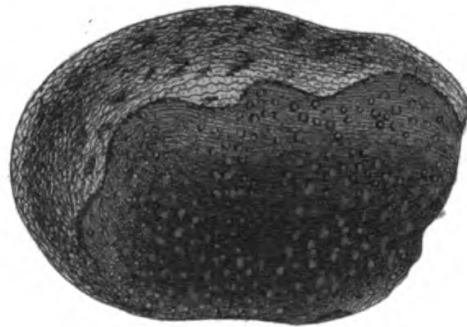
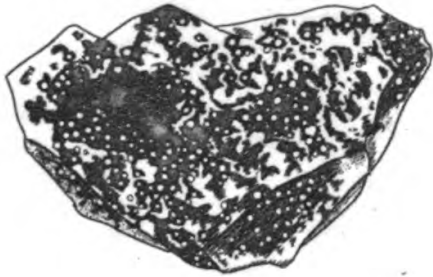
*Lecidea atro-flava?*

April 1 1809 Published by Jas Sowerby London



2009

2074.



*Lecidea atro-flava?*

April 2 1809 Published by J. Sowerby London





*Borrer in Hooker Crypt. Part 1. 185. Lecanora intricata, Acharius Syn. 154. Lichen intricatus, Schrader.*

Found on sandstone rocks in the north of England.

Our figure is very indefinite, nor am I at all satisfied with the alleged specific difference between this and the following.

**LECIDEA POLYTROPA.** *Horn-coloured Lecidea.* TAB. 2072.  
(2 lower fig.)

Thallus tartareous, tessellated and broken into little testaceous scales or grains. Apothecia numerous, plane, eventually convex, bordered, angular, yellowish flesh-coloured; at length subglobose, and deprived of border.

Lichen polytropus, *Ehrhart. E. B. 1264. (2 lower fig.) Lecidea polytropa, Acharius Meth. Hooker Crypt. Part 1. 185. L. Ehrhartiana, β. polytropa, Ach. Syn. 47.*

A native of rocks, chiefly of the granite kind, in the north of England and Scotland. Thallus inseparable from the stone, formed of smooth, pale sulphur-coloured, angular portions, various in size, all more or less bordered or accompanied by a black substance, probably the remains of the decayed crust of the preceding year. Apothecia numerous, generally larger than the scales or portions of the crust; when young, roundish, plane or slightly concave, of a pale, waxy, greenish-yellow, with a thick, smooth border of the same colour; soon becoming very convex, angular and rugged, of a buff inclining to flesh-colour, and the border less apparent.

**LECIDEA LUCIDA.** *Lemon-coloured Rock Lecidea.* TAB. 2073.

Thallus thin, powdery, brittle, pale greenish lemon-coloured. Apothecia small, sessile, convex, lemon-coloured, without a border.

Lichen lucidus, *Acharius Prod. E. B. 1550. Lecidea lucida, Ach. Syn. 48. Hooker Crypt. Part 1. 185.*

First noticed by Sir J. E. Smith, growing on hard sandstone rocks about Liverpool. Mr. Borrer found it in Sussex, and spreading over the perpendicular rocks about Tunbridge Wells, having much the appearance of a *Lepraria*. Thallus more or less scattered, indeterminate, generally very thin, powdery, and easily rubbed off, of a pale bright lemon-colour, more or less inclining to light green. Apothecia sessile, rather convex, bright lemon-yellow, without a border; when old somewhat rugged or lobed.

This species appears to be peculiar to sandstone, and is therefore very local: the fructification is of rare occurrence.

**LECIDEA ATRO-FLAVA.** *Black and yellow Stone Lecidea* TAB. 2074.

Thallus indeterminate, membranous, thin, somewhat granulated, black. Apothecia numerous, small, flattish, full-yellow, with an entire, elevated, somewhat paler border.

Lichen atro-flavus, *E. B. 2009. Lecidea atro-flava, Turner in Linn. Trans. 9. 142. tab. 11. fig. 2. Hooker Crypt. Part 1. 185. L. Turneriana, Acharius Syn. 49.*

Frequent on loose flint-stones on the Sussex downs and elsewhere. Thallus dull black, at first forming roundish patches, which have sometimes a fibrous edge; but usually separating into scattered, indeterminate fragments, and becoming granulated by age. Apothecia deep yellow or orange, rather concave when young; border thick, elevated, smooth, rather paler than the disc.

**LECIDEA ULMICOLA.** *White and yellow Lecidea.* **TAB. 2075.**

Thallus leprous, white, very thin and even. Apothecia orange-coloured; when young flattish, with a border of their own colour; eventually convex, without a border.

Lichen luteo-albus, *Turner in Linn. Trans.* 7. 92. *tab.* 8. *fig.* 3. *E. B.* 1426. *Lecidea ulmicola*, *Turner in Hooker Crypt. Part* 1. 185. *Lecidea luteo-alba*, *Acharius Syn.* 49. *Patellaria ulmicola*, *DeCand.*

Found on the old bark of trees in various parts of England, sometimes in their decayed cavities. Thallus very thin, even, finely leprous, greyish-white when living. Apothecia very numerous, more or less crowded in spots or parcels; when young flat, with a border coloured like the disc; but by age they become very convex, the border disappearing.

**LECIDEA AURANTIACA.** *Saffron-coloured Lecidea.* **TAB. 2076.**

Thallus granulated, whitish lemon-coloured. Apothecia sessile, rather convex, orange-coloured, with a yellow waved border.

Lichen salicinus, *Schrader. E. B.* 1305. *Lecidea aurantiaca*, *Acharius Syn.* 50. *Hooker Crypt. Part* 1. 186. *Lecanora salicina*, *Ach. Syn.* 175. *Patellaria salicina*, *Hoffmann.* Lichen aurantiacus, *Lightfoot.*

Not unfrequent on the trunks of trees, especially willows, poplars, and the common ash. Thallus thin, granulated, more or less cracked, conspicuous by its colour, which looks as if it had, though originally white or greyish, been stained with lemon-peel, or a weak tincture of saffron. Apothecia numerous, scattered, small, sessile, with a deep orange-coloured disc, and a thickish, slightly waved border of a lemon hue.

The whole plant, when moist, smells strongly of saffron, even after it has been long kept in a herbarium.

**LECIDEA ERYTHRELLA.** *Orange Stone Lecidea.* **TAB. 2077.**

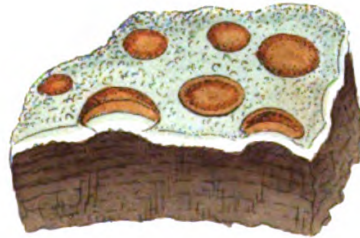
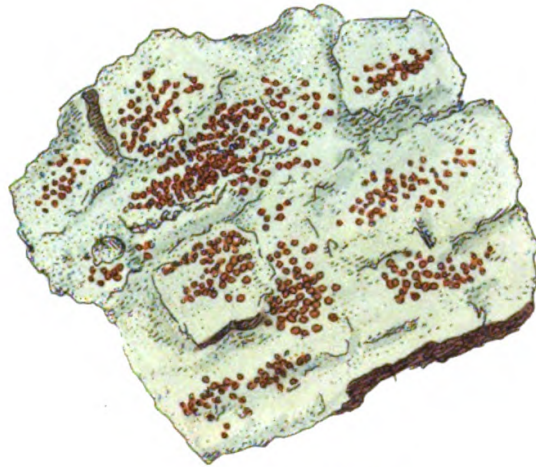
Thallus lemon-coloured, thin, dispersed, in minute, angular, smooth fragments. Apothecia sessile, deep orange, with a lighter border; eventually nearly globose, and the border obliterated.

Lichen erythrellus, *Acharius Prod. E. B.* 1993. *Lecidea erythrella*, *Borrer in Hooker Crypt. Part* 1. 186. *Lecanora erythrella*, *Acharius Syn.* 175.

Found growing on rocks and stone walls in alpine districts; in the Highlands of Scotland it is of frequent occurrence. Thallus consisting of very minute, dispersed, angular, smooth, lemon-coloured

1426

2075.



*Lecidea*  
*ulmicola?*

March 2 1805. Published by J. Sowerby, London



1305  
2076.



*Lecidea aurantiaca?*

May 1, 1804. Published by Jas. Sowerby, London.

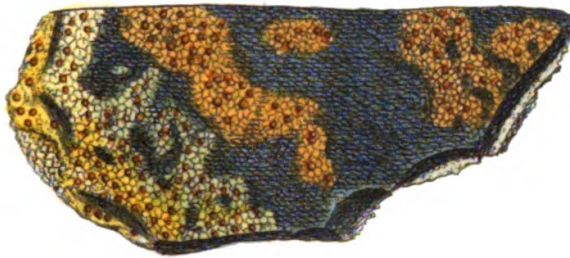
•

•



1993

2077



*Lecidea erythella?*

May 1 1860 Published by Jas. Sowerby London





fragments, inseparable from the stone on which it grows ; and in appearance very unlike the continued, somewhat orbicular crust of *L. aurantiaca*, to which, however, Mr. Borrer suggests its near affinity. Apothecia often larger than the segments of the thallus, scattered, sessile, deep reddish-orange; with a thick, smooth, paler border, which nearly disappears as the disc becomes convex.

GENUS DLXXIX. LECANORA. *Lecanora*.

GEN. CHAR. *Thallus* crustaceous, spreading, plane, adnate, uniform. *Apothecia* (*patellulæ*) orbicular, thick, sessile and adnate ; the disc plano-convex ; the border thickish, formed of the crust, and of the same colour.

The last of the truly crustaceous genera of the Lichens, the limits of which are very far from being satisfactorily defined, Nature, in the lower orders of plants especially, varying her manifold forms rather by almost imperceptible shades than positive gradations. Hence the genus *Lecanora* is cavilled at by some botanists as not being sufficiently distinguished from *Parmelia* in the following series ; while the species referable to the above character are more or less numerous, according to the views of classification entertained by different authors. Indeed, these are points that in all probability will never be decided, either in reference to the present or other genera similarly circumstanced, until a more perfect acquaintance is obtained with the laws regulating the structure of these obscure plants ; of which at present we know too little to justify the assumption, that either their generic or specific characters are in the majority of cases founded on correct principles, and that they are not rather based on features liable to the most varied modification according to the circumstances of development. Under the present system of arrangement *Lecanora* is a very useful genus ; it assists in breaking up a large number of species that would otherwise form a very heterogeneous assemblage ; and to reject it on the plea of not being a natural or definite one, would be an excuse for the dismissal of many others on similar grounds.

The thallus, though occasionally somewhat membranous, is usually decidedly crustaceous, and always adherent by its whole under surface.

The name refers to the form of the apothecia, from *λεκάνιον*, a small dish or plate, and *ὄρα*, a resemblance.

Most of the species grow on rocks, stones and buildings, a few on dead wood and on the bark of trees.

\* *Apothecia black or dark brown, sometimes pruinose.*

**LECANORA ATRA.** *Black-shielded Lecanora.* TAB. 2078.

Thallus determinate, rugged, granulated, white. Apothecia nearly flat, coal-black, with an elevated, white, eventually flexuose and notched border.

Lichen ater, *Hudson.* E. B. 949. *Lecanora atra*, *Acharius Syn.* 146. *Hooker Crypt. Part.* 1. 186.

Very common on brick walls and buildings in exposed situations, likewise on rocks in subalpine districts. Thallus spreading circularly, thickish, sometimes very white, but often brownish or greyish, not at all mealy; when dry very friable. Apothecia numerous, more or less crowded, various in size; disc nearly flat, or rather concave, deep black in every stage of growth; border conspicuous by its elevation, by age becoming zigzag and variously notched.

**LECANORA EXIGUA.** *Diminutive black-shielded Lecanora.* TAB. 2079.

Thallus orbicular, radiating, thin, leprous, uneven, dull ash-coloured. Apothecia minute, clustered, flat, black, eventually rather convex; their border whitish, changing to brown.

Lichen exiguus, *Acharius Prod.* E. B. 1849. *Lecanora exigua*, *Hooker Crypt. Part.* 1. 187. *L. periclea*,  $\beta$ . *Ach. Syn.* 151. *Parmelia exigua*, *Ach. Meth.*

Occasionally found growing on tiles, more rarely on old pales. The thallus forms somewhat circular patches, very thin, of a dull brownish or ash-colour, leprous and uneven, not tartareous, encircled with a fibrous radiating margin. Apothecia very minute, numerous, crowded, black, flat when young; with a very distinct, smooth, whitish border. The border becomes brown by age, and the disc convex.

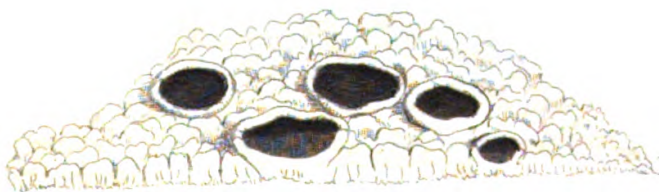
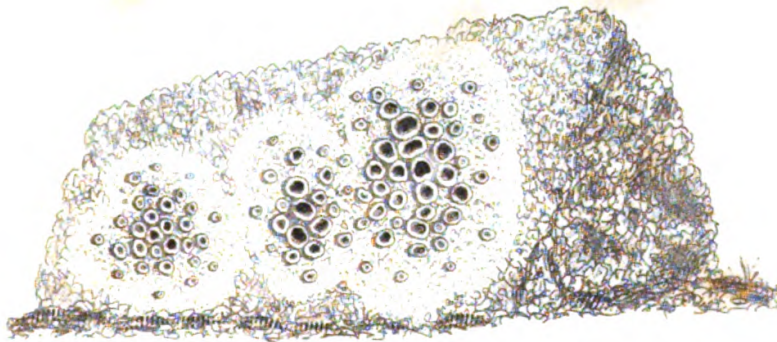
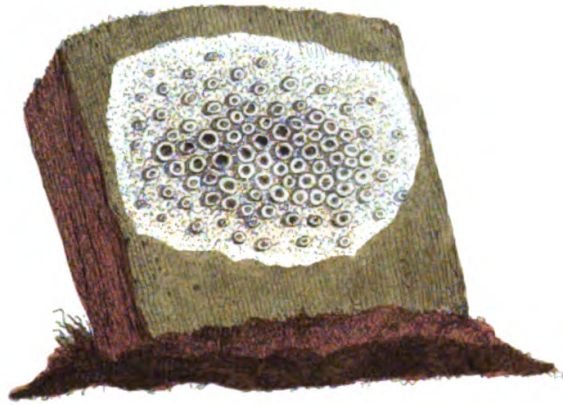
**LECANORA PERICLEA.** *Rough black-shielded Lecanora.* TAB. 2080.

Thallus diffuse, thin, leprous, very white. Apothecia convex, very black, roughish, with a white, crenated, eventually powdery border. Lichen pericleus, *Acharius Prod.* E. B. 1850. *Lecanora periclea*, *Ach. Syn.* 250. *Hooker Crypt. Part.* 1. 187. *Parmelia periclea*, *Ach. Meth.*

Found by Mr. Borrer, at Hurst Pierpoint, Sussex, and by the Rev. G. R. Leathes, at Livermere, near Bury, Suffolk, growing on old pales and posts, sometimes on the bark of firs. Thallus very thin, spreading irregularly, without any defined margin, pure white, not tartareous nor powdery. Apothecia about the size of those of *L. exigua*, very black, convex, roughish; border very white, crenated, becoming powdery by age, and mouldering away into the circumjacent crust.

**LECANORA COARCTATA.** *Contracted Lecanora.* TAB. 2081.

Thallus indeterminate, thin, cracked, greyish. Apothecia with the

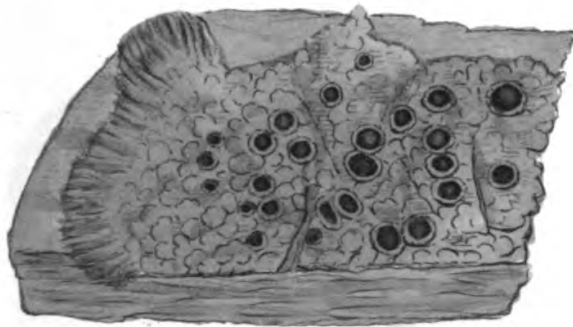
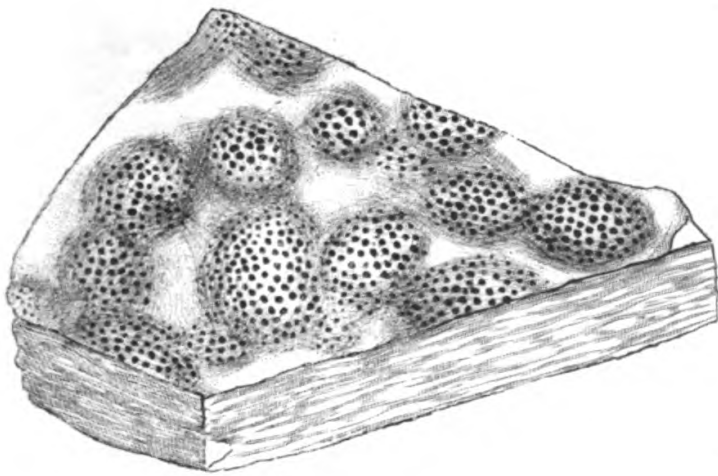
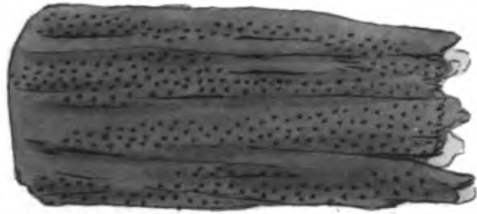


*Lecanora atra?*



1849.

2079.



*Lecanora exigua?*

Fig. 2079. Published by J. Sowerby, London.

100

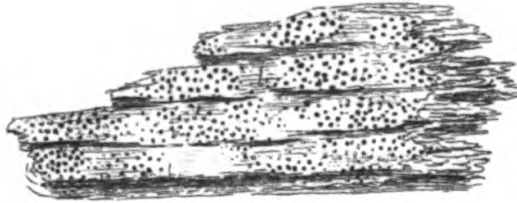
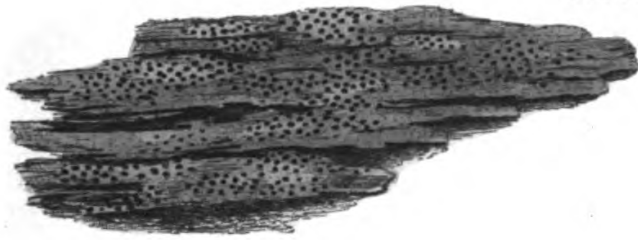
100

100

100

1850.

2080.

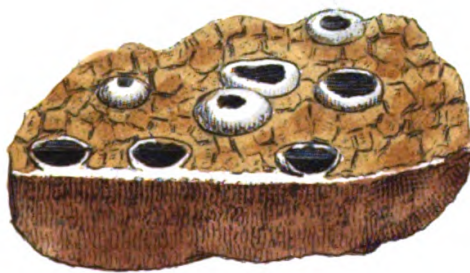
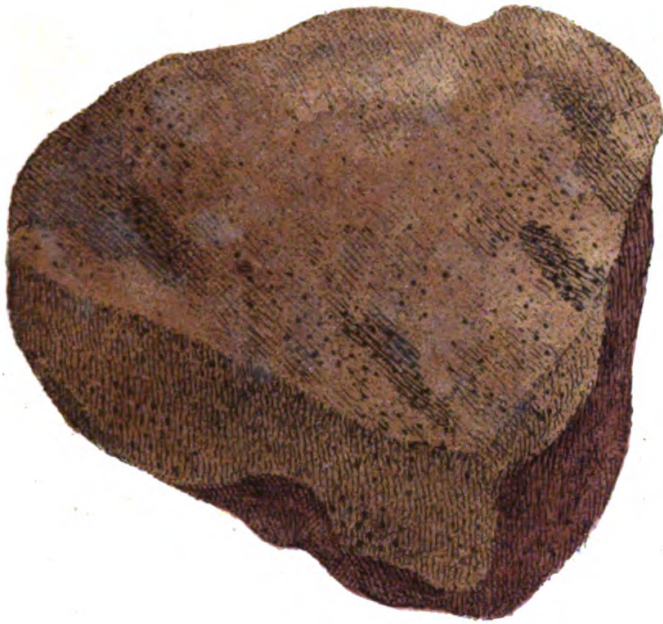


*Lecanora periclæa*

*Foh. 1808. Published by Ja. Sowerby, London.*





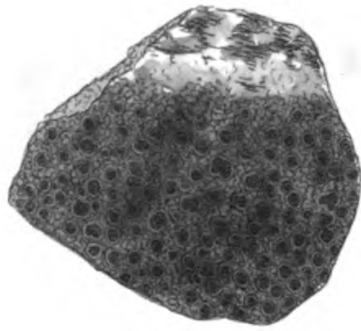


*Lecanora coarctata?*



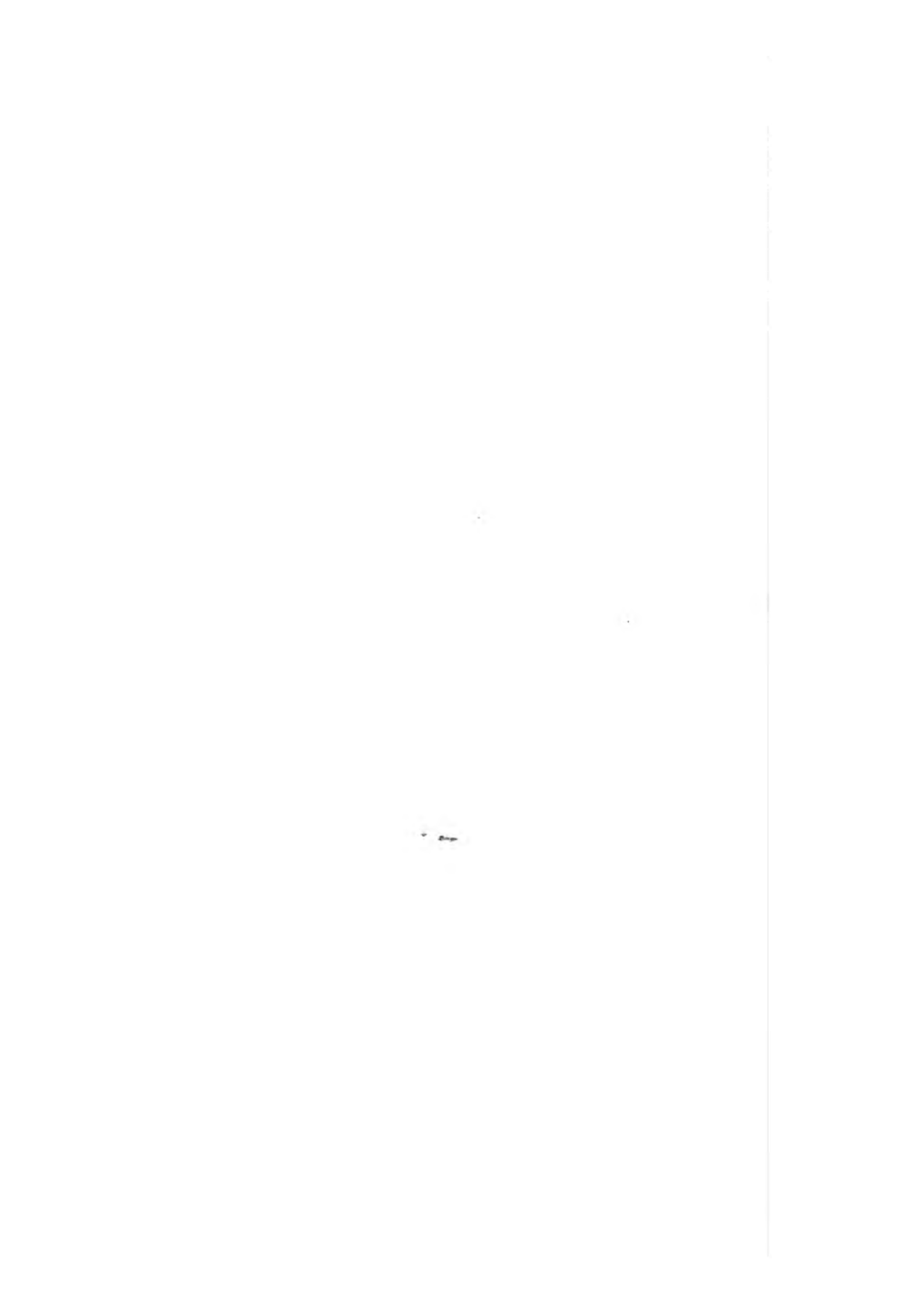
2011

2082.



*Lecanora squamulosa.*

*Mag. 1, 1809, Published by J. Sowerby, London.*



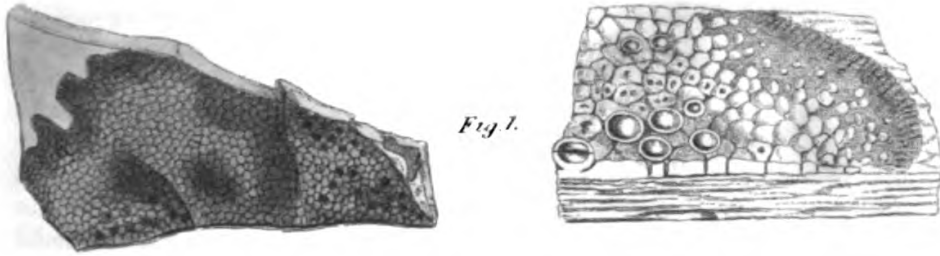


Fig. 1.

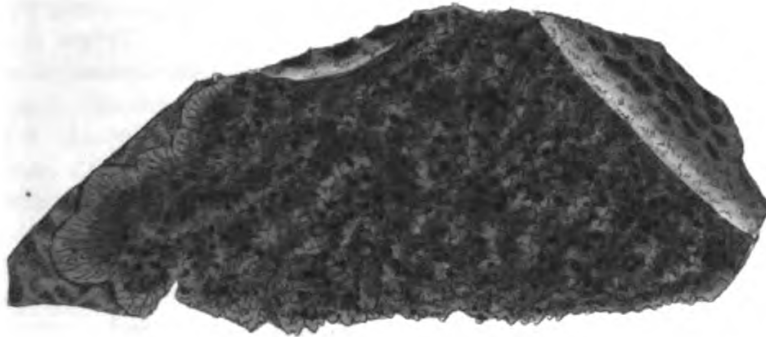


Fig. 2.

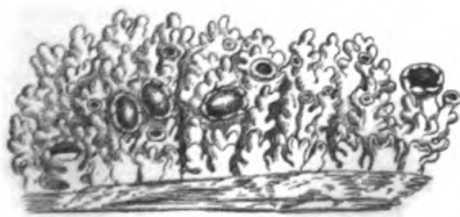
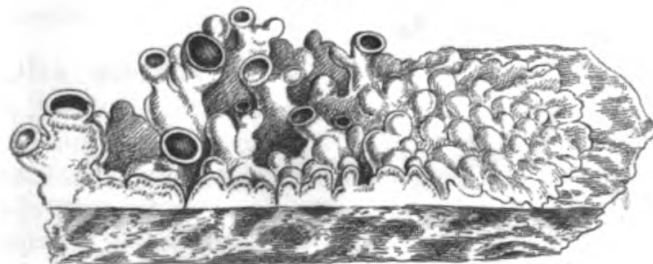
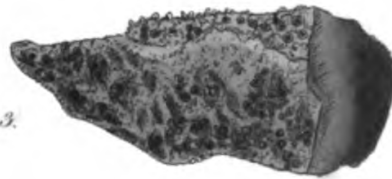


Fig. 3.



*Lecanora milvina* Fig. 1.

----- *aiospila* — 2.

----- *spidophæa* — 3.



disc partly immersed, or eventually slightly elevated, flat, black; the border elevated, inflexed, coarctate, irregular, pulverulent. Lichen coarctatus, *E. B.* 534. *Lecanora coarctata*, *Acharius Syn.* 149. *Hooker Crypt. Part 1.* 187.

First detected by Mr. Turner, growing on brick walls about Yarmouth. Thallus spreading, very thin, yellowish-grey. Apothecia small, very flat, of a bluish-black, not glossy; the border considerably elevated, whitish, very mealy; when young it is closely drawn or pursed up, so as to cover the black disc; in which state the fructification has the form of minute, white, downy specks.

**LECANORA SQUAMULOSA.** *Scaly-cruled Lecanora.* TAB. 2082. Thallus imbricated, cracked, smooth, brownish ash-coloured; its segments angular and somewhat lobed. Apothecia sunk, eventually elevated, flattish, of a brownish shining-black; border elevated, wavy.

Lichen squamulosus, *Acharius Prod. E. B.* 2011. *Lecanora squamulosa*, *Hooker Crypt. Part 1.* 187. *Lecanora badia*, *Ach. Syn.* 154? *L. cervina*, *Ach. Syn.* 188? according to *Hooker*. Lichen piceus, *Dickson Crypt. fasc. 4.* 22. tab. 12. fig. 5.

A native of rocks, in the north of England and Highlands of Scotland. The thallus spreads closely over the stone, is calcareous and white within, but of a brownish or smoky ash-colour externally. Its surface consists of prominent, more or less lobed and imbricated fragments. Apothecia numerous, one mostly in each fragment of the crust, when young sunk and concave; afterwards raised, with a flat or uneven disc, of a polished pitchy black, here and there brownish and semipellucid.

**LECANORA MILVINA.** *Wide-spreading Rock Lecanora.* TAB. 2083, fig. 1.

Thallus tartareous, thin, even, areolate, grey or brown with a black filmy substratum. Apothecia small, nearly flat; border entire; disc dark-brown.

*Lecanora milvina*, *Borrer in E. B. Supp.* 2662. fig. 1. *Hooker Crypt. Part 1.* 187. *L. milvina*, *α*, *Acharius Syn.* 151. Lichen milvinus, *Wahlenberg Fl. Lapp.* 410.

Sent on grey, flinty slate rock from Ireland, by the late Miss Hutchins, from what particular locality we are not informed. Thallus forming wide, flat patches, composed of small warts, scattered towards the edges on a black, sometimes dendritic film, roundish, mostly entire, but crowded in the central parts into a congeries of minute convex, angular areolæ, the interstices of which are scarcely visible without a glass; surface unpolished, smoky-grey. Apothecia numerous, smaller than poppy-seed; the border narrow, entire; the disc dark brown or blackish, moderately convex.

**LECANORA AIOSPILA.** *Loose branchy-cruled Lecanora.* TAB. 2083, fig. 2.

Thallus tartareous, rugged with branch-like granulations, brownish-



grey ; edges plicate. Apothecia small, terminating the granulations ; border entire, at length depressed ; disc dark-brown.

*Lecanora aipospila*, *Acharius Syn.* 155. *Borrer in E. B. Supp.* 2662. *fig. 2.* *Hooker Crypt. Part 1.* 187. *Lichen aipospilus*, *Wahlenberg Fl. Lapp.* 409. *tab. 27. fig. 2.*

Found by Mr. W. Robertson on maritime rocks at Bamburg and Staples' Islands, on the coast of Northumberland. Thallus spreading widely, dull brownish or reddish-grey, sometimes inclining to lead-colour ; composed of tartareous granulations, sufficiently large to form a loose surface very uneven to the naked eye, and more or less lobed and contorted, often assuming the form of irregularly cylindrical, occasionally subdivided branches : the edges of the patch are thin and plicate. Apothecia numerous, about the size of poppy-seed, bursting from the apex of the granulation ; border circular, entire, eventually depressed ; disc convex, of a very dark dull brown or almost black, occasionally falling out and leaving a cup-like hollow.

Mr. Borrer observes that this is an extremely remarkably Lichen, a link, apparently, between the genera *Lecanora* and *Isidium*, approaching very closely to the latter in the structure of the thallus.

**LECANORA SPODOPHÆA.** *Close branchy-crusted Lecanora.*  
TAB. 2083. *fig. 3.*

Thallus tartareous, areolate, formed of concrete branch-like granulations, grey ; greenish when wet. Apothecia small, terminating the granulations ; border slightly crenulate, at length depressed ; disc dark reddish-brown.

*Lecanora spodophæa*, *Acharius Syn.* 155. *Borrer in E. B. Supp.* 2662. *fig. 3.* *Hooker Crypt. Part 1.* 188. *Lichen spodophæus*, *Wahlenberg Fl. Lapp.* 409.

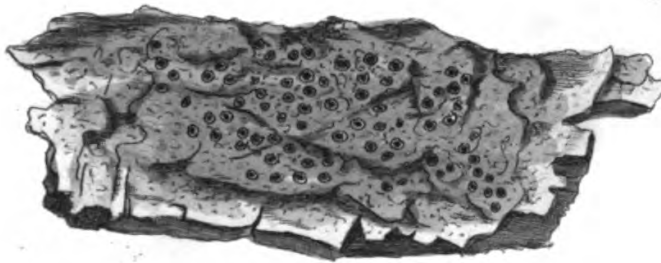
Found by Mr. W. Robertson, growing with *L. aipospila*, on the coast of Northumberland. Thallus composed of cylindrical and branch-like granulations, but so intimately connected, that it is very difficult to discover their individual shape ; the mass they form appearing nearly level and continuous to the naked eye, and only ascertained by a lens to be divided into small areolæ with an unequally granulated surface, which is of a dull brownish-grey, sometimes spotted with lead-colour, and greenish when wet. Apothecia circular, smaller than poppy-seed, apparently sessile on the surface of the crust, but each terminating in reality a granulation of much smaller diameter than its own : border thickish, more or less crenulated, eventually almost obliterated : disc flattish, dark reddish-brown, sometimes breaking out and leaving an orange-coloured cup, somewhat resembling *L. sophodes* in general aspect, but differing in the peculiarity of structure described above.

**LECANORA SOPHODES.** *Obscure black-shielded Lecanora.* TAB. 2084.

Thallus orbicular, granulated, dull greenish ash-colour. Apothecia slightly convex, clustered, black, brown when moist ; border elevated, entire.

1791

2084.



*Lecanora sophodes.*

Sept. 1. 1807. Published by J. Sowerby London.



1733

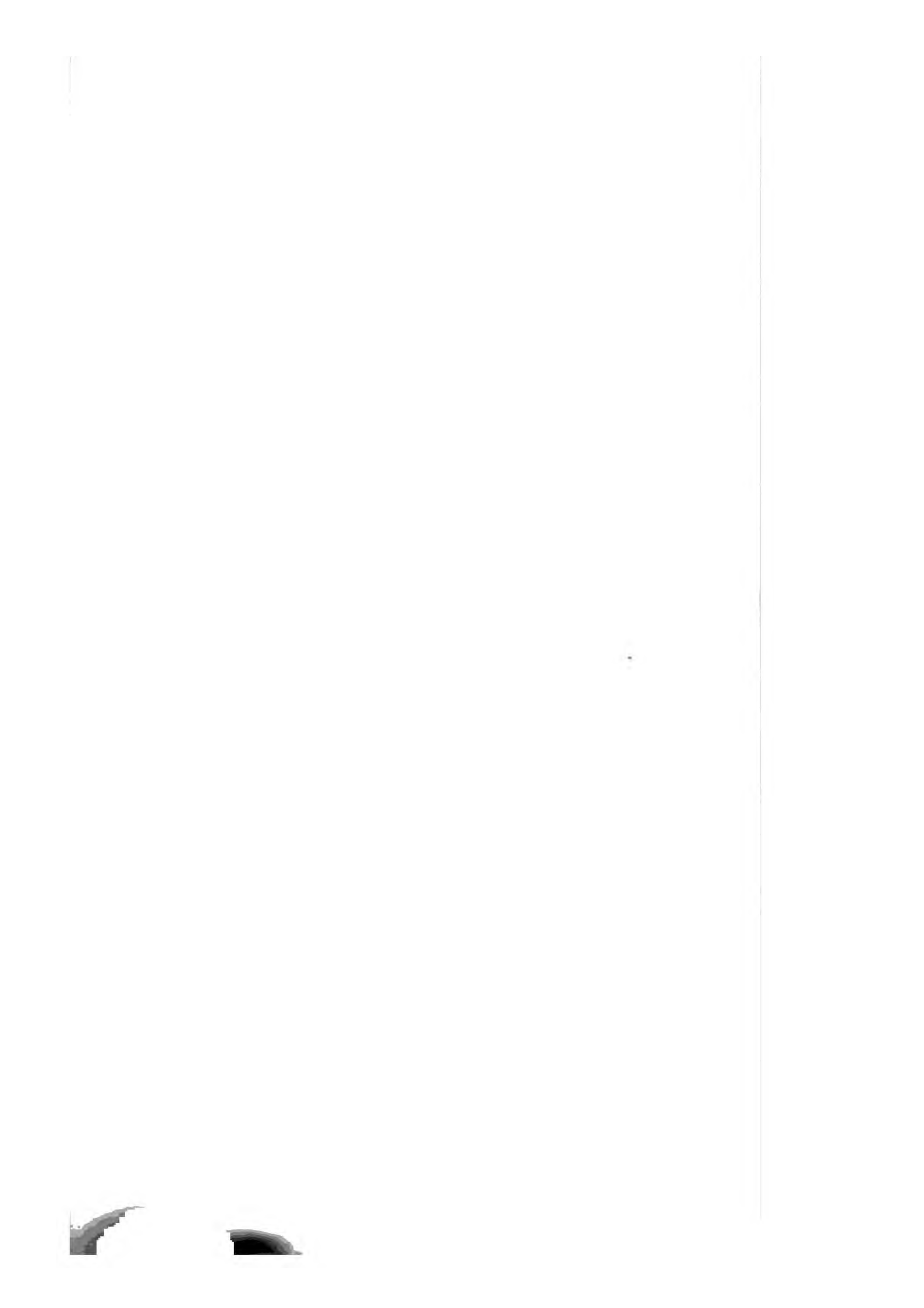
2085.

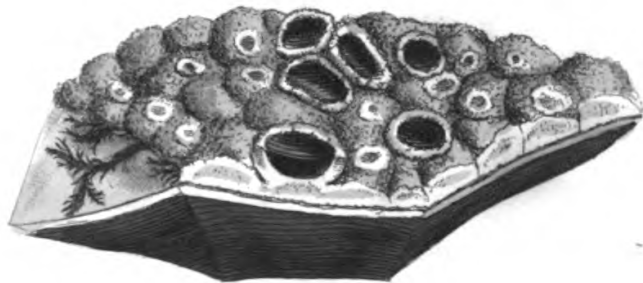
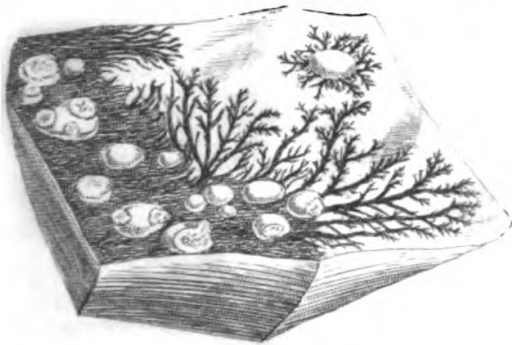
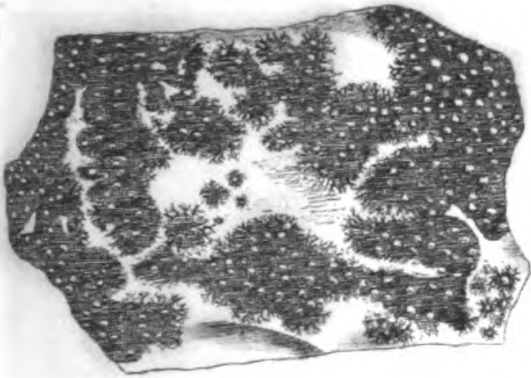


*Lecanora tuberculosa?*



*Apr. 1. 1807, Published by J. J. Sowerby London.*





*Lecanora aspersa?*

January 1<sup>st</sup> 1832.



Lichen *sophodes*, *Acharius Prod. E. B.* 1791. *Lecanora sophodes*, *Ach. Syn.* 153. *Hooker Crypt. Part 1.* 188.

Frequent on trees in Sussex, likewise in the eastern counties. Thallus circular when young, consisting of little granulations, not mealy, obscure greenish-grey. Apothecia numerous, each on the tip of a minute granulation; border wrinkled by age, smooth and entire at first; disc slightly convex, brownish-black.

LECANORA TUBERCULOSA. *Warted fibrous-edged Lecanora.*  
TAB. 2085.

Thallus greenish-grey, formed of globular granulations; with a radiated marginal fringe. Apothecia sessile, flattish, glaucous-black, with a thick, elevated, smooth border.

Lichen *tuberculosis*, *E. B.* 1733. *Lecanora tuberculosa*, *Acharius Syn.* 164. *Hooker Crypt. Part 1.* 188.

Common on the South-Downs of Sussex. The thallus overruns the smooth surfaces of flints; its basis is extremely thin, of a dark greenish-grey hue, and terminates in a fibrous, radiating border; with the exception of the latter, it is nearly covered with small, round, hard, paler granulations, not so much crowded as to prevent the darker coloured basis from being visible between them. These granulations appear to be the rudiments of the fructification, continuing to enlarge, until they open at the summit, and form flattish or somewhat concave apothecia, with an elevated, thick, smooth, rather irregular border.

LECANORA ASPERSA. *Powdered Warty Lecanora.* TAB. 2086.

Substratum of the thallus filmy, black; warts scattered, tartareous, slightly convex, olive-green, with pale green soredia. Apothecia small, elevated; margin thick, inflexed; disc black.

*Lecanora aspersa*, *Borrer in E. B. Supp.* 2728. *Hooker Crypt. Part 1.* 188.

Not unfrequent, growing on loose flints, chiefly in Suffolk, and on the Downs of Sussex, but rare in fructification. The thallus consists of a black film, beautifully dendritic at the edges when the surface on which it grows is perfectly even, more or less covered with numerous small, roundish, somewhat lobed, slightly convex warts, unpolished and of an olive-green hue when dry, greener when wet, which are usually scattered separately, or in little clusters, more rarely collected into a tolerably compact crust: their surface is spotted with minute soredia of a pale green colour, changing to a lead-grey in long-dried specimens. Apothecia minute, inconspicuous, with a thick, inflexed margin, at first entire, afterwards uneven and a little crenate; disc flat, dull-black.

“ This lichen has been mistaken for *L. tuberculosa*, but the warts of the thallus of that species are very prominent, even, and not powdery, and the substratum is of the same colour, not black: the apothecia are also more conspicuous, and of a glaucous hue. In the black substratum and in the dispersion of the warts, *L. aspersa* resembles *Lecidea altro-alba*, 2013, and *Lecid. verruculosa*, 2014, but besides the generic characters, it differs from both in the colour of the warts and in the powdery soredia. The apothecia are most like those



of some imperfect states of *L. atra*, 2078, but the structure of the thallus is very dissimilar."—*Borrer*.

**LECANORA GLAUCOMA.** *Wall-eyed Lecanora.* TAB. 2087.

Thallus tartareous, cracked, uneven, hard, greyish-white. Apothecia depressed, crowded; eventually tumid, deformed, black-brown or buff, with a strong glaucous tinge: border wavy.

Lichen glaucoma, *Acharius Prod.* E. B. 2156. *Lecanora glaucoma*, *Ach. Syn.* 165. *Hooker Crypt. Part 1.* 189. Lichen rupicola, *Dickson fasc.* 15. 22. *L. varians*, *Davies in Linn. Trans.* 2. 284. *tab.* 28. *fig.* 3. *L. compositus*, *Withering* 4. 13. *tab.* 31. *fig.* 2, *bad.*

Frequent on whinstone, or slate, in mountainous countries. The hard, continued, distinctly bordered thallus follows all the inequalities of the stone, is of a dirty greyish-white externally, and of a pure white within. Apothecia, when young, level with the crust; when older tumid, unequal, crowded, with a wavy, more or less elevated border: disc very variable in hue, blackish, lead-coloured, horny-brown, or brightish-buff, on the same or different plants; but always, unless rubbed, clothed with a fine glaucous powder or efflorescence, without attention to which the varieties might be mistaken for distinct species.

**LECANORA THELOSTOMA.** *Nipple-shielded Lecanora.* TAB. 2088.

Thallus tartareous, thin, continued, brown, minutely cracked. Apothecia sessile, hemispherical, umbilicated, reddish; with a thick, elevated, even border.

Lichen thelostomus, E. B. 2153. *Lecanora thelostoma*, *Hooker Crypt. Part 1.* 189. *Pyrenula umbonata*, *Acharius Syn.* 121. *Verrucaria thelostoma*, *Ach. in Winch.* 2. 44.

Found by the Rev. Mr. Harriman, on whinstone rocks, near Eglestone, Durham. The thallus forms roundish patches, of a dirty brown hue throughout. Apothecia numerous, small, sessile, hemispherical, and rather prominent; their border tumid, elevated, very smooth and entire; disc small, darkish-brown when dry, red or cinnamon coloured when wet, in which state it is most clearly distinguishable from the border.

**LECANORA SUBFUSCA.** *Brown-shielded Lecanora.* TAB. 2089.

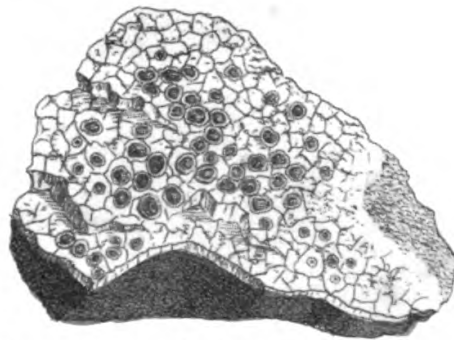
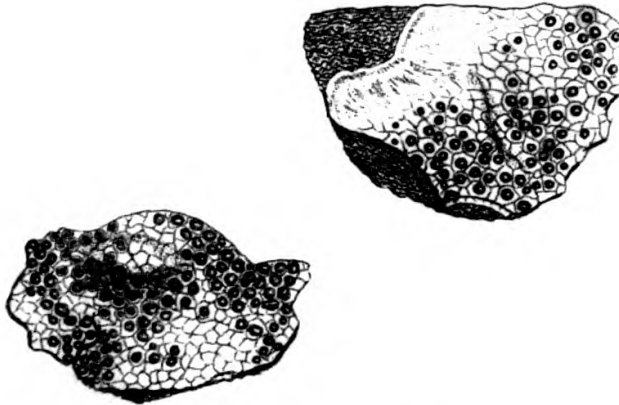
Thallus thin, continued, smoothish, brownish-white. Apothecia sessile, slightly convex, dark reddish-brown, sometimes inclining to black; with a tumid, entire border.

Lichen subfuscus, *Linn.* E. B. 2109. *Lecanora subfusca*, *Acharius Syn.* 157. *Hooker Crypt. Part 1.* 189.

Very common on the smooth bark of trees, forming roundish, uninterrupted patches. Thallus usually very thin, somewhat calcareous, minutely granulated, brownish- or greyish-white. Apothecia abundant, often crowded; disc rather convex, usually of a bay or chestnut colour, varying in brightness, often parti-coloured, or mixed with a pale waxy hue, looking as if the sporuliferous mass had withered or dropped out; border entire, or slightly crenate when old.

210

2087.



*Lecanora glaucoma?*

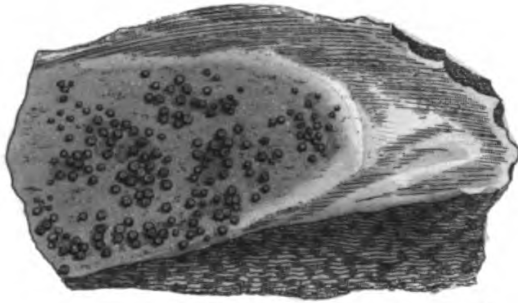


June 1810. Published by J. G. Smith, London.



253

2088.



*Lecanora thelostoma*

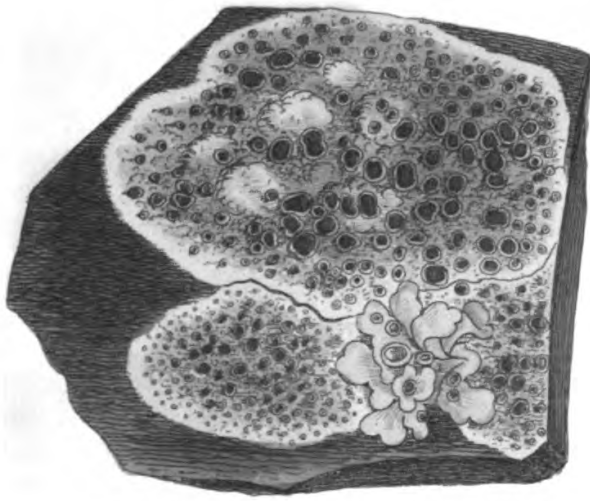
May, 1880 published by J. S. Burby, London



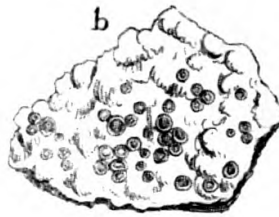
2109.

2089.

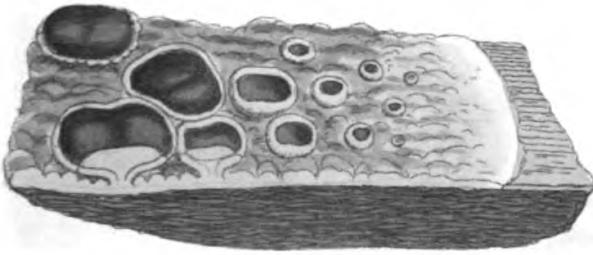
a



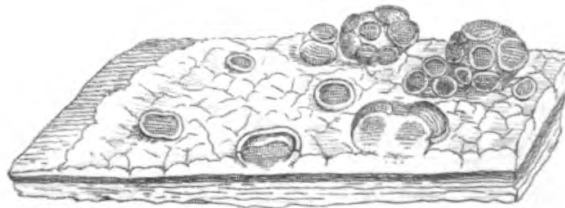
b



a



c



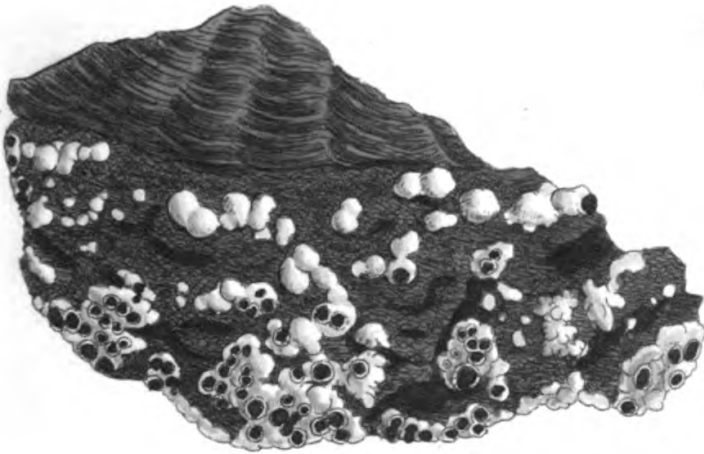
*Lecanora subfusca?*

*Jan. 1880 published by J. Swartz London*



2273

2090.



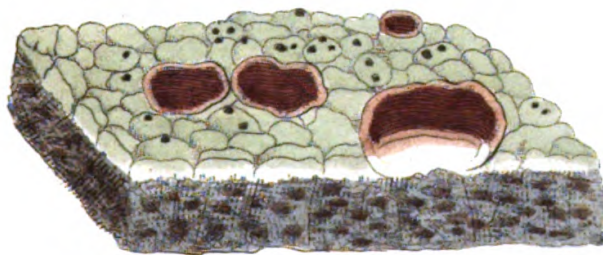
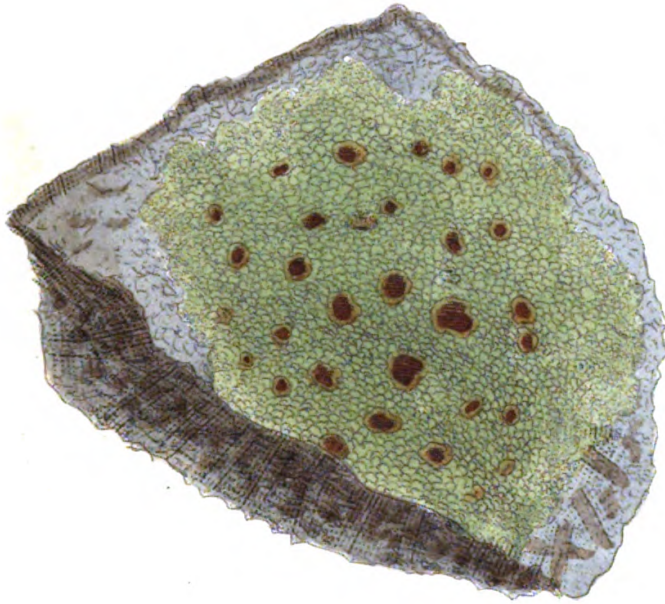
*Lecanora frustulosa?*

*As published by J. Sowerby London.*





906  
2091.



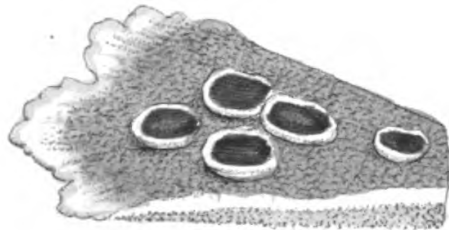
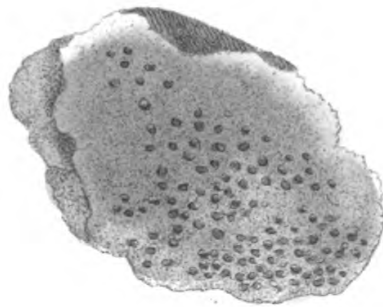
*Lecanora ventosa?*

*July 1, 1851. Collected by J. A. Sowerby, London.*



Pl. 10

2092.



*Lecanora caesio-rufa?*

July 1. 1802 Published by Ja<sup>s</sup> Sowerby London.



It grows sometimes on rocks and walls, and is then of a thicker and more chalk-like substance, see fig. *b*.

The colour of the thallus varies, and is sometimes greenish, as in the variety figured at *c*, sent by Mr. Lyell, from beeches in the New Forest; the apothecia of which are of a darker brown, more tumid, and partly proliferous or compound.

“*L. angulosa*, of Acharius, appears to be only a variety of this species, found in the north of England and Scotland.”—Hooker.

**LECANORA FRUSTULOSA.** *White-scaled Lecanora.* TAB. 2090.

Thallus tartareous, yellowish-white, in dispersed, tumid warts, eventually somewhat imbricated, lobed and variously shaped. Apothecia dark-brown, at length convex, with a crenate border.

Lichen frustulosus, *Dickson Crypt. fasc. 3. 13. tab. 8. fig. 10.* *E. B.* 2273. *Lecanora frustulosa*, *Acharius Syn.* 159. *Hooker Crypt. Part 1.* 189.

Found on rocks of micaceous schist, on the Breadalbane mountains of Scotland. The thallus consists of little roundish, tumid, smooth, tartareous lumps, externally of a pale yellowish- or greenish-white; which eventually become crowded, lobed at the edges, and somewhat imbricated, assuming various shapes. Apothecia numerous, rather elevated; their disc dark-brown, concave at first, finally convex and blackish; border rather thick, inflexed, crenate, sometimes jagged on the inner edge.

Mr. Dickson describes a black under-crust or stratum, not apparent in our specimens.

\*\* *Apothecia red or yellow, sometimes inclining to brown, but never black.*

**LECANORA VENTOSA.** *Red-spangled Lecanora.* TAB. 2091.

Thallus thick, cracked, the areolæ tumid, greenish sulphur-coloured or whitish. Apothecia appressed, convex, irregular, blood-red, rising above the very narrow border.

Lichen ventosus, *Linn. E. B.* 906. *Lecanora ventosa*, *Acharius Syn.* 159. *Hooker Crypt. Part 1.* 189.

The most beautiful of our native *Lecanoræ*, and very abundant on rocks in most mountainous districts, especially those which belong to the granitic series. Thallus forming patches six or eight inches broad, rather thick, readily separable from the rocks in moist weather, apparently composed of a congeries of crowded, tumid, smooth warts, of a pale yellowish-green or sulphur-colour, changing to white by age. Apothecia numerous, scattered, of a crimson or blood-red, irregular in size and shape, a little tumid, and rising eventually above the narrow border so as frequently to obliterate it.

**LECANORA CÆSIO-RUFA.** *Grey and red Lecanora.* TAB. 2092.

Thallus limited, lobed, granulated, pale grey. Apothecia tawny-red, flattish, with a thick, undulated border.

Lichen cæsio-rufus, *Schrader*. *E. B.* 1040. *Lecanora cæsio-rufa*, *Hooker Crypt. Part 1.* 189. *L. rubricosa*, *Acharius Syn.* 162.

A native of walls of brick and stone in the eastern counties of England, especially Norfolk and Cambridgeshire. Thallus whitish-grey, rather thin, with a granulated surface; it forms roundish patches, the margin of which is more or less lobed and crenated. Apothecia irregularly scattered, small, sessile, flattish; their disc of a deep orange or tawny-red, passing into brown; border thick, crenate and waved.

**LECANORA RUBRA.** *Red-shielded Elm Lecanora.* **TAB. 2093.**

Thallus leprous, white, thin, uneven, continuous. Apothecia numerous, sessile, concave, brownish salmon-colour, with a thick, elevated, powdery, crenate, inflexed border.

Lichen ulmi, *Swartz*. *E. B.* 2218. *Lecanora rubra*, *Acharius Syn.* 177. *Hooker Crypt. Part 1.* 190.

Found by Mr. Borrer, on the bark of old elm-trees, near Greta Bridge, Yorkshire. The white, leprous thallus spreads widely over the bark. Apothecia numerous, scattered, sessile, of a brownish salmon-colour, or red, very concave; with a thick, inflexed, crenate, more or less powdery border. When old the disc often falls out, leaving a white cup-like hollow. An elegant species.

**LECANORA HÆMATOMMA.** *Blood-specked Lecanora.* **TAB. 2094.**

Thallus leprous, somewhat tartareous, pulverulent, white or pale sulphur-coloured, with a fibrous border. Apothecia imbedded, scarlet, concave, when old convex; the border thick, white, elevated, remarkably inflexed, mealy, at length spreading.

Lichen Hæmatomma, *Ehrhart*. *E. B.* 486. *Lecanora Hæmatomma*, *Acharius Syn.* 170. *Hooker Crypt. Part 1.* 190.

Grows upon rocks and walls in various parts of the kingdom. Thallus spreading widely, greyish or greenish-white, thin; its border when young white as snow, and composed of very fine parallel fibres. Apothecia minute, imbedded in the crust, of a pale vermilion hue, concave, inclosed by a very thick, prominent, and inflexed border; eventually they become more elevated and of a darker hue.

At first sight this Lichen appears like a powdery *Byssus*, through whose substance minute points of the brick on which it grows, had, by accidental attrition, become visible; but these red points are on examination found to be the fructification.

*Lichen coccineus*, *Dickson*, and *E. B.* 223, is referable to this species.

**LECANORA CERINA.** *Waxy Lecanora.* **TAB. 2095.**

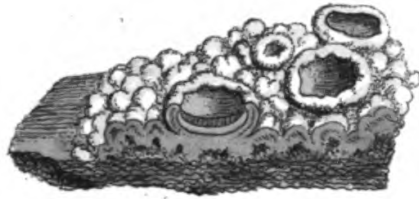
Thallus somewhat granulated, greyish-white. Apothecia scattered, flat, yellow, waxy, elevated; the border inflexed, somewhat pruinose.

Lichen cerinus, *Dickson Crypt. fasc. 3.* 14. *E. B.* 627. *Lecanora cerina*, *Acharius Syn.* 173. *Hooker Crypt. Part 1.* 190.

Found on the trunks of oaks and other trees, in Norfolk, about

2218.

2093.



*Lecanora rubra?*

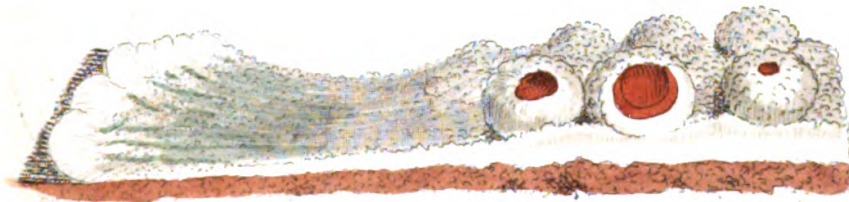
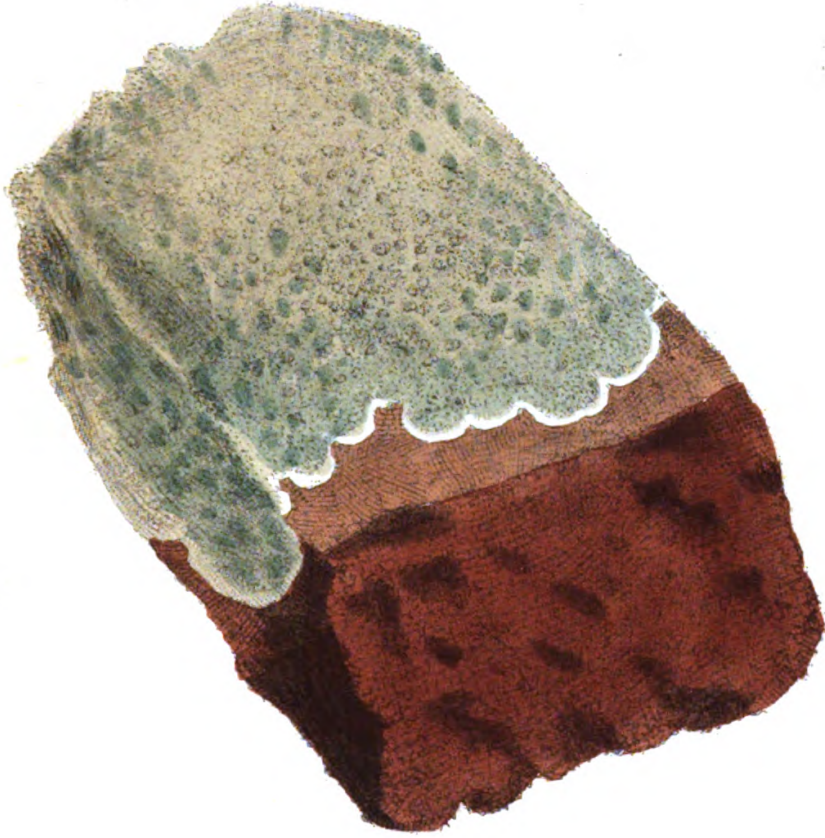
*Now in manuscript by J. S. Kewley, London.*





496

2094.



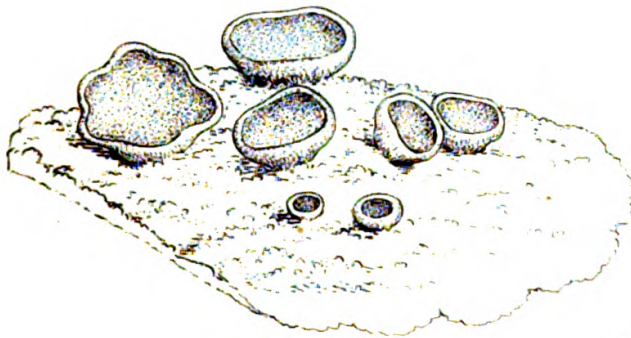
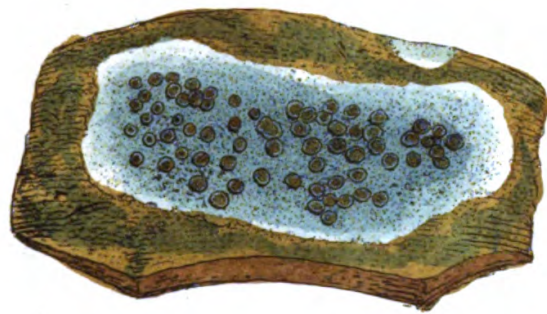
*Lecanora Hematomma?*

*Imy. 1799. DeWardoff in L. Linn.*



627

2093.



*Lecanora cerina?*

*Lecanora cerina? (Lecanora cerina?)*



230

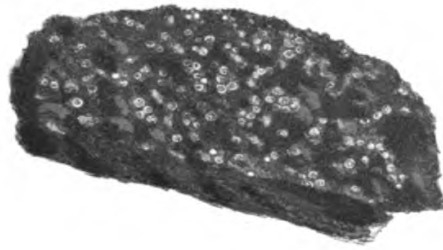
2096.



*Lecanora crenulata*

Sept. 1 1801 Published by Jas. Sowerby, London.





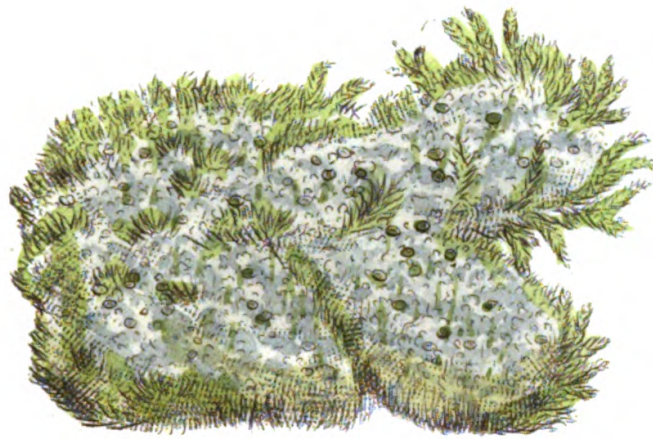
*Lecanora byssina?*





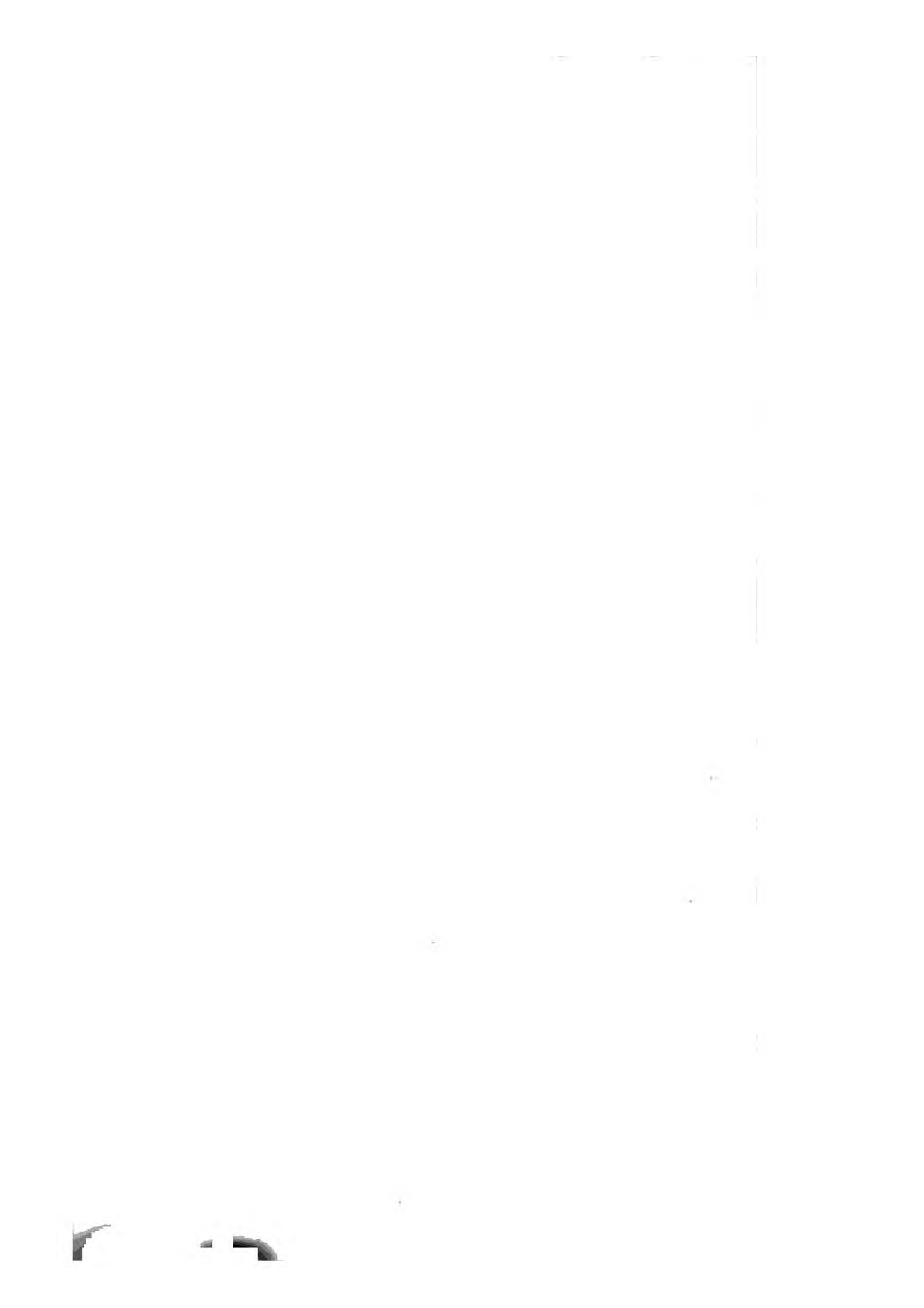
1373

2098.



*Lecanora chloroleuca?*

Oct. 1. 1804. Published by J. Sowerby London.



London, and elsewhere in the south of England. Thallus very thin, rugged, greyish-white, spreading concentrically with a very white margin. Apothecia more or less scattered, a little elevated from the crust; their disc flat, or concave, eventually rather convex, of the colour of bees-wax when dry, greenish when wet; margin rounded, entire, broad, smooth, inflexed, often undulated in age.

**LECANORA CRENULATA.** *Little crenated Lecanora.* TAB. 2096.

Thallus scattered, ash-coloured, very thin. Apothecia minute, dispersed, brownish-grey, with an elevated, crenated, whitish border. Lichen crenulatus, *Dickson Crypt. fasc. 3. 14. tab. 9. fig. 1.* E. B. 930. *Lecanora crenulata*, *Hooker Crypt. Part 1. 190.* *L. galactina*,  $\beta$ . *Acharius Syn. 187.*

Found on limestone rocks in the mountainous parts of England. The thallus is so thin and fugacious as not to be always discernible. Apothecia a little elevated, various in size, but always very small; their disc obscurely convex, smooth, waxy, of a yellowish- or brownish-grey; border conspicuous, rounded, smooth, not mealy, elegantly notched so as to appear almost beaded, pale yellowish-white.

**LECANORA BYSSINA.** *Mealy-bordered Lecanora.* TAB. 2097.

Thallus powdery, brownish, indeterminate. Apothecia flat, dull-yellow, with a very white, mealy, elevated border, shown by age to be double.

Lichen byssinus, *Dickson Crypt. fasc. 2. 19.* E. B. 432. *Lecanora byssina*, *Hooker Crypt. Part 1. 190.*

Mr. Dickson first observed this species in Britain, growing upon trees and stones in Scotland. Our specimen is upon a piece of brick, and was found near London. Thallus thin, with an indeterminate margin, slightly powdery, of a brown hue more or less dark: it sometimes acquires a thickness equal to coarse paper, and then its inner substance is whitish. Disc of the apothecia very flat, of a dull-yellow or buff-colour, border elevated, mealy or almost downy, composed of two coats or layers only distinguishable in maturity.

“This and the preceding are, to me, very obscure plants. Acharius seems inclined to refer the present to *L. cerina*, but the figure is very unlike that species.”—*Hooker.*

In structure it ill accords with the rest of the genus.

**LECANORA CHLOROLEUCA.** *Green and White Lecanora.* TAB. 2098.

Thallus white, leprous, very thin. Apothecia crowded, elevated, flat, olive-green; the border white, undulated.

Lichen chloroleucus, E. B. 1373. *Lecanora chloroleuca*, *Acharius Syn. 160.* *Hooker Crypt. Part 1. 190.*

Overruns mosses in mountainous countries, especially in calcareous districts. Thallus very thin, white. Apothecia numerous, more or less rounded; their disc flat, greenish-yellow at first, eventually of a dark or bottle-green; border waved, much elevated.

**LECANORA VARIA.** *Variable-shielded Lecanora.* TAB. 2099.

Thallus thin, granulated, scattered, pale yellowish-green. Apothecia crowded, flattish, buff or brown; their border waved, irregular, inflexed.

Lichen varius, *Acharius Prod. E. B.* 1666. *Lecanora varia*, *Ach. Syn.* 161. *Hooker Crypt. Part 1.* 190.

Grows on old posts, pales, and other exposed wood-work, likewise on rocks. Thallus of a uniform pale sulphur-colour, smooth, not mealy; when young even and uninterrupted, eventually becoming cracked, scattered, and sometimes granulated. Apothecia small, numerous, and generally so crowded as to become angular and deformed: disc nearly flat, in general pale-brown inclining to buff, but often red-brown or blackish: margin thick, smooth and even when young; waved, zigzag, and notched when old.

**LECANORA ALBELLA.** *Cream-coloured Lecanora.* TAB. 2100.

Thallus leprous, thin, continued, cream-coloured, somewhat polished. Apothecia sessile, whitish-buff, uneven, with a thin, white, wavy border.

Lichen albello, *Persoon. E. B.* 2154. *Lecanora albella*, *Acharius Syn.* 168. *Hooker Crypt. Part 1.* 191.

Common on the smooth bark of trees, on which the thallus forms roundish, inseparable patches, of a yellowish-white or cream-colour, with more or less of a lucid polish, or a silvery gloss. Apothecia numerous, scattered, sessile; their disc uneven, concave at first, eventually convex, pale buff, with a slight mealy aspect, and some tinge of flesh-colour when examined by a glass; border white, thin, even, at length wavy, and finally overtopped by the swelling disc.

**LECANORA CARNEO-LUTEA.** *Pale Crack-shielded Lecanora.* TAB. 2101.

Thallus membranous, extremely thin, indeterminate, white, smooth. Apothecia depressed, minute, flattish, flesh-coloured; when young covered by their white margin, which cracks in the centre.

Lichen carneo-luteus, *E. B.* 2010. *Lecanora carneo-lutea*, *Acharius Syn.* 171. *Hooker Crypt. Part 1.* 191. *Parmelia carneo-lutea*, *Turner in Linn. Trans.* 9. 145. *tab. 12. fig. 2.*

Found on trunks of elms, in Sussex and the Isle of Wight. The thallus forms white, smooth, indeterminate patches, inseparable from the bark. Apothecia numerous, minute, sunk or depressed, remarkable for each being concealed when young by its white border, which afterwards cracks in the centre, in an irregular star-like manner, and finally becomes almost obliterated: disc when fully formed flattish or but slightly convex, of a pale yellowish flesh-colour, usually surrounded by some uneven remains of the border.

**LECANORA PARELLA.** *Crab's-eye Lecanora, or Perelle.* TAB. 2102.

Thallus dirty-white, determinate, plicato-verrucose. Apothecia scat-

1666.

2099.



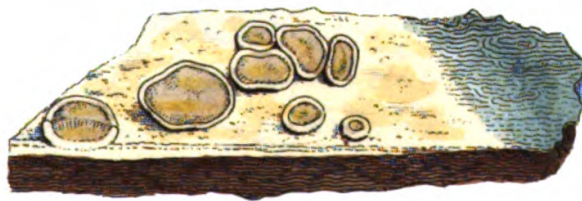
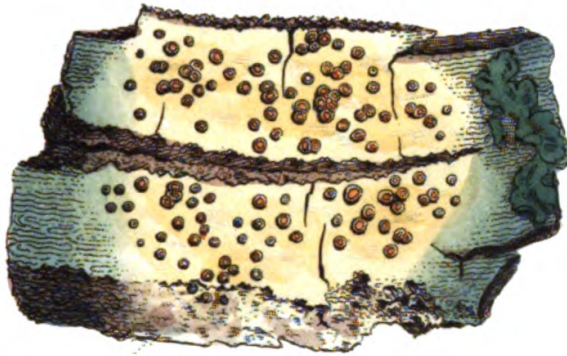
*Lecanora varia?*

Nov. 1806. Published by J. Sowerby, London.



2154.

2100.



*Lecanora albella?*

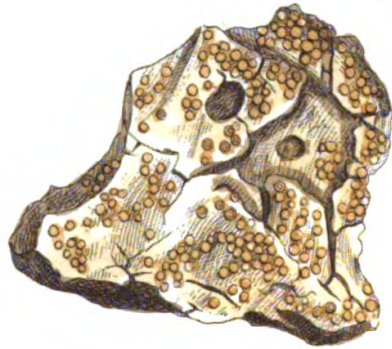
May 1. 1870 published by J. Sowerby London





2010

2101.



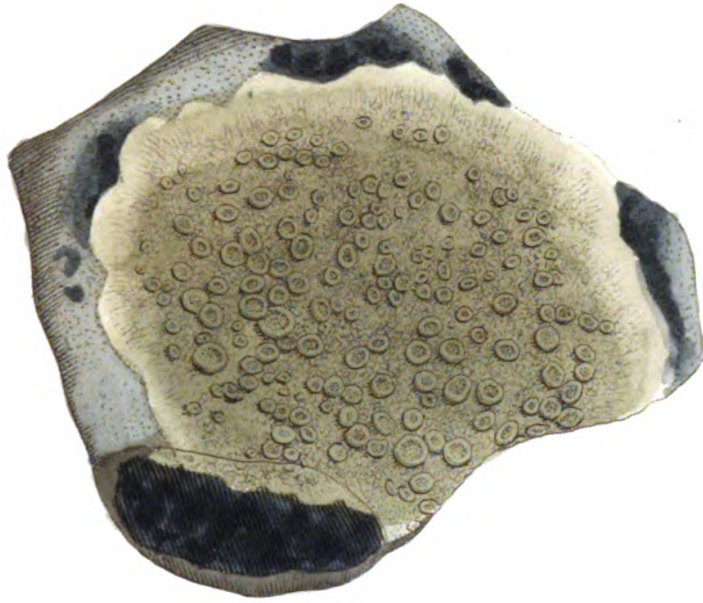
*Lecanora carneo-lutea?*

April 1 1809 Published by Ja<sup>s</sup> Sowerby London



727

2102.



*Lecanora Parella?*

*Lecanora Parella?*



156.

2103



*Lecanora tartarea*

718. 1779



tered, thick ; the disc concave, of the same colour as the thick, tumid, even border.

Lichen Parellus, *Linn. E. B.* 727. *Lecanora Parella, Acharius Syn.* 169. *Hooker Crypt. Part 1.* 191.

Found on exposed rocks and stones in mountainous districts, sometimes on walls, occasionally on stones by the sea-shore. The thallus forms white, very conspicuous, roundish patches, closely adhering to the medium on which it vegetates, but easily scraped off ; it varies in thickness, has a granulated but not powdery surface, and a thin, rugged, very white, spreading border. Apothecia abundant, of the same colour as the crust, rather concave, with a thick, elevated, smoothish border ; the disc occasionally becomes convex and warty.

This species, which is very common in some parts of the south of France, where it is known by the name of *Perelle d'Auvergne*, is extensively employed there in dyeing, and is said to be far superior for that purpose to the following, *L. tartarea*, and even equal to Archill or Litmus, *Rocella tinctoria*. The colour furnished by it has rather more of a violet hue than that of *L. tartarea*, and is prepared by similar processes ; both are capable of being so modified as to produce any tinge of purple or crimson.

LECANORA TARTAREA. *Tartareous Lecanora, or Cudbear.*  
TAB. 2103.

Thallus thick, granulated and tartareous, greyish-white. Apothecia scattered ; the disc convex, at length plane or tumid, yellow-brown inclining to flesh-colour ; the border thick, inflexed, eventually undulated.

Lichen tartareus, *Linn. E. B.* 156. *Lecanora tartarea, Acharius Syn.* 172. *Hooker Crypt. Part 1.* 191.

The largest of our crustaceous Lichens. Frequent and abundant on rocks in the mountainous districts of Wales, the north of England, and Scotland. The thallus has a tuberculated surface, is externally of a greyish-white, snow-white within : in thickness it varies from an inseparable film running over mosses and turf and assuming their forms, to a solid substance of a quarter of an inch or more and forming patches of eight or ten inches in diameter. Apothecia from a line to half an inch in breadth, more or less flat or convex, smooth, not shining, of a yellowish-buff colour, with a white, elevated, often rugged border ; occasionally proliferous or aggregated.

This lichen has been employed, both in Wales and Scotland, from a very early period, to communicate a purple dye to wool. It is prepared for use with volatile alkali and alum, but the exact process is kept a secret by the manufacturers. When sold to the dyers, it appears in the form of a purple powder, called Cudbear, a corruption of the Christian name of Dr. Cuthbert (otherwise Cuddy) Gordon, the first person who brought it into extensive use, and who took out a patent for a new process of preparing it. Johnston informs us, that in the Highlands of Scotland many an industrious peasant obtains a living by scraping this lichen off the rocks with an iron hoop, and sending it to the Glasgow market ; and Sir W. J. Hooker states,



that in the neighbourhood of Fort Augustus, he was informed that a person could earn 14s. a week at this work, selling the material at 3s. 4d. the stone of 22 lbs. The collectors always prefer those specimens which are of a firm dense texture, and they never scrape the same rock more than once in 5 years. It is considered most valuable when in fructification. The quantity collected in Britain is, however, small compared with the demand; hence considerable importations from other countries are made annually, of which Sweden supplies about 150 tons, which averages in the port of London £20 per ton.

The colour from Cudbear is far from being permanent, and it cannot be communicated to vegetable substances.

The two following are undoubtedly varieties of this species, however differing from it in general aspect.

**LECANORA UPSALIENSIS.** *Upsal Lecanora.* TAB. 2104.

Thallus thin, glossy, glaucous-white, bearing slender awl-shaped bristles. Apothecia flat, pale, with a thick smooth border.

Lichen Upsaliensis, *Linn. E. B.* 1634. *Dickson Crypt. fasc.* 1. 12. *tab.* 2. *fig.* 7. *Parmelia parella*,  $\gamma$ . *Acharius Meth.*

Found on barren sandy heaths, in Norfolk and elsewhere.

**LECANORA FRIGIDA.** *Branched Moss Lecanora.* TAB. 2105.

Thallus thin, smooth, closely adherent, whitish, bearing branched bristles. Apothecia yellowish flesh-colour, with a white smooth border.

Lichen frigidus, *Swartz. E. B.* 1879. *Dickson Crypt. fasc.* 2. 19. *Lecanora tartarea*,  $\gamma$ . *frigida*, *Acharius Syn.* 172.

Found growing upon decaying mosses, heaths, and other small plants, enveloping them with its thin tenacious crust like a stalactitical incrustation, and taking all their forms.

The difference in habit of this and *L. Upsaliensis*, and the more or less branched bristles of the thallus in both, induced most of the older lichenologists to regard them as distinct species from *L. tartarea*; but they have all the same pungent odour when moistened, and yield, under similar processes, the colouring matter for which that is so celebrated; independent of which intermediate states are met with, proving that their respective peculiarities are merely the result of their vegetation on different mediums.

**LECANORA TURNERI.** *Mealy flesh-coloured Lecanora.* TAB. 2106.

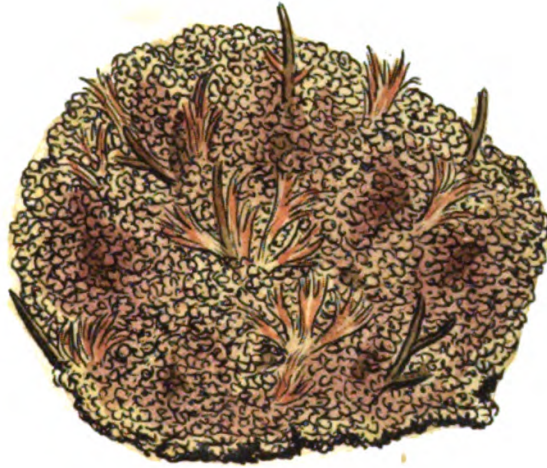
Thallus leprous, very mealy, greenish-white. Apothecia flesh-coloured, powdery; with a very thick, rounded, entire, mealy margin.

Lichen Turneri, *E. B.* 857. *Lecanora Turneri*, *Acharius Syn.* 170. *Hooker Crypt. Part* 1. 191.

Met with on the bark of old oaks and other trees, forming an unequal, indeterminate, soft, powdery stratum, of a greyish-white when dry, greenish in a moist state. Apothecia a little elevated; their disc flat, powdery, flesh-coloured, almost orange when young, and at

1634

2104.



*Lecanora upsaliensis*

Aug 1866. Published by Jas. Sowerby, London.



1879

2105.



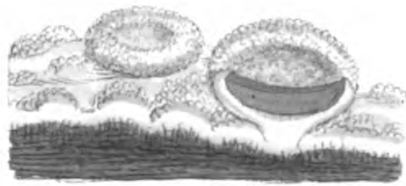
*Lecanora frigidus.*

May 1, 1868. Published by J. & S. Edwards, London.



857

2106



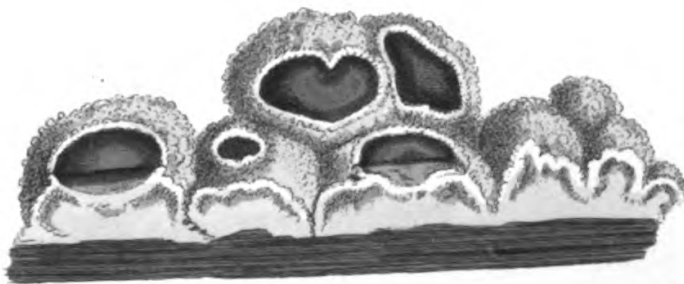
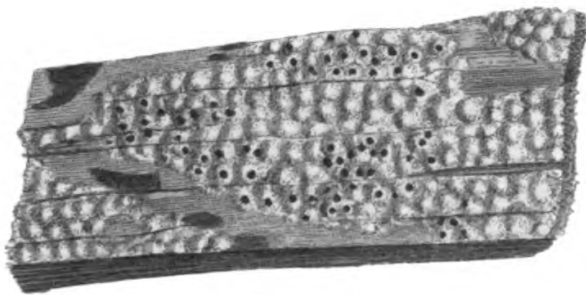
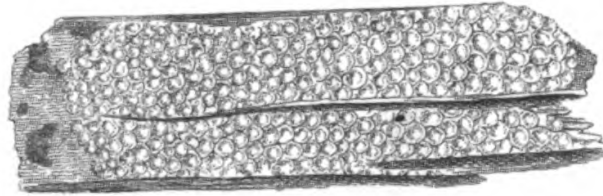
*Lecanora Tumeri?*

March 1. 1801. Published by Jaf. Sowerby, London.



2727.

2107.



*Lecanora farinaria?*

January 1<sup>st</sup> 1832





1879

2105.

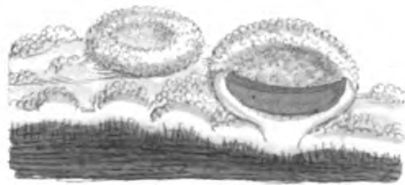


*Lecanora frigidus.*

May 1. 1868. Published by J. S. Sowerby, London.



857  
2106



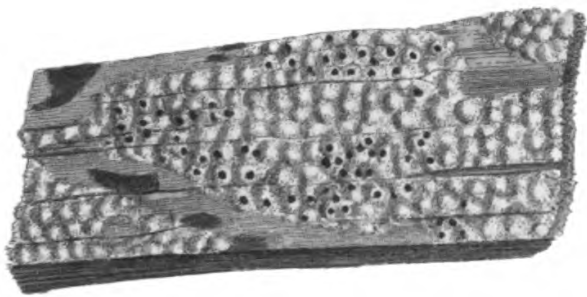
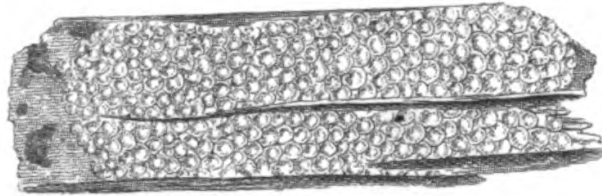
*Lecanora Turneri?*

March 1, 1801. Published by Jas. Sowerby, London.



2727.

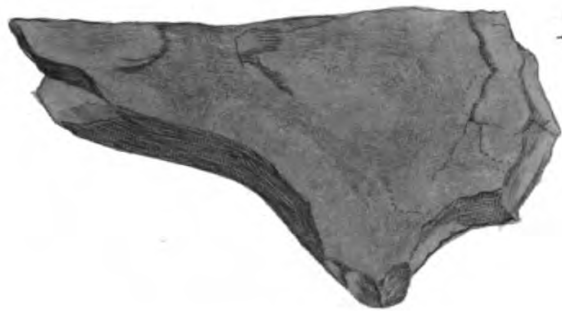
2107.



*Lecanora farinaria?*

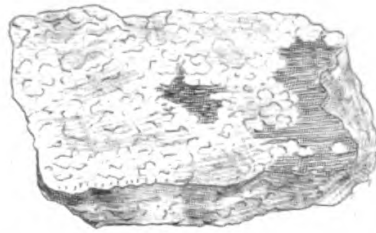
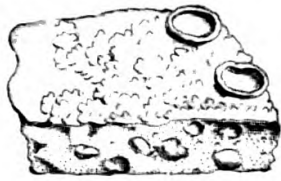
January 1<sup>st</sup> 1852.



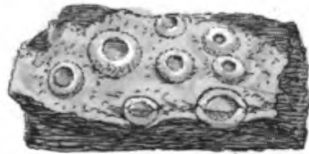


1793

2108.



*Lecanora*



*citrina?*

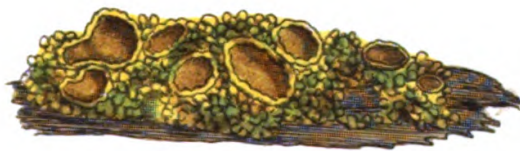
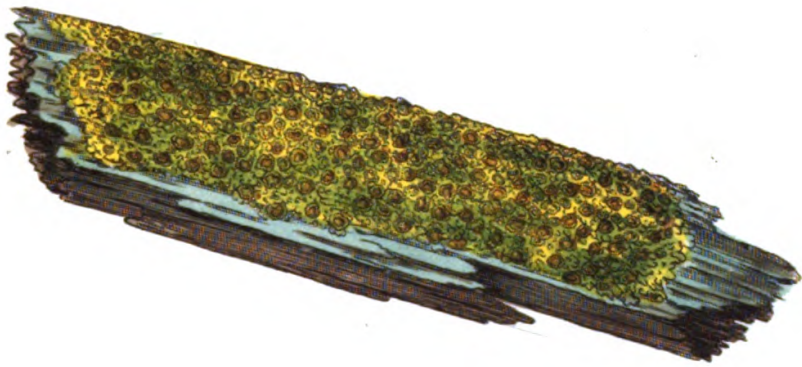
*Sept. 1807. Published by Jas. Sowerby London.*





1792

2109.



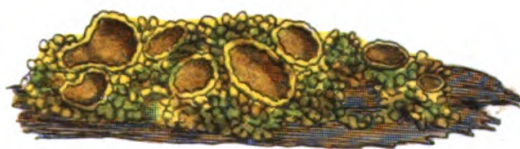
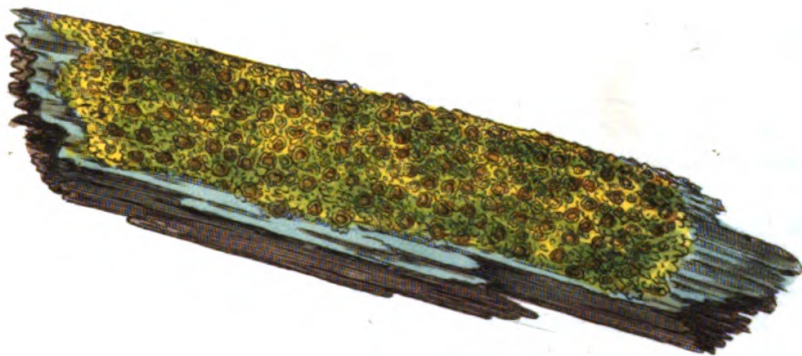
*Lecanora vitellina?*

Sept. 21807. Published by Jas. Sowerby London.



1792

2109.



*Lecanora vitellina*

Sept. 11607. Published by Jas. Sowerby London.



all times of a deeper hue within ; border thick, rounded, prominent, undivided.

“Too near perhaps to *L. tartarea*.”—*Hooker*.

**LECANORA FARINARIA.** *White mealy-crustec Lecanora.* TAB. 2107.

Thallus indeterminate, soft, mealy, pulvinulate, white. Apothecia slightly elevated ; disc livid-brown, pale within ; border mealy, uneven.

*Lecanora farinaria*, *Borrer in E. B. Supp.* 2727.

Not uncommon on old rails in Sussex, but rarely bearing fructification. Thallus composed of minute mealy particles, with a filmy or slightly tartareous substratum occasionally observable beneath them, from which they burst, but usually soon conceal, becoming confluent in small, roundish, pulvinate masses, and forming an uneven, white or greenish-white crust, often spreading to a considerable extent. Apothecia small, with a thickish, often wavy, inflexed border, which in old specimens is sometimes so depressed as to leave the edges of the disc bare, and render the generic character ambiguous ; disc eventually convex, livid-brown ; when dry nearly black, paler or white within.

Mr. Borrer remarks on the general resemblance of this plant to *Lecidea pulverea*, *Lecanora Turneri*, and a white variety of *L. Hæmatomma*, *L. Stonei* of Acharius, but that the thallus has not the peculiar fibrous edges remarkable in the two latter lichens, and is otherwise different from both in structure.

**LECANORA CITRINA.** *Lemon-coloured Wall Lecanora.* TAB. 2108.

Thallus leprous, powdery, indeterminate, bright lemon-coloured. Apothecia scattered, sessile, minute, orange-coloured, with a pale yellow, powdery border.

*Lichen citrinus*, *Acharius Prod. E. B.* 1793. *Lecanora citrina*, *Ach. Syn.* 176. *Hooker Crypt. Part 1.* 192.

Common on brick and flint walls, in Norfolk and elsewhere, and very conspicuous and brilliant in the wet months of spring. Thallus indeterminate, powdery, friable, cracked when dry. Apothecia sparingly produced, imbedded in the powder of the crust ; their disc flat, deep-yellow ; border thick, elevated, powdery.

**LECANORA VITELLINA.** *Yolk-of-egg Lecanora.* TAB. 2109.

Thallus leprous, granulated, indeterminate, bright greenish-yellow. Apothecia clustered, sessile, flat, tawny-yellow, eventually convex and brownish ; the border elevated, crenate.

*Lichen vitellinus*, *Ehrhart. E. B.* 1792. *Lecanora vitellina*, *Acharius Syn.* 174. *Hooker Crypt. Part 1.* 192.

Common on garden pales, rails, and other wrought wood, especially deal, when long exposed to the weather, but rarely, if ever, on the bark of trees ; sometimes on brick-walls. The thallus spreads in

oblong patches, conforming generally to the grain of the wood, and consists of minute granulations, of a very conspicuous yellow colour inclining to green, looking as if the boards had been besmeared with yolk of egg. Apothecia not abundant; but, when occurring, usually crowded, of a dull tawny-yellow: border elevated, crenate or granulated. By age the disc becomes somewhat convex, and olive-coloured or brownish.

LECANORA PEZIZOIDES. *Flat-shielded brown scaly Lecanora.*

TAB. 2110.

Thallus of minute, lobed, convex, confluent, greyish-brown scales. Apothecia flattish, sinuated; disc yellowish-brown; border slightly elevated, narrow, crenulate.

*Lecanora pezizoides*, Borrer in *E. B. Supp.* 2801. *Lecanora brunnea*, Acharius *Syn.* 193. "Lichen pezizoides, Dickson *Crypt. fasc.* 1. 10. *tab.* 2. *fig.* 4."

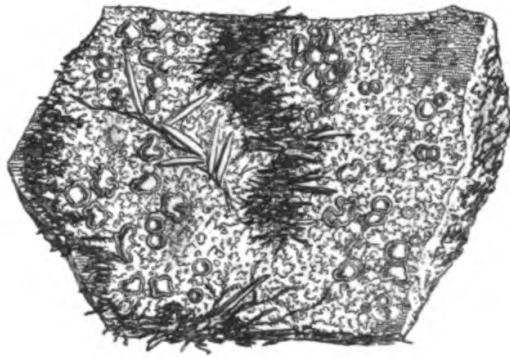
Mountainous districts of England, Scotland and Ireland produce this beautiful but ill-understood lichen. It grows in mossy spots, on the ground, on rocks, and sometimes on rotten wood. The specimen figured at *a* was sent from Bantry by Miss Hutchins; that at *b* from Howick Scar, Yorkshire, by Mr. W. Robertson. Thallus in irregular patches, composed of minute, tartareous, convex scales, bluish-green within, greyish-brown and unpolished without, more or less confluent, and forming a very uneven crust: when most distinct, much lobed and crenate, and usually paler at the edges. Old specimens are sometimes almost black. Apothecia numerous, mostly crowded, sessile, orbicular at first, afterwards often variously lobed and flexuose, or confluent: disc flat or slightly convex, yellowish-brown varying to chestnut or darker; redder and more tumid when wet: margin inflexed, plicate, notched, or crenulate, and, except in very young patellulæ, narrow, and but little raised above the edges of the disc.

Mr. Borrer, to whom we owe the present allotment of this lichen, observes that it has been so much confounded by previous botanists with *Lecidea coronata*, that some difficulty attends the distribution of their respective synonyms. Our Tab. 2057 (1246 of the first edition) represents the *Lecidea*, but not very satisfactorily, the accessory nature of the occasional thalloidal margin to the patellulæ not being well-expressed; nor, of course, would its difference from the genuine thalloidal margin of the species before us, and which constitutes their generic distinction, be apparent from a comparison of the plates.

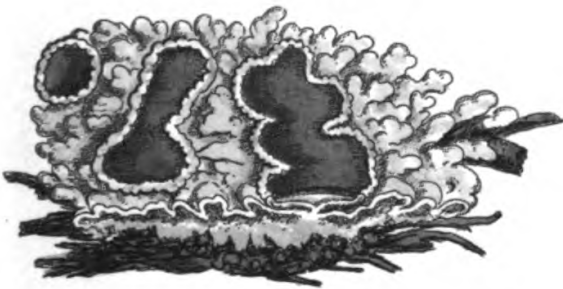
The species is a very equivocal one, and the value of the present generic characters is not enhanced by a strict examination of specimens of *Lecanora pezizoides* with those of *Lecidea coronata* and *Lecidea escharoides*



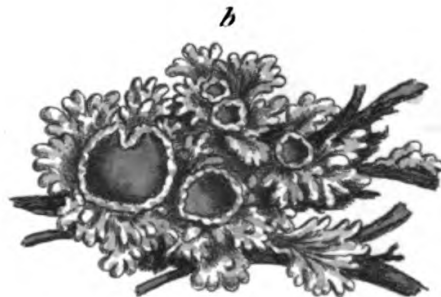
a



b



a



b

*Lecanora pezizoides.*





INDEX  
OF THE LATIN NAMES

IN VOL. X.

[Synonyms and names incidentally mentioned are printed in Italics.]

	page.	tab.		page.	tab.
<b>A</b> POTHECIA .....	2		<i>Chlorococcum murorum</i> ...	41	
Ardonia .....	11		— <i>vulgare</i> .....	41	1973
Arthonia impolita .....	11	1911	<i>Chroolepus Iolithus</i> .....	43	
— <i>lyncea</i> .....	13	1913	— <i>lichenicola</i> .....	43	
— <i>lurida</i> .....	11	1911	Cistulæ .....	2	
— <i>pruinosa</i> .....	11	1911	<i>Conferva lichenicola</i> .....	43	
— Swartziana .....	12	1912	Endocarpon aquaticum ...	31	1952
Bæomyceæ .....	4		— <i>complicatum</i> .....	31	
<i>Bæomyces</i> .....	2		— <i>euplocum</i> .....	33	1958
<i>Bæomyces placophyllus</i> ...	5		— <i>fuscillum</i> .....	35	1962
— <i>roseus</i> .....	5	1893	— <i>fuscillum</i> .....	36	
— <i>roseus</i> .....	75		— Hedwigii.....	31	1953
— <i>rufus</i> .....	5	1894	— <i>Hedwigii</i> .....	33	
<i>Byssus candellaris</i> .....	42	1975	— <i>lachneum</i> .....	31	1954
— <i>incana</i> .....	69	2052	— <i>læte-virens</i> .....	34	1959
— <i>Iolithus</i> .....	42	1978	— <i>leptophyllum</i> .....	33	1957
— <i>luctea</i> .....	42	1976	— <i>miniatum</i> .....	30	1951
Calicioideæ .....	5		— <i>miniatum</i> β.....	34	1958
<i>Calicium</i> .....	2		— <i>pallidum</i> .....	31	1955
<i>Calicium æruginosum</i> .....	9	1908	— <i>polystictum</i> .....	35	1963
— <i>cantharellum</i> .....	10	1909	— <i>polythecium</i> .....	35	1962
— <i>capitelum</i> .....	10	1910	— <i>psoromoides</i> .....	31	1956
— <i>chlorellum</i> .....	8	1904	— <i>pulchellum</i> .....	33	1958
— <i>chrysocephalum</i> .....	8	1902	— <i>pusillum</i> .....	34	1958
— <i>clavellum</i> .....	7	1900	— <i>sinopicum</i> .....	36	1964
— <i>claviculare</i> .....	7	1900	— <i>smaragdulum</i> .....	35	1960
— <i>curtum</i> .....	9	1905	— <i>sorediatum</i> .....	32	1956
— <i>debile</i> .....	9	1906	— <i>squamulosum</i> .....	31	1957
— <i>ferrugineum</i> .....	7	1899	— <i>squamulosum</i> .....	33	
— <i>furfuraceum</i> .....	10	1910	— <i>tephroides</i> .....	35	1961
— <i>hyperellum</i> .....	8	1901	— <i>tephroides</i> β .....	35	1962
— <i>microcephalum</i> .....	6	1896	— <i>trapeziforme</i> .....	31	1953
— <i>pallidum</i> .....	10	1909	— <i>umbilicatum</i> .....	31	1951
— <i>peronellum</i> .....	10	1909	— <i>viride</i> .....	34	1959
— <i>phæocephalum</i> .....	8	1903	— <i>viridulum</i> .....	27	1944*
— <i>sessile</i> .....	6	1895	<i>Endocarpon</i> .....	2	
— <i>sphærocephalum</i> ...	9	1907	<i>Epithallus</i> .....	2	
— <i>stigonellum</i> .....	6		<i>Fronde</i> .....	1	
— <i>tigillare</i> .....	6	1897	<i>Gongyli</i> .....	40	
— <i>tympanellum</i> .....	7	1898	<i>Graphidæ</i> .....	10	
— <i>turbinatum</i> .....	6		<i>Graphis</i> .....	16	
<i>Cephalodia</i> .....	2		<i>Graphis dendritica</i> .....	17	1929

	page.	tab.		page.	tab.
<i>Graphis elegans</i> .....	16	1926	<i>Lecanora tartarea</i> $\gamma$ .....	90	2105
— <i>Lyellii</i> .....	17	1928	— <i>thelostoma</i> .....	84	2088
— <i>microscopica</i> .....	13	1915	— <i>tuberculosa</i> .....	83	2085
<i>Gyalecta bryophila</i> .....	53	2004	— <i>Turneri</i> .....	90	2106
<i>Hypnum sericeum</i> .....	41		— <i>Upsaliensis</i> .....	90	2104
Hypothallus .....	2		— <i>varia</i> .....	88	2099
<i>Jungermannia dilatata</i> .....	33		— <i>ventosa</i> .....	85	2091
Lamina prolifera .....	2		— <i>verrucosa</i> .....	51	2002
<i>Lecanora aipospila</i> .....	81	2083	— <i>verrucosa</i> $\beta$ .....	52	2003
— <i>albella</i> .....	88	2100	— <i>vitellina</i> .....	91	2109
— <i>angulosa</i> .....	85	2089	Lecanoreæ .....	52	
— <i>apochræa</i> .....	47	1991	<i>Lecidea</i> .....	2	
— <i>aspera</i> .....	83	2086	<i>Lecidea abietina</i> .....	66	2042
— <i>atra</i> .....	84		— <i>æruginosa</i> .....	70	2055
— <i>atra</i> .....	80	2078	— <i>alabastrina</i> .....	76	2069
— <i>badia</i> .....	81	2082	— <i>albo-atra</i> .....	67	2045
— <i>brunnea</i> .....	92	2110	— <i>albo-atra</i> $\beta$ .....	67	2046
— <i>brunnea</i> $\beta$ .....	71	2057	— <i>albo-cærulescens</i> .....	65	2041
— <i>byssina</i> .....	87	2097	— <i>anomala</i> .....	72	2059
— <i>cæsio-rufa</i> .....	85	2092	— <i>anomala</i> $\beta$ .....	72	2060
— <i>cæsio-rufa</i> .....	74	2066	— <i>argena</i> .....	51	2002
— <i>carneo-lutea</i> .....	88	2101	— <i>aromatica</i> .....	61	2027
— <i>cerina</i> .....	86	2095	— <i>athrocarpa</i> .....	57	2016*
— <i>cervina</i> .....	81	2082	— <i>atrata</i> .....	56	2011
— <i>chloroleuca</i> .....	87	2098	— <i>atro-alba</i> .....	56	2013
— <i>cinereo-fusca</i> .....	74	2066	— <i>atro-alba</i> .....	83	
— <i>citrina</i> .....	91	2108	— <i>atro-cinerea</i> .....	56	2012
— <i>coarctata</i> .....	80	2081	— <i>atro-flava</i> .....	77	2074
— <i>coronata</i> .....	71	2057	— <i>atro-virens</i> $\beta$ .....	62	2031
— <i>crenulata</i> .....	87	2096	— <i>aurantiaca</i> .....	78	2076
— <i>cyrtaspis</i> .....	55	2009	— <i>carneola</i> .....	74	2064
— <i>effusa</i> .....	72	2060	— <i>cechumena</i> .....	57	2016
— <i>erythrella</i> .....	78	2077	— <i>cechumena</i> $\beta$ .....	57	2016*
— <i>exigua</i> .....	80	2079	— <i>chalybea</i> .....	59	2021
— <i>expallens</i> .....	70	2054	— <i>citrinella</i> .....	64	2034
— <i>farinaria</i> .....	91	2107	— <i>citrinella</i> $\beta$ .....	64	2035
— <i>frigida</i> .....	90	2105	— <i>concentrica</i> .....	58	2017
— <i>frustulosa</i> .....	85	2090	— <i>confluens</i> .....	58	2018
— <i>frustulosa</i> .....	30		— <i>contigua</i> .....	58	2019
— <i>galactina</i> $\beta$ .....	87	2096	— <i>coracina</i> .....	56	2011
— <i>glaucoma</i> .....	84	2087	— <i>cornea</i> .....	74	2064
— <i>Hæmatomma</i> .....	86	2094	— <i>coronata</i> .....	71	2057
— <i>Hæmatomma</i> .....	91		— <i>coronata</i> $\beta$ .....	72	2058
— <i>intricata</i> .....	77	2072	— <i>coronata</i> .....	92	
— <i>milvina</i> .....	81	2083	— <i>corticola</i> .....	67	2045
— <i>milvina</i> $\alpha$ .....	81	2083	— <i>decolorans</i> .....	71	2056
— <i>milvina</i> $\beta$ .....	75	2038	— <i>diacapsis</i> .....	58	2020
— <i>Parella</i> .....	88	2102	— <i>dolosa</i> .....	61	2026
— <i>periclea</i> .....	80	2080	— <i>dubia</i> .....	60	2024
— <i>periclea</i> $\beta$ .....	80	2079	— <i>effusa</i> .....	72	2066
— <i>privigna</i> .....	75	2038	— <i>Ehrhartiana</i> .....	76	2071
— <i>pezizoides</i> .....	92	2110	— <i>Ehrhartiana</i> $\beta$ .....	77	2072
— <i>rubra</i> .....	86	2093	— <i>enteroleuca</i> .....	61	2025
— <i>rubricosa</i> .....	86	2092	— <i>epipolia</i> .....	67	2046
— <i>salicina</i> .....	78	2076	— <i>erythrella</i> .....	78	2077
— <i>sophodes</i> .....	82	2084	— <i>escharoides</i> .....	72	2058
— <i>spodophæa</i> .....	82	2083	— <i>escharoides</i> .....	92	
— <i>squamulosa</i> .....	81	2082	— <i>expallens</i> .....	70	2054
— <i>Stonei</i> .....	91		— <i>ferruginea</i> .....	74	2066
— <i>subfusca</i> .....	84	2089	— <i>flavo-virescens</i> .....	63	2034
— <i>tartarea</i> .....	89	2103	— <i>fumosa</i> .....	57	2016

	page.	tab.		page.	tab.
<i>Lecidea fusco-atra</i> .....	57	2015	<i>Lecidea viridescens</i> .....	68	2050
— <i>fusco-lutea</i> .....	74	2065	— <i>viridi-atra</i> .....	62	2030
— <i>Gagei</i> .....	61	2026	<i>Lepraria</i> .....	2	
— <i>geographica</i> .....	62	2031	<i>Lepraria æruginosa</i> .....	41	
— <i>granularis</i> .....	76		— <i>alba</i> .....	42	1976
— <i>Griffithii</i> .....	60	2025	— <i>botryoides</i> .....	41	1973
— <i>humosa</i> .....	64	2036	— <i>chlorina</i> .....	41	
— <i>icmadophila</i> .....	74	2067	— <i>cinereo-sulphurea</i> ...	42	
— <i>immersa</i> .....	65	2039	— <i>flava</i> .....	42	1975
— <i>incana</i> .....	69	2052	— <i>incana</i> .....	69	2052
— <i>incompta</i> .....	67	2048	— <i>Iolithus</i> .....	42	1978
— <i>intricata</i> .....	76	2072	— <i>latebrarum</i> .....	41	
— <i>irrubata</i> .....	73	2062	— <i>lutescens</i> .....	41	
— <i>lapicida</i> .....	58	2019	— <i>murorum</i> .....	41	
— <i>lapicida</i> $\beta$ .....	58	2020	— <i>nigra</i> .....	42	1979
— <i>Lightfootii</i> .....	67	2047	— <i>ochracea</i> .....	41	1974
— <i>Lightfootii</i> .....	71		— <i>rubra</i> .....	42	1978
— <i>lucida</i> .....	77	2073	— <i>virescens</i> .....	42	1977
— <i>lutea</i> .....	76	2070	— <i>viridis</i> .....	41	1973
— <i>luteo-alba</i> .....	78	2075	— <i>viridis</i> .....	27	
— <i>luteola</i> .....	73	2063	<i>Leprariæ</i> .....	40	
— <i>lyncea</i> .....	13	1913	<i>Lichen abietinus</i> .....	66	2042
— <i>marmorea</i> .....	75	2068	— <i>Acharii</i> .....	54	2008
— <i>melizea</i> .....	76	2070	— <i>acicularis</i> .....	8	1904
— <i>miscella</i> .....	62	2030	— <i>acrotellus</i> .....	29	1948
— <i>muscorum</i> .....	62	2029	— <i>agelæus</i> .....	52	2003
— <i>(Ederi)</i> .....	63	2033	— <i>aipospilus</i> .....	82	2083
— <i>parasema</i> .....	60	2022	— <i>albelus</i> .....	88	2100
— <i>parasema</i> .....	60	2023	— <i>analeptus</i> .....	20	1933
— <i>petræa</i> .....	57	2017	— <i>aquaticus</i> .....	31	1951
— <i>pineti</i> .....	73	2060	— <i>argenus</i> .....	51	2002
— <i>pinicola</i> .....	60	2023	— <i>aromaticus</i> .....	61	2027
— <i>plocina</i> .....	15	1925	— <i>ater</i> .....	80	2078
— <i>polytropa</i> .....	77	2072	— <i>athrocarpus</i> .....	57	2016*
— <i>privigna</i> .....	75	2038	— <i>atratus</i> .....	56	2011
— <i>prominula</i> .....	59	2021	— <i>atro-albus</i> .....	56	2013
— <i>pruinosa</i> .....	65	2041	— <i>atro-cinereus</i> .....	56	2012
— <i>pulverea</i> .....	69	2051	— <i>atro-flavus</i> .....	77	2074
— <i>pulverea</i> .....	91		— <i>atro-virens</i> .....	62	2031
— <i>quadricolor</i> .....	71	2056	— <i>aurantiacus</i> .....	78	2076
— <i>rimosa</i> .....	66	2044	— <i>Bæomyces</i> .....	5	1893
— <i>rivulosa</i> .....	65	2040	— <i>brunneus</i> .....	71	2057
— <i>rosella</i> .....	76	2069	— <i>byssinus</i> .....	87	2097
— <i>rupestris</i> .....	73	2061	— <i>byssoides</i> .....	5	1894
— <i>sabuletorum</i> .....	62	2029	— <i>cæsio-rufus</i> .....	86	2092
— <i>sanguinaria</i> .....	61	2028	— <i>cæsius</i> .....	63	2033
— <i>saxicola</i> .....	67	2046	— <i>calvus</i> .....	73	2062
— <i>scabrosa</i> .....	64	2035	— <i>candidus</i> .....	67	
— <i>silacea</i> .....	63	2032	— <i>capitatus</i> .....	10	1910
— <i>simplex</i> .....	64	2038	— <i>carneo-luteus</i> .....	88	2101
— <i>speirea</i> .....	66	2043	— <i>cechumenus</i> .....	57	2016
— <i>speirea</i> .....	66	2044	— <i>cerinus</i> .....	86	2095
— <i>sulphurea</i> .....	70	2053	— <i>ceuthocarpus</i> .....	37	1966
— <i>synothea</i> .....	64	2037	— <i>chloroleucus</i> .....	87	2098
— <i>Turneriana</i> .....	77	2074	— <i>cinereus</i> .....	54	
— <i>uliginosa</i> .....	64	2036	— <i>cinereus</i> .....	54	2007
— <i>ulmicola</i> .....	78	2075	— <i>citrinellus</i> .....	63	2034
— <i>vernalis</i> .....	73	2063	— <i>citrinus</i> .....	91	2108
— <i>vernalis</i> .....	69		— <i>clavellus</i> .....	7	1900
— <i>verruculosa</i> .....	56	2014	— <i>coarctatus</i> .....	81	2081
— <i>verruculosa</i> .....	83		— <i>coccineus</i> .....	86	2094

	page.	tab.		page.	tab.
<i>Lichen compositus</i> .....	84	2087	<i>Lichen maurus</i> .....	29	1946
— <i>concentricus</i> .....	58	2017	— <i>microcephalum</i> .....	6	1896
— <i>confluens</i> .....	58	2018	— <i>milvinus</i> .....	81	2083
— <i>conspurcatus</i> .....	48	1993	— <i>miniatus</i> .....	31	1951
— <i>contiguus</i> .....	58	2019	— <i>miscellus</i> .....	62	2030
— <i>corneus</i> .....	61	2025	— <i>multipunctatus</i> .....	51	2000
— <i>corneus</i> .....	74	2064	— <i>muscorum</i> .....	62	2029
— <i>corticola</i> .....	67	2045	— <i>obscurus</i> .....	38	1968
— <i>crenulatus</i> .....	87	2096	— <i>Æderi</i> .....	63	2032
— <i>cupularis</i> .....	75	2068	— <i>Æderi</i> .....	63	2033
— <i>cyrtellus</i> .....	72	2059	— <i>orostheus</i> .....	70	2054
— <i>debilis</i> .....	9	1906	— <i>pallidus</i> .....	31	1956
— <i>dendriticus</i> .....	57	2015	— <i>parasemus</i> .....	60	2022
— <i>diacapsis</i> .....	58	2020	— <i>Parellus</i> .....	89	2102
— <i>Dicksoni</i> .....	63	2033	— <i>pericleus</i> .....	80	2080
— <i>discoideus</i> .....	49	1995	— <i>pertusus</i> .....	37	1965
— <i>dolosus</i> .....	61	2026	— <i>pezizoides</i> .....	71	2057
— <i>dubius</i> .....	60	2024	— <i>piceus</i> .....	81	2082
— <i>effusus</i> .....	72	2060	— <i>pinicola</i> .....	60	2023
— <i>effusus</i> .....	73	2060	— <i>plumbosus</i> .....	26	1943
— <i>Ehrhartianus</i> .....	76	2071	— <i>polytropus</i> .....	76	2072
— <i>epipolius</i> .....	67	2046	— <i>pruinatus</i> .....	66	2041
— <i>ericetorum</i> .....	75	2067	— <i>pruinosis</i> .....	66	2041
— <i>erythrellus</i> .....	78	2077	— <i>punctatus</i> .....	54	2009
— <i>escharoides</i> .....	72	2058	— <i>punctiformis</i> .....	20	1934
— <i>exiguus</i> .....	80	2079	— <i>quadricolor</i> .....	71	2056
— <i>fagineus</i> .....	49	1996	— <i>guerneus</i> .....	68	2048
— <i>ferrugineus</i> .....	74	2046	— <i>rimosus</i> .....	66	2044
— <i>fibrosus</i> .....	53	2005	— <i>rivulosus</i> .....	65	2040
— <i>flavo-virescens</i> .....	64	2034	— <i>rosellus</i> .....	76	2069
— <i>frigidus</i> .....	90	2105	— <i>rubellus</i> .....	13	1916
— <i>frustulosus</i> .....	85	2090	— <i>rufescens</i> .....	55	2010
— <i>fuscillus</i> .....	35	1962	— <i>rupestris</i> .....	73	2062
— <i>fusco-luteus</i> .....	74	2065	— <i>rupicola</i> .....	84	2087
— <i>Gagei</i> .....	26	1944	— <i>salicinus</i> .....	78	2076
— <i>gelusinatum</i> .....	6	1895	— <i>sanguinarius</i> .....	61	2028
— <i>geographicus</i> .....	62	2031	— <i>scabrosus</i> .....	64	2035
— <i>glaucoma</i> .....	84	2086	— <i>Schraderi</i> .....	25	1939
— <i>globuliferus</i> .....	48	1994	— <i>scruposus</i> .....	53	2004
— <i>Griffithii</i> .....	60	2025	— <i>silaceus</i> .....	63	2032
— <i>Hæmatomma</i> .....	86	2094	— <i>simplex</i> .....	65	2038
— <i>Harrimani</i> .....	26	1942	— <i>simplex</i> .....	75	2038
— <i>Hoffmanni</i> .....	53	2006	— <i>sinopicus</i> .....	35	1964
— <i>hymenius</i> .....	37	1967	— <i>smaragdulus</i> .....	35	1960
— <i>hyperellus</i> .....	8	1901	— <i>sophodes</i> .....	83	2084
— <i>icmadophila</i> .....	75	2067	— <i>speireus</i> .....	66	2043
— <i>impolitus</i> .....	11	1911	— <i>sphærocephalus</i> .....	9	1907
— <i>impolitus</i> .....	46		— <i>sphæroides</i> .....	73	2063
— <i>immersus</i> .....	65	2039	— <i>spodophæus</i> .....	82	2083
— <i>incanus</i> .....	69	2052	— <i>squamulosus</i> .....	81	2082
— <i>iniquans</i> .....	7	1898	— <i>stigmatellus</i> .....	20	1932
— <i>intricatus</i> .....	77	2072	— <i>subfuscus</i> .....	84	2089
— <i>lachneus</i> .....	31	1954	— <i>sulphureus</i> .....	70	2053
— <i>lacteus</i> .....	50	1998	— <i>tartareus</i> .....	89	2103
— <i>leptophyllus</i> .....	33	1957	— <i>tephroides</i> .....	35	1961
— <i>Lightfootii</i> .....	67	2047	— <i>terrestris</i> .....	29	1949
— <i>lucidus</i> .....	77	2073	— <i>tessellatus</i> .....	27	1944*
— <i>luteo-albus</i> .....	78	2075	— <i>thelostoma</i> .....	84	2088
— <i>luteus</i> .....	76	2070	— <i>tigillaris</i> .....	7	1897
— <i>lynceus</i> .....	13	1913	— <i>trabinellus</i> .....	8	1903
— <i>marmoreus</i> .....	75	2068	— <i>trapeziformis</i> .....	31	1953

	page.	tab.		page.	tab.
<i>Lichen tricolor</i> .....	75	2068	<i>Parmelia exigua</i> .....	80	2079
— <i>tuberculosis</i> .....	83	2085	— <i>impolita</i> .....	11	1911
— <i>Turneri</i> .....	90	2106	— <i>parella</i> $\gamma$ .....	90	2104
— <i>uliginosus</i> .....	64	2036	— <i>periclea</i> .....	80	2080
— <i>ulmi</i> .....	86	2093	— <i>velata</i> .....	51	2001
— <i>umbrius</i> .....	29	1947	<i>Patellaria contigua</i> .....	62	2030
— <i>Upsaliensis</i> .....	90	2104	— <i>salicina</i> .....	78	2076
— <i>varians</i> .....	84	2089	— <i>silacea</i> .....	63	2032
— <i>varius</i> .....	88	2099	— <i>ulmicola</i> .....	78	2075
— <i>velatus</i> .....	51	2001	Patellulæ .....	2	
— <i>ventosus</i> .....	85	2091	Patellulæ .....	52	
— <i>vernalis</i> .....	73	2063	Patellulæ .....	79	
— <i>verruculosus</i> .....	76	2014	<i>Pertusaria ceuthocarpa</i> ...	37	1966
— <i>viridescens</i> .....	68	2050	— <i>communis</i> .....	37	1965
— <i>viridulus</i> .....	26	1941	— <i>crassa</i> .....	38	1968
Lichenes .....	1		— <i>crassa</i> .....	18	
Lichenes, Pseudo- .....	4		— <i>fallax</i> .....	37	1967
— <i>veri</i> .....	40		— <i>isidioides</i> .....	37	1950
Lirellæ .....	2		— <i>Wulfenii</i> .....	37	1967
Mesothallus .....	2		Pilidia .....	2	
<i>Mucor furfuraceus</i> .....	10	1910	<i>Placodium plumbeum</i> .....	33	
Mycinæ .....	2		Platygramme .....	17	
Mycinæ .....	4		<i>Platygramme dendritica</i> ...	17	1929
<i>Opegrapha</i> .....	2		— <i>Lyellii</i> .....	17	1928
<i>Opegrapha astroidea</i> .....	14	1919	Podetium .....	14	
— <i>atra</i> .....	14	1918	<i>Porina fallax</i> .....	37	1967
— <i>betulina</i> .....	14	1922	— <i>pertusa</i> .....	37	1965
— <i>calcarea</i> .....	15	1924	Propagula .....	40	
— <i>cerasi</i> .....	17		Pruina .....	8	
— <i>cerebrina</i> .....	15	1925	<i>Psora coronata</i> .....	71	2057
— <i>crassa</i> .....	38	1968	Pulvinuli .....	2	
— <i>dendritica</i> .....	17	1929	Pulvinuli .....	40	
— <i>denigrata</i> .....	14	1918	Pyrenula .....	19	
— <i>diaphora</i> .....	15		<i>Pyrenula leucocephala</i> .....	24	1938
— <i>elegans</i> .....	16	1926	— <i>nigrescens</i> .....	29	1947
— <i>epipasta</i> .....	13	1914	— <i>nitida</i> .....	19	1931
— <i>herpetica</i> .....	13	1917	— <i>tessellata</i> .....	27	1944*
— <i>herpetica</i> $\beta$ .....	13	1916	— <i>umbonata</i> .....	84	2088
— <i>lyncea</i> .....	13	1913	<i>Roccella tinctoria</i> .....	89	
— <i>Lyellii</i> .....	17	1928	<i>Sagedia rufescens</i> .....	55	2010
— <i>microscopica</i> .....	13	1915	Scutellæ .....	2	
— <i>nimbosa</i> .....	14	1920	<i>Scyphophorus</i> .....	2	
— <i>notha</i> .....	15	1923	Soredia .....	48	
— <i>Persoonii</i> .....	15		Soredium .....	32	
— <i>Persoonii</i> $\beta$ .....	65	2038	<i>Sphaeria communis</i> .....	27	1945
— <i>petraea</i> .....	16	1925	— <i>epigæa</i> .....	29	1949
— <i>pulverulenta</i> .....	17	1927	— <i>gregaria</i> .....	46	1989
— <i>rubella</i> .....	13	1916	— <i>lichenoides</i> .....	24	1938
— <i>rufescens</i> .....	13	1917	— <i>nitida</i> .....	19	1931
— <i>saxatilis</i> .....	15	1924	— <i>sphincterica</i> .....	6	1895
— <i>scripta</i> .....	16	1927	<i>Sphaerophoron</i> .....	2	
— <i>scripta</i> $\beta$ .....	17	1927	<i>Sphagnum</i> .....	34	
— <i>serpentina</i> .....	17		<i>Spiloma</i> .....	2	
— <i>siderella</i> .....	13	1917	<i>Spiloma auratum</i> .....	44	1983
— <i>tesserata</i> .....	15	1925	— <i>decolorans</i> .....	45	1987
— <i>varia</i> .....	14	1923	— <i>dispersum</i> .....	44	1982
— <i>venosa</i> .....	18	1930	— <i>erubescens</i> .....	45	
— <i>vulgata</i> .....	14	1921	— <i>fuliginosum</i> .....	45	1986
Orbillæ .....	2		— <i>gregarium</i> .....	46	1989
<i>Parmelia</i> .....	2		— <i>microclonium</i> .....	45	1986
<i>Parmelia carneo-lutea</i> .....	88	2101	— <i>microscopicum</i> .....	43	1980

	page.	tab.		page.	tab.
<i>Spiloma murale</i> .....	44	1981	<i>Verrucaria alba</i> .....	22	1936
— <i>nigrum</i> .....	45	1984	— <i>albo-atra</i> .....	67	2045
— <i>paradoxa</i> .....	12	1911	— <i>amphibola</i> .....	24	1938
— <i>punctatum</i> .....	46	1988	— <i>analepta</i> .....	20	1933
— <i>tricolor</i> .....	44	1983	— <i>aphanes</i> .....	23	1938
— <i>tuberculosum</i> .....	46	1990	— <i>biformis</i> .....	21	1936
— <i>tumidulum</i> .....	46	1989	— <i>biformis</i> .....	23	
— <i>variolosum</i> .....	45	1984	— <i>carpinea</i> .....	21	1935
— <i>versicolor</i> .....	45	1985	— <i>cinerea</i> .....	20	1932
— <i>Vitiligo</i> .....	47	1991	— <i>cinerea</i> .....	22	
Thallus .....	1		— <i>clausa</i> .....	39	1971
<i>Thelephora</i> .....	33		— <i>concinna</i> .....	25	1940
<i>Thelotrema</i> .....	52	2003	— <i>dermatodes</i> .....	19	1931
— <i>exanthematicum</i> .....	39	1971	— <i>divacea</i> .....	21	1935
— <i>exanthematicum</i> .....	75		— <i>Dufouri</i> .....	28	1945**
— <i>Hutchinsiae</i> .....	39	1972	— <i>elæina</i> .....	26	1941
— <i>hymenium</i> .....	37	1967	— <i>epidermis</i> .....	20	
— <i>lepadinum</i> .....	38	1969	— <i>epidermis</i> $\beta$ .....	20	1933
— <i>melaleucum</i> .....	39	1970	— <i>epidermis</i> .....	21	
— <i>variolarioides</i> .....	52	2003	— <i>epidermis</i> .....	20	
— <i>variolarioides</i> $\beta$ .....	51	2002	— <i>epigaea</i> .....	29	1949
<i>Trichia furfuracea</i> .....	10	1910	— <i>epipolæa</i> .....	28	1945
Tubercula .....	19		— <i>euploca</i> .....	34	1958
<i>Urceolaria Acharii</i> .....	54	2008	— <i>Gagei</i> .....	26	1944
— <i>Acharii</i> $\beta$ .....	54	2009	— <i>gemmata</i> .....	22	1936
— <i>agelæa</i> .....	52	2003	— <i>Harrimani</i> .....	26	1942
— <i>calcareæ</i> .....	53	2006	— <i>Hookeri</i> .....	30	1950
— <i>cinerea</i> .....	54	2007	— <i>immersa</i> .....	25	
— <i>cyrtaspis</i> .....	54	2009	— <i>impolita</i> .....	11	1911
— <i>diacapsis</i> .....	58	2020	— <i>isidioides</i> .....	38	1950
— <i>fimbriata</i> .....	53	2005	— <i>late-virens</i> .....	34	1959
— <i>gibbosa</i> .....	53	2005	— <i>lævata</i> .....	25	1940
— <i>punctata</i> .....	54	2009	— <i>leucocephala</i> .....	23	
— <i>rufescens</i> .....	55	2010	— <i>maura</i> .....	29	1946
— <i>scruposa</i> .....	53	2004	— <i>muralis</i> .....	27	1945
— <i>scruposa</i> .....	40		— <i>nigrescens</i> .....	29	1947
<i>Usnea</i> .....	2		— <i>nitida</i> .....	19	1931
<i>Variolæ</i> .....	2		— <i>niveo-atra</i> .....	23	1937
<i>Variolæ</i> .....	47		— <i>plumbæa</i> .....	26	1943
<i>Variolaria</i> .....	2		— <i>polysticta</i> .....	36	1963
<i>Variolaria agelæa</i> .....	52	2003	— <i>pulchella</i> .....	33	1958
— <i>argena</i> .....	51	2002	— <i>punctiformis</i> .....	20	1934
— <i>aspergilla</i> .....	49	1997	— <i>pyrenophora</i> .....	28	1945*
— <i>cinerea</i> .....	50	1999	— <i>rhyponota</i> .....	21	1935
— <i>conspurcata</i> .....	48	1993	— <i>rudicum</i> .....	27	1945
— <i>discoidea</i> .....	49	1995	— <i>rudis</i> .....	23	1937
— <i>faginea</i> .....	49	1996	— <i>rupestris</i> .....	24	1939
— <i>globulifera</i> .....	48	1994	— <i>Schraderi</i> .....	25	1939
— <i>griseo-virens</i> .....	47	1992	— <i>sorediata</i> .....	32	1956
— <i>lactea</i> .....	50	1998	— <i>striatula</i> $\beta$ .....	29	1948
— <i>multipunctata</i> .....	50	2000	— <i>submersa</i> .....	28	1945*
— <i>velata</i> .....	51	2001	— <i>sulphurea</i> .....	70	2053
— <i>Vitiligo</i> .....	47	1991	— <i>thelostoma</i> .....	84	2088
<i>Variolarieæ</i> .....	47		— <i>trachona</i> .....	27	1945
<i>Verrucaria</i> .....	2		— <i>viridula</i> .....	27	1944
<i>Verrucaria acrotella</i> .....	29	1948	<i>Verrucarieæ</i> .....	18	

INDEX  
OF THE ENGLISH NAMES  
IN VOL. X.

[Synonyms and names incidentally mentioned are printed in Italics.]

	page.	tab.		page.	tab.
<i>ACID, Oxalic</i> .....	49		<i>Lecanora, branched moss</i> .	90	2105
<i>Archill</i> .....	89		— brown-shielded .....	84	2089
<i>Arthonia, lurid</i> .....	11	1911	— close branchy-crusted	81	2083
— pruinose .....	11	1911	— contracted .....	80	2081
— Swartzian .....	12	1912	— crab's-eye .....	88	2102
<i>Bæomyces</i> .....	4		— cream-coloured .....	28	2100
— thick-crusted .....	5		— diminutive black-		
<i>Calicium, brown-headed</i> ...	8	1903	shielded .....	80	2079
— cinnamon-headed ...	10	1909	— flat-shielded brown scaly	92	2110
— gold-headed .....	8	1902	— green and white .....	87	2098
— grey-crusted .....	7	1900	— grey and red .....	85	2092
— minute pin-headed ...	9	1896	— lemon-coloured wall .	91	2108
— parasitic sessile .....	6	1895	— little crenated .....	87	2096
— round-headed .....	9	1907	— loose branchy-crusted	81	2083
— rusty .....	7	1899	— mealy-bordered .....	87	2097
— short-stalked .....	9	1905	— mealy flesh-coloured	90	2106
— slender .....	9	1906	— nipple-shielded .....	84	2088
— small greenish-headed	8	1904	— obscure black-shielded	82	2084
— sooty-fruited .....	7	1898	— pale crack-shielded...	88	2101
— sulphureous.....	10	1910	— powdered warty .....	83	2086
— verdigris .....	9	1908	— red-shielded elm.....	86	2093
— yellow sessile .....	6	1897	— red-spangled .....	85	2091
— yellow stipitate .....	8	1901	— rough black-shielded	80	2080
<i>Cudbear</i> .....	89		— scaly-crusted .....	81	2082
* <i>Endocarpon, ash-coloured</i>	35	1961	— tartareous .....	89	2103
— bark.....	31	1956	— Upsal .....	90	2104
— bright-green .....	34	1959	— variable-shielded.....	88	2099
— curled peltate .....	33	1958	— wall-eyed.....	84	2087
— dark-grey .....	35	1962	— warted fibrous-edged	83	2085
— grey cloudy.....	30	1951	— waxy .....	86	2095
— Hedwigian .....	31	1953	— white mealy-crusted	91	2107
— Hedwigian .....	31	1954	— white-scaled .....	85	2090
— little emerald .....	35	1960	— wide-spreading rock.	81	2083
— little filmy-leaved ...	33	1956	— yolk-of-egg .....	91	2109
— many-dotted .....	35	1963	<i>Lecidea, aromatic</i> .....	61	2027
— pale-leaved .....	31	1955	— ashy-black .....	56	2012
— powdery-speckled ...	32	1956	— black and white .....	56	2013
— Sinoper .....	36	1964	— black and white bark	67	2045
— small-leaved .....	33	1957	— black-shielded .....	66	2043
<i>Lecanora, black-shielded</i> ...	80	2078	— branching-lined .....	65	2040
— blood-specked.....	86	2094	— brownish-black .....	57	2015



	page.	tab.		page.	tab.
Lecidea, brownish-yellow .	74	2065	Lecidea, tumid brown-		
— common black-			shielded .....	72	2059
shielded .....	60	2022	— twofold-shielded.....	58	2020
— <i>concentric</i> .....	57	2017	— variable .....	76	2072
— confluent-shielded ...	58	2018	— veiled black-shielded	66	2043
— confused black and			vernal .....	73	2063
olive .....	57	2016	— waxy-shielded pine...	73	2060
— contiguous-shielded .	58	2019	— white-warted .....	56	2014
— coralline-crusted.....	72	2058	— white and yellow ...	78	2075
— cracked chalky .....	66	2044	— yellow ochrey .....	63	2032
— crenate-shielded .....	71	2057	— yellow-shielded .....	76	2070
— crowded sunk-shielded	57	2016*	Lepraria, black .....	43	1979
— dark-green powdery .	70	2055	— bright-yellow .....	42	1975
— doubtful board .....	60	2024	— common green .....	41	1973
— earthy marsh .....	64	2036	— dull-green .....	42	1977
— Ehrhartian .....	76	2071	— ochrey .....	41	1974
— four-coloured .....	71	2056	— violet-scented .....	42	1978
— frosty-shielded .....	65	2041	— wall .....	41	
— greenish horny-tu-			— white .....	42	1976
bercleed .....	68	2050	— yellow-grey.....	42	
— Griffithian .....	60	2025	Lichen, mushroom .....	4	
— heath .....	74	2067	— mushroom, brown ...	5	1894
— horn-coloured .....	76	2072	— mushroom, rose-co-		
— horny-cupped .....	74	2064	loured .....	5	1895
— inky-crusted .....	56	2011	— mushroom, thick-		
— lemon-coloured .....	63	2034	crusted .....	5	
— Lightfootian .....	67	2047	Lichens.....	1	
— little rosy-shielded ...	76	2069	— pseudo.....	4	
— loose mealy-crusted .	67	2048	— true .....	40	
— map.....	62	2031	<i>Litmus</i> .....	89	
— metallic-black .....	59	2021	Mushroom Lichen .....	4	
— minute crowded .....	64	2037	— brown .....	5	1894
— moss .....	62	2029	— rose-coloured .....	5	1893
— oak .....	68	2049	— thick-crusted .....	5	
— obsolete-crusted .....	75	2038	Opegrapha, birch-bark ...	14	1922
— Ederian .....	63	2033	— black .....	14	1918
— orange-red .....	73	2062	— black .....	14	1919
— orange stone .....	78	2077	— black-letter.....	16	1927
— pale-green mealy			— clouded .....	14	1920
black-shielded .....	69	2051	— common .....	14	1921
— pale yellow-green ...	70	2054	— elegant-grooved .....	16	1926
— pine-bark .....	60	2023	— grey-speckled .....	13	1913
— prominent small-			— reddish .....	13	1916
shielded warty .....	59	2021	— rusty .....	13	1917
— rock.....	57	2017	— small-dotted .....	13	1914
— rock.....	73	2061	— small-dotted .....	13	1915
— rough tartar-crusted .	62	2030	— stone .....	15	1924
— rugged-shielded sul-			— tessellated .....	15	1925
phur .....	64	2035	— tree-like .....	17	1929
— rusty-shielded.....	74	2066	— tumid-crusted.....	15	1925
— rusty spongy-crusted	61	2026	— variable .....	14	1923
— saffron-coloured .....	78	2076	— veiny .....	18	1930
— salmon-coloured .....	75	2068	— white-bordered .....	17	1928
— sanguineous .....	61	2028	<i>Perelle d' Auvergne</i> .....	89	
— silver-grey .....	67	2046	Pertusaria, common.....	37	1965
— simple black-shielded	64	2038	— cream-coloured .....	37	1966
— soft mealy-crusted ...	69	2052	— doubtful .....	37	1967
— spreading green .....	72	2060	— Isidium-like .....	37	1950
— spruce-bark.....	66	2042	— thick .....	38	1968
— sulphureous .....	70	2053	<i>Saint Winifred's Blood</i> ...	43	
— sunken-shielded .....	65	2039	<i>Sinoper</i> .....	36	

	page.	tab.		page.	tab.
Spiloma, black.....	45	1984	Variolaria, sprinkled .....	49	1997
— black .....	45	1985	— veiled .....	51	2001
— dispersed.....	44	1982	Verrucaria, birch-bark ...	20	
— dotted .....	46	1988	— black-moor rock.....	29	1946
— golden.....	44	1983	— black-stain bark.....	21	1935
— microscopic.....	43	1980	— brownish bark .....	20	1934
— red-clustered .....	46	1989	— dark-stained rock ...	29	1947
— sooty-fruited .....	45	1986	— deceptive bark .....	21	1936
— staining .....	45	1987	— dotted oak-bark .....	20	1933
— wall .....	44	1981	— Dufourian .....	28	1945**
— warty .....	46	1990	— Gage's rock.....	26	1944
Thelotrema, eruptive .....	39	1971	— greenish ground .....	29	1949
— Miss Hutchins' .....	39	1972	— green rock .....	27	1945
— small-mouthed .....	39	1970	— greyish bark .....	20	1932
— wide-mouthed .....	38	1969	— greyish water .....	25	1940
Tissue, cortical.....	2		— Harrison's rock .....	26	1942
— medullary .....	2		— Hookerian .....	30	1950
Urceolaria, Acharian .....	54	2008	— immersed rock .....	24	1939
— calcareous .....	53	2006	— inconspicuous bark...	23	1938
— common .....	53	2004	— large-fruited bark ...	22	1936
— dotted .....	54	2009	— large-fruited rock ...	28	1945
— gibbous-fruited .....	53	2005	— lead-coloured rock ...	26	1943
— grey.....	54	2007	— Mosaic rock .....	27	1944*
— reddish .....	55	2010	— neat rock.....	25	1940
Variolaria, ash-coloured ...	50	1999	— olive-cruste'd bark ...	21	1935
— bitter-zoned .....	49	1996	— olive-green rock .....	26	1941
— dusty .....	48	1993	— rivulet .....	28	1945*
— globule-bearing .....	48	1994	— rugged bark .....	23	1937
— greyish-green .....	47	1992	— sharp-tubercl'ed rock.	29	1948
— inelegant.....	52	2003	— snowy-crested bark .	23	1937
— insipid-zoned .....	49	1995	— vellum-like bark.....	19	1931
— leprous .....	47	1991	— wall .....	27	1945
— many-dotted .....	50	2000	— wax-like bark .....	19	1931
— milky-white .....	50	1998	— white-fruited bark ...	24	1938
— silvery .....	51	2002	<i>Winifred's Blood, Saint</i> ...	43	

END OF THE TENTH VOLUME.









