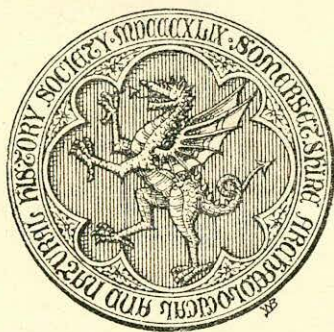


THE
LICHENS OF SOMERSET

BY
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PREFACE

THE compilation of this list has been in progress for over twenty years. During many pleasant rambles on our lovely heaths and commons and through our picturesque dells and combes thousands of lichens have been collected and, in many cases, have had to be examined microscopically before they could be determined. The labour has been considerably lightened by the help of other lichenologists who willingly gave their views on some of the critical plants. My thanks for help in this and other respects are especially due to Miss Lorrain Smith whose work in this department of botany is known throughout the world, and to Mr. T. Hebden, the Yorkshire lichenologist. Other workers who have assisted are Messrs. H. H. Knight, R. Paulson and D. A. Jones, who have contributed very largely, both by collecting in the county and by helping in the determination of doubtful plants, towards making the list a fairly complete one of the lichens of the county. When Dawson Turner published his *Botanical Guide* in 1805 Somerset was credited with about a dozen lichens, whereas the number has now been increased to over five hundred. It is too much to be hoped for that the list is a complete one, as some of the smaller species have certainly remained undetected. For any mistakes made in the identification, nomenclature, or method of classification I am responsible, especially as the latter mainly follows that advocated by me in recent numbers of the *New Phytologist*, xxviii, 2 and 3 (1929).

ADDENDA AND CORRIGENDA

- Page 3, line 10. Instead of "*deciptens*" read "*decipiens*".
- " 9, line 3 from bottom. For "Limington" read "Linnington".
- " 9. After *C. quercinum* insert *Stenocybe byssacea* (Fr.) Nyl. On alder. 5. Langford Heathfield (D. A. Jones). Culmhead.
- " 16. For *L. palmatum* add "6. Dundry (B.M.)".
- " 20. For *Solorina saccata* add "Recorded from Cheddar Rocks in Turner's Botanical Guide (1805)".
- " 21. For *Teloschistes flavicans* add "*L. vulpinus* is recorded from Corsley Heath, Wyndham's and Horner's Parks in Turner's Bot. Guide (1805). Corsley is in Wilts, but the locality given may be on the Somerset side of the heath".
- " 23. After *Placodium murorum* insert *P. decipiens* (Arn.) Leight. 6. Cheddar (K. & D. A. Jones. 1928).
- " 25. For *C. luteoalbum* add "Langford Budville".
- " 27. After *Anaptychia ciliaris* insert *A. leucomela* (L.). 6. Bathwick Down (B.M.).
- " 28. For *P. grisea*, f. *alphiphora* add "6. On elm, Somerton (1928)".
- " 29, line 11. Insert "t" in "*tereiuscula*".
- " " For *P. elaeina* f. *sorediata* add "Kingston".
- " 30, line 10. Instead of "B" read "P".
- " 31, line 5 from bottom. For *B. verruculosa* var *praeponens* add "Lilstock".
- " 32. For *B. myriocarpa* f. *depauperata* add "5. Blue Anchor".
- " " For *B. impressula* add "Lilstock".
- " 35. For *Solenopora candicans* add "Enmore Church, Wells and Wookey Hole (Turner's Bot. G. 1805)".
- " 36. Add *T. tumidulum* (Somm.). 5. Cleeve Hill (B.M.).
- " 44. Insert "*P. pubescens* (L.) Wallr. Recorded from Cheddar Rocks in Turner's Bot. G. (1805) but it is very doubtful if the plant ever occurred there."
- " 48. After *L. sulphurea* insert *L. orosthea* Ach. 5. Volis hill near Taunton (1928).
- " " line 18 from bottom. The only Bradon Forest known to me is in N. Wilts.
- " " line 5 from bottom. Add "Some specimens have relatively broad spores. This character is the chief one relied on for the segregation of *L. pityrea* Erichsen".
- " 50. *Psora lurida* is recorded from Cheddar in Turner's Bot. Guide (1805).
- " 53. After *B. fusciorubens* insert *B. bauschiana* Krb. 5. Culmhead. On the Brendons above Wiveliscombe. The latter varies from the normal form in a similar way as many dark forms of *L. sylvicola* depart from the type.
- " 55, line 26. For "*corollida*" read "*corollidia*".
- " 55. Delete *L. leucophaea* as the plant is better placed under *L. goniophila*.
- " 56, line 2. Add "Cothelstone."
- " 59. For *B. melana* add 6. Leigh Wood (Joshua) Leight, Flora.
After " " "*B. chlorococca* Graewe var. *hilarior* Th. Fr. & Hult. 5. On pines above Greenaleigh farm, near Minehead (1929).
- " 61. After *R. viridiatrum* insert *R. chlorophaeum* (Hepp.) A.L. Sm. On Lynton slate wall, Volis hill near Taunton (1929).
- " 62, line 6. Insert "5" before "On sarsen stone".
- " " " 18. " " "6" " "Mendip".

- P. pertusa* (L.) Tuck. (*P. communis* D.C.). Common throughout the county on trees, especially oaks (W.o.S., B.M.S.). Form *rupestris* D.C. (*P. rupestris* Schaer.). On rocks and walls.
5. Merridge and Orchard Portman near Taunton (1914; N.R.C.); Huish Champflower.
Form *leucostoma* Tuck.
5. Buncombe Wood and Bagborough (on oak), Quantocks.
Var. *leiotera* (Nyl.) Zahl. Usually on smoother bark than the type.
5. On oak, Orchard Portman (1916; N.R.C.) and Broomfield near Taunton. Milverton; Puckington.
6. Cleeve (1917; B.M.S.).
- P. wulfenii* D.C. Common on trees (W.o.S., L.E.R. 1913, B.M.S.).
Form *carnea* Fr. has been noted at Milverton in v.c. 5.
Var. *rugosa* (Ach.) Nyl. Frequent (also *f. plumbea*).
- P. pustulata* Duby. Recorded from Hinton Abbey near Frome by Crombie (1894; B.M.). The specimen has been re-determined as *P. leioplaca* (1918; B.M.).
- P. leioplaca* (Ach.) Schaer. Common on trees throughout the county, sometimes on oak but more frequently on smoother bark as in the beech and birch.
Form *juglandis* Hepp. 5, On beech, Broomfield (1913; N.R.C.).
Form *plumbea* Harm. 5, Aisholt (1915).
Form *hexaspora* Nyl. 5, On oak, Buckland St. Mary.
Form *octospora* Nyl. 5, Puckington (N.R.C.). This was so determined for me at the time, but owing to its thalline reactions and the purple reaction of the epithecium to potash I consider it to be the var. *glabrescens* Nyl. of *P. wulfenii*.
- P. dealbata* (Ach.) Nyl. On rocks, boulders and walls, 0-1700 ft.
5. Minehead (1913), Horner, Selworthy, Oareford and Dunkery; Smith's Combe and Triscombe, Quantocks; Treborough and Croydon Hill; Wambrook.
6. Frome (1921).
Form *corallina* (L.) Cromb.
5. Combes from Croydon Hill to Dunster (1920); Triscombe; Wambrook.

- P. areolata* (Clem.) Nyl. On rocks. Very rare, being only represented by a sterile specimen from Dunkery at 1700 ft.
- P. orbiculata* (Schreb.) Zahl. = *P. scutellata* Hue. On trees and mosses. Sterile forms of *Pertusaria* which are included under this name are not uncommon in the county (N.R.C.). It is equivalent in part to the form *discoidea* of *P. globulifera*.
- P. excludens* Nyl. On rocks. Sterile specimens resembling *P. dealbata* but without isidia and having no reaction with iodine have been collected at Minehead and Horner.
- P. leucosora* Nyl. On rocks. A sterile plant, collected on shingle at Minehead (1916) may belong to the form *pallens* Harm.

FAMILY XXV. THELOTREMACEÆ

Diploschistes scruposus (L.) Norm. (*Urceolaria scruposa* Ach.). Frequent on rocks and walls (chiefly calcareous), occasionally on calcareous soil (Lich.C.S., S.D.). There is a specimen in the B.M. collected by Dr. Holl about 1866 at Bathampton. Specimens in the Taunton Mus. were collected in 1869 by Dr. Parsons at Woolverton and Walton-in-Gordano.

Form *flavescens* Harm. Thallus yellow.

5. Wall, Shoreditch near Taunton (1918); Wambrook near Chard.

Var. *bryophilus* (Ehrh.) Müll. On mosses and surrounding humus.

5. Shoreditch (1916), Orchard Portman, Staplehay and Dodhill near Taunton; Roadwater.

6. Berrow (1912; S.D.); Shipham; Cleeve Hill near Yatton; Penselwood.

Var. *parasiticus* (Somm.) Zahl. (*U. lichenicola* Rich.; *U. bryophilus* form *ecrustacea* Cromb.). On *Cladonia squamules*, especially on those of *C. pyxidata* var. *poecilla*.

5. Staplehay (1917), Cheddon and Dodhill near Taunton.

6. Berrow (1912; N.R.C.); Shipham.

D. gypsaceus (Ach.) Zahl. (*U. gypsacea* Ach.; *D. albissimus* Lind.).

6. Bathampton Downs (H., B.M.), Bathford Hill (*V.C.H.*), Goblin Combe near Yatton (1917; B.M.S.).
- Phlyctis agelaea* (Ach.) Krb. Common on trees, especially in upland districts, 0-1600 ft. First records: 6, Bathampton (H. 1866); 5, Norton Fitzwarren (1908).
- P. argena* (Ach.) Krb. Common on trees in upland districts. First records: 5, Whitestaunton (1915); 6, Cleeve Hill (1917).
- Thelotrema lepadinum* Ach. On the smoothish bark of birch, holly and other trees, occasionally on oak. Frequent in the hilly districts.
5. On holly at 800 ft., Hodder's Combe (1915) and Broomfield, Quantocks. Leigh Wood and King's Brompton, Brendons. Combes of Croydon Hill to Dunster. Horner Combes (K.) and Barle Valley, Exmoor.
6. Cleeve (1923; B.M.S.).
- Var. *scutelliforme* Ach. On trunks of older trees.
5. On holly, Hodder's Combe (1915; N.R.C.). On oak, Broomfield.

ORDER V. ECTOLECHIALES

FAMILY XXVI. GYALECTACEÆ

- Gyalecta cupularis* (Ehrh.) Schaer. On rocks, chiefly calcareous.
5. On stone in field, Thurlbear (1929).
6. Bathampton (H., B.M.); Brockley Combe; Cleeve (B.M.S.); Shipham.
- G. truncigena* (Ach.) Hepp. On trunks of trees (elm, ash, beech).
6. On elm, Copley Wood, Somerton (1923).
- G. flotovii* Krb. On trunks of trees.
5. On elm, Thurlbear (1917; B.M.). On poplar, Poundisford near Taunton. On ash, Combe St. Nicholas.
6. Leigh Wood near Bristol (*Larbalestier*, Leight. Fl.).
- Petractis clausa* (Hoff.) Kr emp. (*P. exanthematica* Fr.). On calcareous rocks and stones (Lich.C.S.).
6. Ebbor Gorge (1917), Cheddar, Brockley and Cleeve Combes (B.M.S.), Milton near Wells (Corder !), Mendip.

Var. *dolichospora* (B. de Lesd.) Zahl.

5. On White Lias stones, Thurlbear (1924).

FAMILY XXVII. COENOGONIACEÆ

Coenogonium ebumum (Dillw.) A.L.Sm. In shady places on rocks, very rarely on trees.

5. On rock at 700 ft., Horner Wood (L.E.R. 1913) and Oareford, Exmoor. Treborough (900 ft.).

Racodium rupestre Pers. On rocks.

5. Wilmersham (700 ft., 1915), Simonsbath (1400 ft.), Oareford (900 ft.) and Exton (600 ft.), Exmoor.

FAMILY XXVIII. CHRYSOTHRICACEÆ

Crocynia lanuginosa (Ach.) Hue. (*Leproloma lanuginosum* Nyl.).

5. Wall-top, Blagdon near Taunton (1922).

6. Common at Cheddar (1917) and Harptree, Mendip. Wells.

Some plants included under this family may not belong to it but may be merely undeveloped states of other Lichens. Many species of *Crocynia* described by Hue in his monograph of this genus are probably sterile states of other lichens.

C. andrewii B. de Lesd. Among mosses on shaded banks, Sticklepath, Combe St. Nicholas (1927) in v.c. 5.

C. declivicola Hue. Among mosses on wall, Bishops Hull (1926) in v.c. 5.

C. libricola B. de Lesb. On mosses over tree-stump and on ground beneath, Norton Fitzwarren (1927) in v.c. 5.

C. aeruginosa Hue. (*Lepra a.* Schaer.). On tree, Crowcombe (1927) in v.c. 5.

C. cretica Hue. On shaded rock, Worlebury Hill, Weston (6).

ORDER VI. CLADONIALES

FAMILY XXIX. CLADONIACEÆ

Cladonia pyxidata (L.) Hoffm. Very common on the ground, mossy or soil-capped rocks and walls and on the bases of trees or on dead wood, 0-1700 ft. (W.o.S., S.D., B.M.S.).

Var. *neglecta* (Flk.) Mass., may be taken as the type. Forms *simplex* Ach., *staphylea* Ach., *syntheta* Ach., *prolifera* Arn., and *squamulosa* Harm., are common.

Form *lophyra* (Ach.) Coem.

5. On soil-capped rocks near Exton.

6. Standerwick (*leg.* P. 1868).

Var. *chlorophea* Flk. Common in the hilly regions. Collected in v.c. 6 at Farleigh Hungerford in 1869 (P.) and in v.c. 5 at Porlock in 1908 (H.M.Livens). Forms *simplex*, *syntheta*, *staphylea*, and *prolifera* are common, and *costata* has been noted.

Form *lophura* (Flk.) Harm.

5. On wall, Cocker Combe. On rock, Roadwater.

6. Farleigh Hungerford (*leg.* P. 1869).

Form *lepidophora* Flk.

5. Wall, Cocker Combe (1916; N.R.C.). Near Exton. On wood, Chipstable. On base of ash, Pitminster.

6. Harptree Combe (1920).

Var. *poecilla* (Ach.) Fr. On calcareous soil and soil-caps of rocks and walls.

5. Staplehay, Cheddon, Dodhill, Norton and Taunton Castle; Watchet.

6. Bathampton (H., B.M.). Berrow (S.D.). Common on Mendip. Steep Holm (*J. of Bot.* 1924). Wrington (B.M.S.). Kewstoke.

Var. *floccida* (Nyl.) Parrique.

5. On tree, Northay near Chard (1926). On soil, Kingston.

C. pityrea (Flk.) Fr. On the ground, old stumps, bases of old trees and thatched roofs. Common (W.o.S., N.R.C., B.M.S.).

Form *scyphifera* (Del.) Wain.

5. Exford on Hedgebank (1915; N.R.C.).

6. Standerwick (*leg.* P., N.R.C.).

Forms *crassiuscula* Wain., *hololepis* (Flk.) Wain., and *cladomorpha* Flk., are frequent (N.R.C.).

Forms *phyllophora* (Mudd) Wain., *squamulifera* Wain., *gracilior* (Nyl.) Harm., and *subacuta* Wain., have been noted in v.c. 5.

C. lamarkii form *isigny* (Del.) Nyl., differs little from *C. pityrea*

- f. *hololepis* unless there is a more constant reaction with potash. It has been noted at Elworthy and Treborough in v.c. 5 (N.R.C.).
- C. fimbriata* (L.) Fr. On the ground, bases of trees, and among mosses on old walls, 0–1700 ft. Common (S.D., N.R.C., B.M.S.). The forms *simplex* (Ach.), *prolifera* (Retz.) and *denticulata* (Flk.) are common. Forms *carpophora* (Flk.), *integra* (Wallr.) and *minor* (Hag.) have been noted in v.c. 5.
- Var. *tubaeformis* (Hoff.) Malbr. Common (N.R.C.).
- Var. *conista* (Ach.) Nyl. The simple podetia are shorter, and more turbinate than in normal *C. fimbriata*.
5. On stony banks, Horner, Exford and Kingston (N.R.C.).
On bank of gravel pit, Buckland Hill, Blackdowns.
- Var. *subulata* (L.) Wain. (Var. *subcornuta* Nyl.). Common. Its forms *chordalis* Ach., *furcellata* (Hoff.) Wain., *tortuosa* (Del.) Harm., and *fibula* (Ach.) are frequent in both vice-counties (N.R.C.). Forms *dendroides* (Flk.), *antiloepa* (Del.), *isidiosa* (Del.), and *abortiva* (Ach.) have been noted.
- Var. *radiata* (Schreb.) Cromb. Common (N.R.C.).
- Var. *nemoxyna* Coem.
5. On dry rock, Horner (1913 ; N.R.C.).
- C. ochrochlora* Flk. (*C. fimbriata* var. *apolepta* Wain.). On peaty ground and rotting wood.
5. Chard (1914), Quantocks and Exmoor (N.R.C.) ; Buckland Hill, Blackdowns ; Combe Sydenham.
6. Shapwick (N.R.C.), Penselwood, Cleeve Combe (B.M.S.). Forms *ceratodes* Flk., and *phyllostrota* Flk., are almost co-extensive with the type (N.R.C.).
- Form *truncata* Flk., occurs on peat at Winsford Hill (1200 ft.), on larch at Exford (5) and on a tree-stump at Shapwick (6 ; N.R.C.).
- Forms *monstrosa* Harm., and *actinota* Flk., occur at Exford (N.R.C.).
- C. verticillata* (Hoff.) Flk. On mossy rocks.
5. Exmoor (H.M.Livens, L.E.R. 1913). On rock at 1300 ft., Simonsbath with form *aggregata* Malbr., several podetia being proliferous from the centre of the scyphus (N.R.C.).
- C. cervicornis* (Ach.) Schaer. (*C. sobolifera* Nyl.). On ground or on mossy boulders.

5. Blagdon Hill at 800 ft. (1915; N.R.C.). Withypool (1200 ft.).
6. Stourhead (1915; N.R.C.).
 Var. *subcervicornis* Wain. On ground and rocks. Frequent, especially on the hills but extending down to sea-level.
- C. gracilis* (L.) Willd. On ground and on soil-capped or mossy rocks. Forms *chordalis* and *subulata* have been noted.
5. Among heather, Exmoor (H.M.Livens, L.E.R. 1913).
 On peat at 1000 ft., Haddon Hill. On heath, Selworthy Beacon. Top of Corfe Hill.
6. Mendip.
- C. foliacea* (Huds.) Willd. (*C. alcicornis* Flk.). On sandy or calcareous soil, or on heaths over siliceous soil. Not uncommon (N.R.C.).
5. Grabbist Hill (1912). On shingle, Dunster and Minehead. Lynch Combe and Selworthy Beacon.
6. On dolomitic conglomerate, Shipham (1915). On Carboniferous limestone, Ebbor Gorge and Purn Hill.
 Var. *convoluta* (Lam.) Wain. (*C. endivaefolia* Fr.). Usually on calcareous soil.
6. Clevedon (P. 1869, N.R.C.). Shipham (f. *epiphylla*).
- C. furcata* (Huds.) Schrad. Common on peaty ground, sandhills, soil-capped walls, etc., 0-1700 ft. (S.D., Lich.C.S., B.M.S.). Some of the named forms are common but few definite notes of localities have been kept. Forms *cymosa* Flk. and *subulata* Ach., occur in both vice-counties.
 Var. *corymbosa* (Ach.) Nyl. Common on heaths and banks, occasionally on damp rocks or old wood (N.R.C.).
 Var. *pinnata* (Flk.) Wain. (*C. racemosa* of Crombie's Monograph).
5. Horner (1912; N.R.C.); Treborough.
6. Penselwood; Steep Holm (*J. of Bot.* 1924).
 Form *tenuior* Cromb. On dry rock, Horner (5).
 Var. *spinosa* (Huds.) Leight. Common generally (N.R.C.).
5. On grassy heath, Elworthy. Brendon Hill.
6. Berrow; Copley Wood.
 Var. *palamaea* (Ach.) Nyl.
6. Bathampton (H., B.M.).
 Var. *recurva* Hoff. (inclusive of var. *scabriuscula* Coem. and *C. adspersa* Cromb.).

5. Minehead (1908), Horner, Exford (N.R.C.) and Exton ;
Treborough and Raleigh's Cross ; Blagdon Hill (N.R.C.)
and Buckland St. Mary.

6. Shapwick (1916 ; N.R.C.) ; Shipham ; Cleeve Hill ;
Masbury.

Form *surrecta* Flk.

5. Blagdon Hill.

C. crispata (Ach.) Flot. On heaths and peaty soil, 600–1700 ft.

5. Exmoor (1912), Haddon Hill, and Blackdowns (N.R.C.) ;
Quantocks ; Dunkery at 1700 ft.

Var. *cetrariaeformis* (Del.) Wain. On peat.

5. Haddon Hill, at 1000 ft. (1916 ; N.R.C.). Thorncombe
Hill and Will's Neck, Quantocks, from 1000–1260 ft.
Dunkery, at 1700 ft. Churchstaunton.

C. rangiformis Hoff. (*C. pungens* Flk.). Common on heaths,
sand-hills, wall-tops, occasionally on rocks or old wood,
0–1700 ft. (W.o.S., S.D., B.M.S.). First traceable record
for the county : Hurlstone Point, in v.c. 5 (1904 ; H.M.
Livens, L.E.R. 1911).

Form *minor* Harm. On old sleepers of Mineral Railway,
Brendon Hill (1915). On top of stump, Adcombe near
Taunton.

Var. *foliosa* (Flk.) Wain. Frequent.

5. On top of Lynton slate wall, Cheddon Fitzpaine (1920).

6. On sand-dunes, Kewstoke and Berrow (1912 ; N.R.C.).
Copley Wood ; Brean Down ; Steep Holm (*J. of Bot.*
1924).

Var. *muricata* (Del.) Arn. On the ground in upland situations.

6. Bathampton Down (H., B.M.).

C. subsquamosa Nyl. On mossy soil or on mossy rocks or walls,
400–1300 ft.

5. Tarr Steps (1910), Exford, Exton and Simonsbath,
Exmoor. Treborough. Bewley Down. On bank near
Ely Wood (400 ft.). Chard.

C. squamosa Hoff. Among mosses on banks, peat, rocks, walls
and tree-trunks, especially in hilly siliceous districts
(W.o.S.).

5. Minehead 1908). Exmoor [and var. *denticollis* (Hoff.)
Flk.]. Brendons.

6. Bruton (1907).
Form *ventricosa* Ach. has been noted near Exford.
Var. *multibrachiata* Flk. and its form *pityrea* occurs on peat at 1200 ft., Winsford Hill (1915).
Var. *phyllocoma* Rab.
5. On tree-trunk, Cloutsham, at 1100 ft. (N.R.C.). On hedge-bank, Exford (1000 ft.).
Var. *muricella* (Del.) Wain. (*C. asperella* of Crombie's Monograph).
5. Raleigh's Cross (1920).
C. delicata (Ehrh.) Flk. (*C. parasitica* Hoff.). On rotting stumps.
5. Orchard Portman (1915; N.R.C.). Between Dunster and Gupworthy. Cushuish Combe. Lawford near Crowcombe.
- C. caespiticia* (Pers.) Flk.
5. Huish Champflower.
- C. symphicarpia* (Ach.) Arn.
5. On wall, Raleigh's Cross (1916; N.R.C.).
6. Cleeve Combe (1923).
- C. coccifera* (L.) Willd. Common on heaths and moorlands, 0-1700 ft. Var. *stematina* (Ach.) Wain., is taken as the type. Collected at Masbury (6) in 1907 and at Castle Neroche (5) in 1912.
Forms *coronata* Del., *extensa* (Ach.) Flk., and *humilis* Del., occur on the Quantocks, etc.
Form *cornucopoides* (Huds.) Fr., with the podetia squamulose, is frequent (N.R.C.).
Form *phyllocoma* Flk., with the squamules well developed on the scyphi, has been noted on the Exmoor, Quantock and Blackdown hills (N.R.C.).
Var. *pleurota* Schaer.
5. On peat at 1000 ft., above Crowcombe, Quantocks (N.R.C.).
- C. digitata* (L.) Hoff. On mossy stumps of fallen trees or on mossy wood.
5. On moss-covered wooden bridge, Pond Wood, Monksilver (N.R.C.). On bank, Staple Hill, at 900 ft.
Forms *prolifera* Laur., *cephalotes* Ach., *denticulata* Ach., and

phyllophora Anzi., have been noted on the same bridge as the type at Monksilver (N.R.C.).

- C. macilenta* (Ehrh.) Hoff. Common among mosses on the ground or on the bases of trees (W.o.S., B.M.S.), 0–1300 ft. or higher.

Form *styracella* (Ach.) Nyl.

5. On old sleepers of Mineral Railway, Brendon Hill (N.R.C.).
Blackdowns (N.R.C.). Cothelstone.

Forms *clavata* Ach., *lateralis* Harm. and *squamulosa* Harm. occur on the hills near Taunton.

Var. *scabrosa* (Mudd.) Nyl.

5. On soil over tree-trunk, Treborough (1915; N.R.C.).
Quantocks (N.R.C.).

6. Frome (N.R.C.).

Var. *ostreata* Nyl.

5. On tree, Whitestaunton (1927).

- C. flabelliformis* Wain. (*C. macilenta* var. *coronata* Nyl.). The typical state (*tubaeformis*) and form *polydactyla* are common on mossy ground or boulders or trees in upland districts (N.R.C.).

Forms *ventricosa* Huds. and *scabriuscula* Wain. occur on the Brendons; forms *luxurians* Harm. (*C. hypocrita* Wain), *phyllophora* Mudd. and *intertexta* Wain. on the Quantocks.

- C. bacillaris* (Ach.) Nyl. On ground. Rare.

5. Staple Hill (1915; N.R.C.).

- C. floerkeana* (Schaer.) Fr. On the ground of heaths, on old trunks or pales, on thatch, or on mossy or soil-capped rocks, 50–1700 ft. Var. *chloroides* (Flk.) Wain., is taken as type.

5. Blagdon Hill, Blackdowns (1915).

6. Harptree Combe, Mendip (1920).

Var. *intermedia* Hepp.

5. Blagdon Hill (on heath), Brendon Hill (on old sleepers), and Triscombe (N.R.C.).

Var. *carcata* (Nyl.) Wain. Podetia squamulose.

5. On heaths, Blagdon and Brendon hills (N.R.C.). On old stone heap, Linnington, near Chard. On thatch, Street Ash, near Chard.

Form *trachypoda* (Nyl.) Harm., is a form with shorter podetia.

It is very common on the peat of the hills (N.R.C.). In

the lower parts of the county there are few suitable habitats. It has been noted at an altitude of 50 ft. at Shapwick.

Cladina rangiferina (L.) Nyl. On the heath below the summit of Dunkery (5). It was recorded from the Mendip (6) by Dr. Parsons, but his plant was *C. sylvatica*.

C. sylvatica (Hoff.) Nyl. Common on heaths, especially in the hilly parts of the county, 0–1700 ft. (W.o.S.). The form with branches having their ends straight or almost so and which Harmand described as a new species (*C. impexa*), is frequent on the Somerset hills (N.R.C.).

Forms *scabrosa* Leight., *polycarpia* Harm., and *lacerata* (Del.) Nyl. (*fissa* Schaer.) are frequent (N.R.C.).

Form *tenuis* Lamy.

5. On rock, Cow Castle, Simonsbath (1916). On heath, Elworthy. Blagdon Hill.

6. Cleeve Hill and Shipham (N.R.C.).

Form *grandis* (Flk.) Cromb. On heaths, 600–1600 ft.

5. Dunkery (1912), Blackdowns, Quantocks (N.R.C.).

6. Black Down, Mendip (N.R.C.).

Form *portentosa* (Duf.) Leight.

5. Grassy heath, Elworthy (N.R.C.).

Form *pumila* (Ach.) Leight. (*C. alpestris* f. *pumila* A.L.Sm.).

5. Grassy heath, Elworthy. Heath, Blagdon Hill (N.R.C.).

On bank of quarry, Buckland St. Mary.

C. uncialis (L.) Nyl. On the ground on heaths and turfey places, on mossy or soil-capped rocks, especially in hilly siliceous regions, usually better developed on humid turf, 400–1700 ft. Form *uncialis* Schaer., is taken as the type.

5. Frequent on the Exmoor (1912), Quantock, Blackdown, Brendon and Haddon hills.

6. Kingsettle Hill (1906).

Form *biuncialis* Hoff.

5. Staple Hill (1916).

Form *adunca* Ach. (form *elatior* Fr.p.p.). On heaths, especially in damp places on the hills, 400–1700 ft.

5. Exmoor and Blackdowns (1912; N.R.C.); Haddon Hill.

Baeomyces rufus (Huds.) D.C. On bare siliceous soil, especially on gritty or stony banks, occasionally on rocks, very rarely

on wood (beech root, Kingsettle Hill). Common, especially in hilly districts, 0–1700 ft.

Form *sessilis* Nyl. Usually on rocks.

5. Haddeo Valley (N.R.C.); Staple Hill; Stogumber.

6. Kingsettle Hill (N.R.C.); Shipham.

Var. *subsquamulosus* Nyl. Usually on damper banks.

5. Buckland St. Mary; Holman Clavel. Below Will's Neck (1100 ft.).

B. roseus Pers. On gravelly or turfy soil, especially in hilly districts, 400–1700 ft. The sterile state (*Variolaria ter-ricola* Tayl.) with the thallus usually more continuous and aspersed with rosy or white granules, is more frequent than the fertile state.

5. Dunkery (1913); Winsford Hill; Treborough; Haddon Hill; Staple and Corfe Hills, Blackdowns; Cothelstone and Thornecombe Hills, Quantocks.

FAMILY XXX. STEREOCAULONACEÆ

Stereocaulon coralloides Fr. On siliceous rocks.

5. Simonsbath at 1300 ft. (1918).

S. denudatum Fk., and form *pulvinatum* (Schaer.) Flot. On rocks.

5. Cow Castle and above Simonsbath at 1300 ft. On cairn, Dunkery (1700 ft.).

S. condensatum Hoff., was recorded from Culbone Hill (5) in N.R.C. but the record is a doubtful one. It is probably a depauperate state of another species, possibly *S. saxatile* Magn.

S. nanum Ach. (*Leprocaulon nanum* Nyl.). On siliceous rocks and earth, usually in more-or-less shaded places.

5. Tetton (L.E.R. 1911), Kingston, Cushuish and Cothelstone, Quantocks (N.R.C.); Mineral Railway, near Roadwater and on the Incline, Brendon Hill (with a larger and greener form).

ORDER VII. GRAPHIDALES

FAMILY XXXI. ARTHONIACEÆ

Arthonia lurida Ach. On trees.

5. Selworthy and Dunster (K. 1920).

Var. *spadicea* Nyl.

5. On old oak, Broomfield (N.R.C., B.M.). Combe St. Nicholas. Croydon Hill above Dunster. On beech, Tolland.

6. Leigh Wood (*Larbalestier*, Leight. Fl., as *A.l.*).

A. gregaria (Weig.) Krb. On the bark of various trees.

5. Stoke St. Mary (1912); Combe St. Nicholas; Hawkrigde (600 ft.); Bagborough; Clatworthy; Horner (K.). Below Tarr Steps.

6. Berkley (P. 1869).

Var. *kermesina* (Schaer.) A.L.Sm.

5. Stoke St. Mary (1912).

Var. *pruinata* (Del.) A.L.Sm.

5. Clatworthy with form *microstigma* (T. & B.). On trunk of walnut, Adcombe near Taunton.

Var. *astroidea* (Leight.) Mudd.

5. On ash, Buncombe (1924), Quantocks. On ash, Langford Heathfield.

6. Berkley (P! 1869).

A. aspersella Leight. On trees (ash, holly, beech).

5. On holly, below Forches Corner, Clatworthy (1924). On ash and holly, Langford Heathfield. On base of beech: Crowcombe. On holly, Kingston.

A. excipienda (Nyl.) Cromb. On holly.

5. Clatworthy (1923).

A. dispersa (Schrad.) Nyl. On ash.

5. Langford Heathfield (1927).

A. pruinata (Pers.) Steud. On the trunks of various trees, oak, elm, poplar, horse-chestnut, etc.

5. Stoke St. Mary (1917; B.M.). Frequent around Taunton.

6. Somerton (1923).

Form *rugosa* mihi. Thallus rougher, thicker and more granulose.

5. Norton and Bishops Hull (1927).

A. radiata (Pers.) Ach. (*A. astroidea* Ach.). On smooth bark of trees (ash, hazel, young oaks, beech, privet, etc.). Common, 50–1000 ft. (B.M.S.).

Var. *swartziana* (Ach.) Sydow. Commoner than the type.
Form *simulans* Leight.

5. Buncombe and Poundisford near Taunton (N.R.C.).

A. aspersa Leight. On ash.

5. Langford Heathfield (1927).

A. punctiformis Ach. On smooth bark of trees.

5. Clatworthy (1923); Combe St. Nicholas.

Var. *melantera* (Ach.) Leight. On trees.

5. Castle Neroche (1922); Huish Champflower (1926; B.M.); Combe St. Nicholas; Kingston.

6. Somerton (1923).

A. apotheciorum (Mass.) Almq. (*A. subvarians* Nyl.; *Conidia clemens* Massal.). Parasitic on *Lecanora galactina*.

5. Staple Fitzpaine (N.R.C.).

FAMILY XXXII. XYLOGRAPHACEÆ

Lithographa dendrographa Nyl. On the trunks of old trees.

5. Horner (K. 1920!).

FAMILY XXXIII. OPEGRAPHACEÆ

Opegrapha herpetica Ach. On trees.

5. Horner (K. 1920); Lydeard St. Lawrence; Cheddon Fitzpaine; Crowcombe (ash); Langford Heathfield.

Var. *elegans* Borr.

6. Near Bath (H., B.M.).

Var. *fuscata* Schaer. and form *arthonoidea* Leight.

5. On ash, Whitestaunton (thallus reddish; spermatia arcuate; 1918, B.M.).

Var. *subocellata* Ach.

6. Near Bath (H., B.M.).

O. atra Pers. Common on various trees, 0–1200 ft. or higher (N.R.C., B.M.S.). First records: 6, Bath (H., B.M.); 5, Minehead (1907).

Form *parallela* Leight.

5. Minehead; Norton Fitzwarren; Combe St. Nicholas.

- Var. *denigrata* (Gray) Schaer. Common.
- Var. *arthonoidea* Leight. On trees (hawthorn, hazel, ash, etc.).
5. Thurlbear (1912; N.R.C.), Shoreditch, Trull and Poundisford near Taunton; Huish Champflower.
- O. betulina* Sm. On trees (holly, elder, ash, beech, etc.).
5. Buncombe (1915), Broomfield, Kingston, Cushuish and Crowcombe, Quantocks; Wiveliscombe; Combe St. Nicholas.
6. Somerton (1923).
Form *lutescens* B. de Lesdain. First record for the British Isles.
5. On holly, Wiveliscombe (1923; B.M.).
Form *prosiliens* Stirt., occurs with the type on an elder at Kingston near Taunton.
- O. saxicola* Ach. var. *decandollei* Stiz. On calcareous rocks.
5. White Lias wall, Thurlbear (1918).
6. Ashton Court (1923; B.M.S.); Clevedon.
- O. calcarea* Turn. On limestone rocks. (*O. chevallieri* Leight.).
5. On slaty rock, Clatworthy (1923).
6. Bathampton (H. and B.M.); Milton near Wells (Corder); Clevedon.
- O. varia* Pers. Common on trees, 0-1000 ft. or higher (N.R.C., B.M.S.). First records: 6, Near Frome (1869 P.); 5, Minehead (1908).
Forms *diaphora* Ach., *tigrina* Ach., *tridens* Ach. (N.R.C.) and *pulicaris* Light., are common.
- Var. *notha* (Ach.) Fr., is common. Collected in 1869 at Standerwick in v.c. 6 by Dr. Parsons; in v.c. 5 near Taunton (1914).
- Var. *rimalis* (Ach.) Fr.
5. Alcombe near Minehead (Loydell).
- O. vulgata* Ach. Common on trees and sometimes on pales.
Form *vulgata* (Ach.) Leight., is taken as the type.
Form *stenocarpa* (Ach.) Leight.
5. On ash, Buncombe. Combe St. Nicholas.
- O. siderella* (Ach.) Nyl. On hazel, ash, poplar, cypress, etc.
Apothecia in stellate groups. Spermatia straight and short.
5. Alcombe (Loydell); Hawkridge (B.M.), Buncombe, Cothelstone (N.R.C.), Aisholt, Kingston, Stoke (N.R.C.), Norton and Hillfarrance near Taunton; Croydon Hill; Ham near Ilminster.

6. Near Bristol (Larbalestier, 1869). Given as *O. hapaleoides* from Clifton in Leight. Fl., but probably from Leigh Wood. Near Bridgwater (Corder).
 Var. *subsiderella* Nyl. Spermatia are short but the apothecia are not radio-stellate.
5. Kingston (1924); Aisholt.
- O. viridis* Pers. On the bark of trees. Rare.
5. Howley near Chard (1921).
- Enterographa crassa* (D.C.) Fèe. (*Chiodecton c.* Zahl.; *Stigmatidium c.* Dub.). On trees, especially oaks and beeches.
5. Broomfield (1913), Cothelstone and Cushuish, Quantocks; Dunster (Paulson); Milverton; Stogumber.
6. Somerton (1923); Copley Wood; Ashton Court (B.M.S.).

FAMILY XXXIV. GRAPHIDACEÆ

- Graphis elegans* (Borr.) Ach. On trees, especially beech but also on holly, ash, oak, mountain ash, birch, etc. Common throughout the county, 50–1200 ft. or higher (B.M., N.R.C., B.M.S.).
 Form *parallela* (Schaer.) Leight. On birch, beech, etc.
5. Quantocks, Blackdowns and Exmoor (N.R.C.); Puckington; Lydeard St. Lawrence.
6. Kingsettle Hill (N.R.C.).
 Form *stellata* Leight. Often on holly, but also on oak, etc.
5. Quantocks (N.R.C.); Combe St. Nicholas (B.M.) and Linnington; Blackdowns; Clatworthy; Croydon Hill combes above Dunster.
6. Longleat (N.R.C.); Red Lynch (*leg.* P. 1877); Clevee.
 Form *coacervata* Leight. On holly and beech.
5. Quantocks (N.R.C.); Staple Hill at 1000 ft.
- G. ramificans* Nyl. On holly and oak.
5. Horner Wood (1913; B.M.); Aisholt.
- G. scripta* (L.) Ach. Common on bark of trees, 0–1500 ft. First records: 6, Bath (H., B.M.); 5, Stoke St. Mary (1908). Forms *varia* Leight., *diffusa* Leight., and *flexuosa* Leight., are common, and form *limitata* Pers., occurs near Taunton.
 Var. *recta* (Humb.) Nyl.
5. Quantocks (1914); Tarr Steps; Curland; Combe St. Nicholas.

Var. *stellata* (Leight.) Mudd. On holly, hazel, beech, oak, etc.

5. Combe St. Nicholas (1918); Linnington; Cothelstone.

6. Red Lynch (1877; *leg. P.*, N.R.C.); Cleeve.

Var. *serpentina* (Ach.) Nyl. The typical form is *eutypa* Leight. Often on the bases of beech, but also present on ash, etc.

5. Broomfield (1913) and Lydeard Hill, Quantocks; Buckland Hill and Combe St. Nicholas, Blackdowns; Horner; Chipstable.

6. Copley Wood, Somerton (1923).

Forms *spathea* (Ach.) Leight., and *tremulans* (Ach.) Leight., occur near Taunton.

Var. *pulverulenta* (Pers.) Ach.

5. Thurlbear (1922). On holly, Langford Heathfield.

Phaeographis inusta (Ach.) Müll. On trees. Form *vera* Leight., is taken as type. Common. First records: 5, Horner 1914; N.R.C.); 6, Somerton (1923). Dr. Parsons' specimen from Red Lynch is *G. elegans* v. *stellata*.

Forms *divaricata* and *elongata* Leight., occur near Taunton.

P. dendritica (Ach.) Müll. On trees.

5. On oak, Chipstable. Croydon Hill combes. On young oak, Combe St. Nicholas.

6. Southton Common (1812; *ex. herb.* Charles Lyell, B.M.). Form *acuta* Leight.

5. On hazel, Buncombe, Quantocks.

Graphina anguina (Mont.) Müll. On trees.

5. Milverton (1919); Horner (K.).

6. Bath (H., B.M.).

Var. *pulverulenta* Ach.

5. On beech, Milverton.

G. ruiziana (Fèe) Müll. On bark of trees. Rare.

5. On birch, Leigh Wood, Brendons (1916; N.R.C.).

ORDER VIII. PYRENOCARPALES

FAMILY XXXV. VERRUCARIACEÆ

Dermatocarpon miniatum (L.) Th.Fr. On dry rocks, especially on calcareous ones (Lich.C.S.), 0-1000 ft.

5. Wambrook (1920).

6. Cheddar (Dillenius 1741, Leighton's Flora) and Leigh Wood (1808; E.F., B.M.). Great Elm (P. 1868). Common on Mendip. Vallis near Frome. Charlescombe near Clevedon.
- Var. *complicatum* (Leight.) Th.Fr. On damp rocks and in crevices of Carboniferous limestone (Lich.F.W., Lich.C.S.).
6. Ebbor Gorge (1917; B.M.); Cheddar Head and Cliffs.
- D. aquaticum* (Weiss.) Zahl. On rocks and stones in streams and lakes (Lich.F.W.).
5. Near Tarr Steps (1910); Horner Wood and combes; Badgworthy; Oareford; Selworthy (K.); Haddeo Valley; Aisholt and Hodder's Combe, Quantocks.
6. Rivulet at Cheddar, *sec.* Dawson's Bot. Guide (1805).
- D. lachneum* (Ach.) A.L.Sm. On earth among rocks, on walls and in rock-nooks (Lich.C.S.).
6. Cheddar (E.F. 1808, B.M.). Bathampton (H., B.M.). Common on walls at Shipham (B.M.). Near Bristol. Clevedon. Wells (Corder). West Horrington near Wells. Cleeve Combe.
- D. hepaticum* (Ach.) Th.Fr. On earth among rocks and stones and on walls.
5. On soil between rocks in old quarry, Halsway, Quantocks (1920).
6. On stony ground of lane, Wrington Hill (1917). Soil-cap of rock, Cheddar. Clevedon. Goblin Combe. The record from Cheddar of *Lichen trapeziformis* in Dawson's Bot. Guide (1805) probably refers to this plant.
- Verrucaria maura* Wahl. On rocks near or above tide-marks.
5. Minehead (1914); Greenaleigh Point, Lilstock.
6. Clevedon (1924); Sand Bay near Weston.
- V. mucosa* Wahl. On rocks, usually below high-tide level.
5. Quantoxhead (N.R.C.); Watchet.
6. Clevedon (1924); Sand Bay.
- V. microspora* Nyl. On rocks near tide-level.
5. On pebbles near high-water mark, Minehead (1914). Watchet. Lilstock.
6. Clevedon (1924); Sand Bay.
- Var. *mucosula* Wedd.
6. Clevedon (1924); Sand Bay.

- V. microsporoides* Nyl. On rocks near H.W.M.
6. Clevedon (spores almost globose, 8 x 6 micromillimetres, 1924).
- V. scotina* Wedd. On rocks above tide-level. Rare.
6. Clevedon (1924).
- V. lorrain-smithiae* Knowles. (*V. sandstedei* var. *lorrain-smithii* Zsch.). On rocks below tide-level.
6. Clevedon (1924 ; B.M.).
- V. prominula* Nyl. On maritime rocks, occasionally inland.
5. On flint of wall, Combe St. Nicholas (1921 ; B.M.).
- V. mauroides* Schaer. On rocks and stones, usually siliceous.
5. Lilstock (1918) ; Upper Cheddon, Staplegrove, Merridge, Broomfield, and Thurlbear near Taunton.
- V. nigrescens* Pers. Common on calcareous rocks and walls, sometimes on brick or mortar or tiles, 0-1000 ft. (Lich.C.S., B.M.S.). First records : 6, Vallis near Frome (P. 1868) ; 5, Taunton (1912).
- V. viridula* (Schrad.) Ach. Common on mortar, old walls, rocks, stones, bricks and tiles (B.M., B.M.S.), 0-1000 ft. First records : 6, Batheaston (B., Leight. Flora) ; 5, Cheddon (1915).
Form *subfuscella* Nyl., is also common.
- V. macrostoma* D.C. On rocks. Rare.
6. Clevedon (1924).
- V. glaucina* Ach. Common on calcareous rocks (N.R.C., B.M.S.), except in the west of the county.
- V. fuscella* (Turn.) Winch.Bot.Guide. On rocks. Rare.
5. A specimen so-named from Taunton (N.R.C.) is probably a sterile *Verrucaria* with a fungus parasitic on it (*sec.* B. de Lesdain).
6. Clevedon (1924).
- V. murina* Leight. (*V. arnoldi* Stnr. *fide* Zahl.).
5. Quantoxhead (1916) ; Watchet ; Thurlbear.
- V. coerulea* (Ram.) D.C. (*V. plumbea* Ach.). On calcareous rocks and walls.
5. Shoreditch (N.R.C.), Merridge, Cheddon and Stoke St. Mary near Taunton ; St. Audries ; Combe St. Nicholas.
6. Cheddar (Borrer, Leighton's Flora), Ebbor Gorge (N.R.C.) and Cleeve (B.M.S., Mendip ; Clevedon).

- V. muralis* Ach. Common on rocks and stones, either calcareous or siliceous, often on brick walls and mortar. First records : 5, Taunton (1913) ; 6, High Ham (1915).
 Var. *concentrica* mihi. Perithecia arranged in concentric circles.
 5. On limestone wall, Haygrass near Taunton.
 Var. *submuralis* Oliv.
 5. Near Taunton (1928).
- V. rupestris* Schrad. Common on calcareous rocks and stones (Lich.C.S., B.M.S., *J. of Bot.* 1924), sometimes on mortar. Recorded from Wells in *V.C.H.*
 Var. *orbicularis* mihi. Thallus in orbicular patches.
 5. On calcareous stone of wall, Combe St. Nicholas (1921).
 Var. *subalbicans* (Leight.) Mudd.
 5. On mortar, Staplegrove (N.R.C.). Upper Cheddon.
 6. Lias wall, Milton near Wells (Corder 1920).
- V. integra* (Nyl.) Carroll. Common on limestone rocks and hardened mortar (Lich.C.S., B.M.S., *J. of Bot.* 1924). In damp situations *Gloeocapsa* sometimes grows over it and gives it a dark appearance. First records : 6, Bathampton (*leg. H.*, B.M.) ; 5, Taunton (1912 ; N.R.C.).
 Form *terrestris* Wats. On decomposed calcareous rock.
 5. Merridge (1914 ; N.R.C., B.M.) and Stoke near Taunton (N.R.C.).
- V. marmorea* Scop. On calcareous rock. Very rare.
 6. Ashton Court (1923 ; B.M.S.).
- V. parva* Deakin. On calcareous rocks or stones.
 6. Milton near Wells (Corder 1920) ; Ashton Court (B.M.) and Cleeve Combe (B.M.S.).
- V. sphinctrina* (Duf.) Nyl. (*V. immersa* Tayl. ; *Limborina s. Fr.* ; *V. calciseda* of B.M. 1911). On calcareous rocks (Lich. C.S.).
 5. Winsham (1914) and Orchard Portman (N.R.C.).
 6. Brean Down (1914). Common on Mendip (N.R.C., B.M.S.). Shapwick. Ashton Court (B.M.S.). Clevedon.
- V. calciseda* D.C.emend.Stein. On calcareous rocks.
 6. Brean ; Sand Bay, Weston.
- V. dufourii* D.C. On calcareous rocks.
 6. Cheddar (W.J. 1875, B.M. 1917) ; Sand Bay (1927).

- V. dolomitica* Massal. (*Amphoridium dolomiticum* Massal. On limestone and dolomitic rocks.
6. Near Bath (B.M.). Uphill (1914). On dolomitic conglomerate, Shipham. Milton near Wells (Corder).
- V. maculiformis* Kremp. On slaty rocks, flints, quartzite, shingle, or calcareous rocks, 0-1300 ft.
5. Not uncommon on slaty rocks, Exmoor, Quantocks, and near Washford (N.R.C.). Near Taunton. Huish Champflower. Near Chard. Watchet. Wiveliscombe. Minehead.
6. Somerton (1928).
- V. mutabilis* Borr. On rocks.
5. Perriton Combe near Minehead at 130 ft. (1923 ; B.M.). On flints, Staple Hill at 900 ft. On flints, Whitestaunton, 700 ft.
- V. aquatilis* Mudd. On stones in streams (Lich.F.W.).
5. Triscombe (1911 ; N.R.C.), Quantocks ; Dunster (K.).
6. Shipham (1915 ; N.R.C., B.M.).

Group of *V. aethiobola* Wahl. On stones in or near streams. There is a great deal of confusion in the naming and descriptions of this species and its allies which grow in a similar habitat. The perithecia and spores are variable in one and the same plant and the segregation of the so-called species depends chiefly on thalline characters. The amount of cracking in the thallus, its colour, its shining or dull surface, its structure, its effuse or determinate character and its relative gelatinous nature when moistened are all used for determinative purposes. All such characters are largely influenced by environmental conditions and their determinative value considerably lessened. The perithecia are sometimes in distinct thalline verrucae and sometimes sunk in the almost smooth thallus so that only the ostioles are projecting. These differences have been used for segregative purposes but intermediate states are quite common and some specimens show gradations from one state to the other. *V. margacea* and *V. latebrosa*, according to many authors, stand out from the other members of the group because of their longer spores. They are usually over 30 micromillimetres long, whereas in other

members of the group they are seldom more than 25 micromillimetres long. The spores are usually two to three times as long as broad and variations in relative width may be of specific value. In *V. hydrela* the spores are $1\frac{1}{2}$ -2 times as long as broad, whereas in the nearly allied plant, *V. laevata*, they are often three times as long as broad. The entire or dimidiate character of the perithecial wall seems too uncertain and too variable to be of definite value. The following key shows the manner in which the members of the group have been distinguished.

Spores long, over 30 micromillimetres.

Thallus usually shining and determinate, dark. *margacea*.

Thallus effuse, reddish-grey. *latebrosa*.

Spores usually under 25 micromillimetres.

Per. in distinct thalline warts. Th. cracked.

Perithecia largish *elacomelaena*.

Perithecia small *papillosa*.

Thalline warts not pronounced or definite.

Th. green when moist and little cracked. *submersa*.

Th. darker, irregularly cracked. Sp. wide. *hydrela*.

Th. darker, little cracked or not at all. *aethiobola*.

Th. paler, deeply cracked. Sp. relatively narrow. *laevata*.

V. margacea Wahl. On moist rocks in or near streams.

5. Treborough (1916; N.R.C. The thallus is shining and has a minutely radiating crenulate margin. Spores large). Porlock.

V. papillosa Ach. On rocks and stones in moist situations.

5. Dodhill and Pickney (1912) near Taunton; Triscombe; Quantocks; Combe St. Nicholas; Wambrook.

Var. *papillosoides* mihi. Similar to the type but the thallus is non-gelatinous and usually paler in colour whilst the habitat is much drier than usual. On stones of retaining walls. It is referred to in B.M. 1926, and is considered as "evidently *V. papillosa*," with a "non-gelatinous" thallus. The spores are 14-19 x 5-9 micromillimetres.

5. Dodhill and Curland near Taunton; Combe St. Nicholas.

V. aethiobola Wahl. On stones in streams (Lich.F.W.), ascending to 1300 ft. or higher.

5. Exmoor (1912), Quantocks and Brendons (N.R.C.); Croydon Hill; Porlock; Combe St. Nicholas.
 Var. *acrotella* (Ach.) A.L.Sm. On stones at the margins of streams. Thallus almost obsolete.
5. Wambrook; Huish Champflower.
 Var. *submersa* Schaer. On moist rocks and stones, usually completely submerged (Lich.F.W.), ascending to 1300 ft.
5. Aisholt (L.E.R. 1913). Quantocks (L.E.R. 1913, *leg. P.*, *det. H. P. Reader*; "not uncommon," N.R.C.). Exmoor. Blackdowns. Cricket St. Thomas. Combes of Croydon Hill. Porlock (K.).
6. Harptree Combe (1920).
- V. hydrela* Ach. On stones in streams.
5. Exmoor (N.R.C.); Quantocks; Bewley Down (B.M.).
- V. laevata* Ach. On stones in or near streams (Lich.F.W.).
5. Near Taunton (N.R.C.); Smith's Combe, Quantocks; Croydon Hill.

FAMILY XXXVI. THELIDIACEÆ

- Thelidium pyrenophorum* (Ach.) Krb. (*Verrucaria borreri* Leight.), is recorded from Cheddar by Borrer in Leight. Flora, but the record is a questionable one.
- T. immersum* (Leight.) Mudd. On calcareous rocks (Lich.C.S.).
5. Lilstock (1929).
6. Brean Down (1914; N.R.C.); Wells.
- T. viride* (Deak.) Zahl. (*T. nylanderii* Lönnr.).
5. On White Lias stone near stream, W. Hatch (1918; B.M.).
 On rock in stream, Porlock (K. 1920).
- T. terrestre* Wats. On soil. This is nearly related to *T. hospitum* Arn., and has not been recorded elsewhere from the British Isles.
5. On soil of hedgebank among mosses, Cheddon Fitzpaine (1915; N.R.C., B.M.). On bank of lane, with protonema, Gloeocapsa, etc., Cushuish (1928).
- T. incavatum* Mudd. On calcareous rocks.
6. On Lias wall, Milton near Wells (Corder 1921). Goblin Combe near Yatton (1924; B.M.).

Polyblastia tristicula (Nyl.) Th.Fr. (*Agonimia t.* Zahl.).

5. On wall among mosses, Hammet's Walk, Taunton (1917; N.R.C., B.M.). The only previous record for the British Isles was by Admiral Jones in 1864 at Aviemore. Its discovery on a wall in the low-lying Taunton area is remarkable and shows how "the unexpected often happens". It has since been found by Knight in Sutherland.

P. schraderi (Sm.) A.L.Sm. On limestone.

6. Lias wall, Milton near Wells (Corder 1920).

P. intercedens Lönnr. On limestone.

6. Cheddar (K. 1928!).

Microglæna nuda Wheld. & Travis.

5. On half-buried siliceous stones in field between Cushuish and Cothelstone Beacon (1922; B.M.). This is the second record of the plant.

Staurothele hymenogonia (Nyl.) Th.Fr.

5. On White Lias wall, Thurlbear (1917). On limestone wall, Oake (thallus blackened and obscured by *Gloeocapsa*).

S. ebborensis Wats. (N.R.C., *J. of Bot.* 1917).

6. On Carboniferous limestone, Ebbor Gorge (1917; N.R.C., B.M.). This is the original locality for this lichen. It has recently been found in Ireland.

S. rupifraga (Mass.) Arn. On calcareous rocks.

6. Cheddar (1917); Milton near Wells (Corder); Goblin Combe; Purn Hill near Bleadon.

Var. *paucispora* mihi. Similar to the type except that the ascus contains one or two spores only. In similar situations as the type and sometimes on the same stones.

6. Cheddar; Milton.

S. innata Wats. (Lich. Notes III, *J. of Bot.* 1928).

5. On calcareous stones and mortar of wall near Taunton (1927), associated with *Lecanora galactina*, *Verrucaria nigrescens*, etc. This is the only known locality for the plant.

Normandina pulchella (Borr.) Cromb. On the bark of trees.

5. Castle Neroche (1920); Langford Heathfield (K.!); Curland (D. A. Jones).

FAMILY XXXVII. ARTHOPYRENIACEÆ

- Acrocordia gemmata* (Ach.) Krb. Common throughout the county on trunks of trees (*V.C.H.*, B.M.S., B.M.), 0–1200 ft. or higher. First records: 6, Batheaston (Broome 1856, B.M.); 5, Staple Fitzpaine (1912).
- A. biformis* (Borr.) Anzi. On trunks of trees, 0–1200 ft.
 5. Common. First record: Stoke St. Mary (1912).
 6. Somerton (1923).
 Var. *conformis* (Nyl.) A.L.Sm.
 5. Whitestaunton (1920); Cushuish Combe (on elder) and Cothelstone, Quantocks.
 6. Somerton (1923).
- A. epipolea* (Borr.) A.L.Sm. (*Arthopyrenia conoidea* Zahl.). Common on calcareous rocks and walls, or on hardened mortar, 0–1000 ft. (*Lich.C.S.*, B.M.S., B.M., *V.C.H.*); less frequent in the west of the county. First records: 6, Woolverton (*leg. P.* 1869); 5, Winsham (1914).
- A. salweii* (Leight.) A.L.Sm.
 5. On mortar of wall near Taunton (1921; B.M.).
- Arthopyrenia epidermidis* (Fr.) Mudd. Common on the bark of trees. First records: 6, Bath (H., B.M.); 5, Hawkrigde near Taunton (1914).
- A. punctiformis* (Pers.) Arn. On bark of birch, ash, alder, young oaks, etc.
 5. Treborough (1916); Oareford; Minehead (K.); Aisholt; Taunton. Birchwood, Yarty Valley, and Combe St. Nicholas, Blackdowns. Poundisford; Langford Heathfield.
 6. Bath (B.M.); Yatton district.
- A. cinereopruinosa* (Schaer.) Krb. On the bark of trees.
 5. On hawthorn, Shoreditch (1918) near Taunton. On ash, Huish Champflower.
 6. Somerton (1923).
 Form *hederæ* (Hepp.) Arn.
 5. Clatworthy (1923).
- A. fallax* (Sm.) Arn. Common throughout the county on smooth bark of ash, birch, hazel, young oaks, etc., especially on the hills. First records: 6, Leigh Wood near

- Bristol (Larbalestier, Leight. Flora); 5, Blackdowns (1916; B.M.). The thallus often colours the bark olive-yellow or pink.
- A. analepta* (Ach.) Mass. On smooth bark of birch, beech, young oaks, etc.
5. Holford Combe (1914) and Broomfield, Quantocks. Castle Neroche, Combe St. Nicholas, and Buckland Hill, Blackdowns.; Stoke Wood near Taunton; Tarr Steps; Croydon Hill combes.
- A. laburni* (Leight.) Arn. On laburnum, alder, etc.
5. Birchwood, Yarty Valley (1916; B.M.); Minehead; Buncombe, Quantocks.
- A. saxicola* Mass. On calcareous rocks.
5. Lilstock? (no spores seen).
6. Ashton Court (1923; B.M.S.).
- A. leptotera* (Nyl.) A.L.Sm. On maritime rocks.
6. Clevedon (*leg.* W.J. 1877, B.M. 1924!).
- A. litoralis* (Tayl.) B. de Lesd. [*A. kelpii* Krb.p.p. *sec.* Zahl.; *A. consequens* (Nyl.) Oliv.]. On shells or rocks by the sea.
6. Clevedon (1924, form *saxicola* B. de Lesd.).
- A. halodytes* (Nyl.) Arn. On tide-washed rocks. (*A. kelpii* Krb. p.p. *sec.* Zahl.).
5. Watchet (1924; B.M.).
6. Sand Bay [1927, with form *tenuicola* (Wedd.) Knowles].
- A. halizoa* (Leight.) Arn. On maritime rocks.
6. Clevedon (1924!). The specimen collected by W. Joshua in 1877 at Clevedon was formerly placed under *A. halizoa* but has recently been redetermined as *A. leptotera* (B.M. 1926).
- A. marina* (Deak.) A.L.Sm. On tide-washed rocks.
6. Clevedon (1924, and form *tenuicola* B. de Lesd.).
- A. rhyponia* (Ach.) Mass. On the bark of trees.
5. On ash, Curland near Taunton (1921; B.M.). On hazel, Combe St. Nicholas.
6. Sand Bay (1927).
- A. cerasi* (Ach.) Mass. On the bark of plum and alder, below Castle Neroche (1922; B.M.) in v.c. 5.
- A. submicans* (Nyl.) Arn. On the bark of smooth trees.
5. On holly between Combe Beacon and Northay turning, Blackdowns (1928).

Leptorhaphis epidermidis (Ach.) Th.Fr. On birch.

5. Chard Common (1914; N.R.C.); Combe St. Nicholas;
Combes of Croydon Hill towards Dunster.

L. carrollii A.L.Sm. On birch, Leigh Wood, Brendon Hills (1918). This has previously only been known from near Killeagh in the south of Ireland.

FAMILY XXXVIII. PORINACEÆ

Porina leptalea (D. & M.) A.L.Sm. On trees.

5. On young ash, Huish Champflower (1923). On holly,
Langford Heathfield.

P. carpinea (Pers.) Zahl. On bark of hazel, maple, elm, ash,
beech, holly, etc. Frequent.

5. Wiveliscombe (1913), Huish Champflower, Clatworthy,
Tolland, Brendons. Hillfarrance, Milverton, Pitminster,
Aisholt, Langford Heathfield and Crowcombe near
Taunton. Combe St. Nicholas.

6. Copley Wood, Somerton (1923); Cleve Combe (B.M.S.).

P. chlorotica (Ach.) Müll. On rocks.

5. Greenaleigh Point (1916); Combe St. Nicholas; Cothel-
stone.

6. Bathford Hill (Broome 1856) and Weston-super-Mare
(W.J., B.M.).

Forms *trachona* (Tayl.) and *codonoidea* (Leight.) are recorded
respectively from Batheaston (Broome 1856) and Weston
(W.J. 1876) Leight. Fl. ed. 3, & B.M.

Var. *linearis* (Leight.) A.L.Sm. (*Sagedia persicina* Krb.). On
limestone.

6. Cheddar (Borrer, Leight, Angioc. Lich. 1851).

P. olivacea (Pers.) A.L.Sm. On trees. This was recorded
from Berkeley (P. 1869, V.C.H.) but the specimen is a
fungus, *Dichaena faginea*.

Clathroporina calcarea Wats., *J. of Bot.* 1925. On limestone.
This was the first species of the genus described for the
British Isles.

6. Mendip (D. A. Jones and H. H. Knight, 1928).

FAMILY XXXIX. PYRENULACEÆ

Pyrenula nitida (Weig.) Ach. Common on the bark of trees (beech, ash, hazel, oak, etc.), 0–1200 ft. or higher (*V.C.H.*, B.M., B.M.S.). First records: 6, Leigh Wood (W.J., B.M.); 5, Stoke St. Mary (1912).

Var. *nitidella* (Flk.) Schaer. On alder, beech, etc., 50–1000 ft.
5. Aisholt (1913); Staplegrove, W. Hatch, and Poundisford near Taunton; Croydon Hill to Dunster.

6. Cleeve Combe (1923; B.M.S.); Copley Wood.

Melanotheca gelatinosa (Chev.) Nyl. (*Tomasellia g.* Zahl.).

5. On alder, Yarty Valley (1916). On young oaks, Oareford. On hazel, W. Hatch, Gupworthy near Dunster, and Whitestaunton.

FAMILY XL. MYCOPORACEÆ

Mycoporium quercus (Mass.) Müll. (*M. miserrimum* Nyl.; *Dermatina q.* Zahl.). On trees.

5. On young oaks, Greenaleigh Point (1920; L.N. I, B.M.), Grabbist Hill, Kingston and Ely Wood near Chard. On hazel, Combe St. Nicholas. Langford Heathfield.

6. Copley Wood (1923; L.N. I, B.M.). Cleeve Combe (B.M.S., L.N. I).

M. ptelaeodes (Ach.) Nyl. *Dermatina p.* Zahl. On trees. This has been noted in Gloucestershire (K.) and a questionable record for Somerset is Grabbist Hill in v.c. 5.

Of uncertain place

Obryzum corniculatum Wallr. Parasitic on *Leptogium* and placed among the fungi as *Sphaerulina c.* by Vouaux.

6. On *Leptogium microscopicum*, Weston-super-Mare (W.J. 1875, B.M.).

Botrydina vulgaris Breb. Common in the peaty districts of the county, especially on the hills, 0–1750 ft., and usually included with the algae. First records: 5, Dunkery (1912); 6, Shapwick (L.E.R. 1913).

Lepraria flava Ach. Frequent on trees and occasional on pales. *L. alba* and other leprarioid forms occur in the county (see Crocynia, p. 68).

FUNGI PARASITIC ON LICHENS

A number of fungi mimic lichens or are parasitic on them. Some of these were formerly included in Lichen Floras, many of them being included in the Verrucarias.

Myriangiium duriaei M. & B. was formerly classed as a Collema.

It occurs at Crowcombe and Luxborough in v.c. 5 and near Yatton in v.c. 6.

Scutula. *Biatorina episema* and *B. epiblastematica* (see p. 38) are included in this genus by Vouaux.

Conida clemens (Tul.) Mass. See p. 78.

Discocera lichenicola A. L. Sm. and Rams. A fungus collected on crustaceous lichens at Treborough, Corfe and Britty Common was described as the type of a new genus in the *Tr.Br.Mycol.Soc.*, for 1917.

Pharcidia epicymatia (Wallr.) Wint., is common on the apothecia of *Lecanora campestris* and its allies.

Sphaerulina. *Obyzum* (see p. 92) is included in this genus by Vouaux.

Ticothecium pygmaeum Krb. Minehead and Taunton.

T. erraticum Massal. Minehead, Blagdon and Brean Down.

Discothecium gemmiferum (Tayl.) Vouaux, is not uncommon on the thallus of *Lecidea contigua* and allied species.

D. calcaricolum (Mudd.) Vouaux. (*Verrucaria perpusilla* Leight.). Minehead.

Phaeospora rimosicola (Leight.) Zopf. Near Taunton.

Didymosphaeria pulposi Zopf, is parasitic on Collema at Corfe and Wrantage and on Leptogium at Staplegrove. Another species of *Didymosphaeria* with longer spores, acuminate at one end, occurs on Collema in Goblin Combe near Yatton (N.R.C.).

Spilium graphidearum Arn. On *Opegrapha*, Adcombe near Taunton.

Illosporium roseum (Schreb.) Mart. On *Physcia*, Taunton.

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