Linnaean lichen names and their typification

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The typification of the 109 names of lichens described by Linnaeus is discussed; 50 lectotypes, 24 epitypes and eight neotypes are newly designated. All written sources of which we are aware have been consulted, including original manuscripts. The relevant specimens in Linnaeus' lichen herbarium (LINN) have been carefully evaluated. All these elements are discussed, as well as the validity of previous typifications. Most names (72.5%) can be typified in a way that avoids any changes in their current interpretation, but proposals for conservation are necessary for 17 species names if their current usage is to be upheld. Six Linnaean names which have not been in use for a long time are treated as species non satis notae since no original material has been traced and the protologues are too vague to allow the species names to be identified with certainty. They will be proposed for rejection under Art. 56 of the Tokyo Code together with five names—Lichen cornucopioides, Lichen fahlunensis, L. plicatus, L. rangiferinus var. sylvaticus and Mucor lichenoides—the typification of which has unfortunate nomenclatural consequences.

ADDITIONAL KEY WORDS—Conservation & rejection of names — Historical botany — nomenclatural stability.

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INTRODUCTION

Linnaeus regarded lichens as the ‘rustici pauperrimi’—the poor little peasants—of nature, an opinion which is reflected in his somewhat arbitrary treatment of the group. In Species plantarum (1753) he includes only a relatively small number of the species then known, a situation for which we must be thankful. In those cases where he did not have access to material, he depended mostly on interpretation of illustrations in the works of other botanists and often made errors. Nor does he seem to have been particularly interested in seeing exotic material, as was the case for the flowering plants. Only five species names

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are based on extra-European material, the majority being from northern Europe, an area in which about 2000 species are now known to occur. Linnaeus thus recognized only about 5% of the lichen flora of that region, and in most cases he only gave a diagnosis without any further description or discussion of the taxa.

This lack of interest in, and knowledge of, lichens by Linnaeus has made our task particularly difficult. Our main objective has been to avoid name-changes as far as possible under the present Code and at the same time to provide a stable basis for the future usage of these names. This is particularly important since most of the lichens Linnaeus described are common, widespread and well-known; many (39) are type species for the commonest lichen genera such as Cladonia, Lecidea, Lobaria, Parmelia, Peltigera, Ramalina and Usnea. Linnaeus placed most of them in his genus Lichen (101, one of these being a non-lichenized ascomycete), but he also named a few in Byssus (four sterile pulverulent crusts), Mucor (four Caliciales) and Tremella (one, a Leptogium), a total of 109 lichen taxa, three of which were described as varieties. Dillenius (1742), by comparison, treated about 200 species, some with many unnamed, infraspecific taxa (for details, see Crombie, 1880).

THE LINNAEAN LICHEN HERBARIUM

The lichen collection in Linnaeus' own herbarium at the London Linnean Society (LINN) (Linnean, used when referring to the Society, is based on the Swedish name Linne; in our descriptions we use Linnaean, derived from Linnaeus, the Latin form of his name) is relatively small comprising 324 sheets, 313 of which are to be found under the genus Lichen. Two previous comprehensive studies of this collection have been published, that by Vainio (1886) concentrating on the identification of the specimens, and another by Howe (1912) with a more critical evaluation of their origin and suitability as type specimens. The analytical catalogue of Savage (1945) of the entire herbarium has been an indispensable aid in our work.

As noted by Howe (1912) the collection contains not only specimens collected or annotated by Linnaeus, but also material added after his death by his son (C. von Linné fil.) and a few added by J. E. Smith. No more than 93 sheets in the collection can be attributed to Linnaeus himself; these alone can be considered as original material for the appropriate names involved. Some of these collections lack any annotation apart from the epithet and therefore cannot normally be used as types, as they are likely to have been added to the herbarium at a later date. Most of the original sheets, however, are numbered, usually with the account number from Species plantarum (1753) and in some cases also from Flora Suecica (1745). The presence of Flora Suecica numbers on so many of the lichen sheets is remarkable since such numbers seem to appear extremely rarely in other parts of the herbarium; in fact none have been noted amongst the flowering plants. We regard the 44 sheets with a double set of numbers as without doubt having been available for consultation by Linnaeus when he was writing Species plantarum. These, with one exception discussed below, are all marked with a dot by Linnaeus in his manuscript list (Fig. 1) which according to Howe (1912) was, "presumably compiled in the year 1755". Howe's judgement is almost certainly based on that of Jackson (1907) whose conclusions that a dot
Figure 1. The lichens (combined from two pages) in the herbarium list of Linnaeus which is believed to have been made before October 1755, the dots possibly indicating presence of material in his herbarium at that time.
corresponded to a specimen in Linnaeus' herbarium, according to Savage (1945), are "mere presumptions". Undoubtedly Jackson's evidence is circumstantial and his conclusions somewhat subjective, but an examination of the Linnaean lichen list confirms rather than contradicts his dating. If it is a list of specimens in the herbarium, then it must have been compiled before the second edition of *Flora suecica* (October 1755) as *Lichen saccatus*, described there for the first time and now present in the Linnaean collections, is not included. There is only a single noteworthy exception to sheets with double numbering (see above) being marked with a dot (= present in 1755), that of *Lichen cornucopioides*. This has no dot indicated, but still bears the numbers of both publications on the herbarium sheet. As discussed below (p. 296) there are several problems relating to the provenance of this sheet, including the question of a possible remounting at a later date. Although we are unable to give a full explanation for this special case, it appears to be an exception of little general consequence. Howe (1912) also thought that *Lichen velleus* was lacking a dot. This, however, is a misinterpretation on his part, the dot being attached as an extension to the lower part of the figure 5 (Fig. 1); note the very flat, not hooked, extensions of the bases of the numeral five normally characteristic of Linnaeus' handwriting.

There are twelve names marked with dots, for which the existing sheets have only *Species plantarum* numbers. Of these, five are described in *Flora suecica* from where the diagnostic phrase-names were taken. These specimens are unlikely to have been the basis of these protologues, and in all but one case, that of *L. vulpinus*, these specimens are either not in accord with the protologue, or have proved troublesome or doubtful in their status or identity (*L. caninus*, *L. chaalybeiformis*, *L. lanatus*, *L. sanguinarius*). When Linnaeus incorporated these specimens in his herbarium is uncertain, as he occasionally added *Species plantarum* numbers for reference after the publication of the book. He obviously often codified the annotations on the herbarium sheets to such numbers, adding the epithets later and then sometimes making mistakes in the process, as in the case of *L. omphalodes* and *L. stygius* (see pp. 308, 332–333). His son, and occasionally other botanists, have inserted some of the missing names. If we can trust Linnaeus' list, the above-mentioned five species were present in the Linnaean herbarium in 1755. The remaining seven taxa (*L. carpineus*, *L. islandicus* var. *tenuissimus*, *L. parietinus*, *L. proboscideus*, *L. resupinatus*, *L. roccella*, *L. upsaliensis*) were only described in *Species plantarum* and therefore cannot have *Flora suecica* numbers. In all but one case (*L. parietinus*) we are reasonably sure, from the annotations on the sheets, that Linnaeus had these specimens in his herbarium when he wrote *Species plantarum*.

Only in a very few cases are localities and collectors indicated. This information is present for all extra-European material (five sheets), *Lichen divaricatus* received from J. C. D. Schreber (Fig. 26), the eight specimens sent by Reverend J. Burgess from Scotland (Fig. 10) in 1771 and a single Scandinavian collection, *L. saccatus*, collected by his Danish student, Tycho Holm, in Norway (Fig. 56), a total of 16 specimens.

If Jackson's interpretation of Linnaeus' list is to be believed, only a single original specimen listed there, that of *L. pallescens*, is now missing from the Linnaean herbarium. There are, however, some more noteworthy gaps in the collection. No specimens which with certainty can be referred to *Flora lapponica,*
have been discovered. The only exception may be the specimen of *L. arcticus* (1273.180) inscribed 'Lapp.' Even this case, however, is difficult to prove as it may refer to a later collection from Lapponia by one of his students. In addition, there are seven specimens where a reference to this work is written on the back of the sheets. This appears to be a later addition which was made simultaneously on all these sheets. A specimen which possibly contradicts this interpretation is 1273.310, which is not named or annotated with the numbers from *Flora suecica* or *Species plantarum*, but has the *Flora Lapponica* reference on the back. If this inscription was a later addition, why is there no reference to the more recent works? Linnaeus is known to have presented most of his *Flora lapponica* material to Johannes Burman (Stearn, 1957), but no lichens are present in this collection, now in the Library of the Institut de France, Paris (see Fries, 1861). The lichens may not have been included in the gift, and only a few may have existed. In the introduction to *Flora lapponica*, Linnaeus complains about the difficulties he experienced on his journey, and how they had adversely affected his collecting, particularly that of the cryptogams. This remark is presented rather as an excuse for not having brought home more of these groups, and for having to base the descriptions of quite a number of the species on the earlier drawings from Rudbeck’s Lapponian travels (1695). Linnaeus also made copious field notes and simple drawings (Fig. 2) which may have been the only basis for the later descriptions. Whatever the reasons may be, the absence of the original collections is most unfortunate since he described some arctic-alpine species, the names of which he later misapplied to specimens from southern regions, some of which survive in his herbarium and are the only possible elements for typification; the most notable example is that of *Lichen olivaceus* (p. 332).

Another remarkable fact is the absence of saxicolous, crustose species among the Linnaean material; not even common species like *Rhizocarpon geographicum* (L.) DC. are represented. This suggests that Linnaeus did not carry the equipment enabling him to collect these species from the rocks, and therefore his descriptions must have been made from field-notes, a method which has resulted
in particularly difficult problems of interpretation for subsequent lichenologists, the present authors included. He may also have found such pieces of rock difficult to incorporate into his herbarium, because those rock specimens which he must have possessed, received from his Danish student Zoëga, are no longer present in the collection. Perhaps, because of their bulk, he kept such items in a separate box which was later lost or thrown away.

It is also of particular interest to observe the substantial contribution made to the lichen herbarium by Linnaeus filius, whose reputation as a botanist has not been particularly favourable. In contrast to other plant groups, there are more specimens and annotations made by the son than by his father, and it seems likely that with advancing years Linnaeus left these 'rustici pauperrimi' to his son. Actually, we suspect that some of the species in the later works are attributable to Linnaeus fil., rather than to Linnaeus. All the eight lichens sent by Burgess in 1771 are annotated by Linnaeus filius, including a new species, *Lichen burgessii*. His interest in the group is further substantiated by a letter from Zoëga to Linnaeus, dated 8 August 1764, in which Zoëga reports on an excursion with Linnaeus' son at Stenbrohult where they obviously paid considerable attention to the lichens. Several species are mentioned, including *L. globiferus* L., the Linnaeus filius specimens of which are present at LINN. In general the identifications of Linnaeus filius are sound, and in many cases his specimens are better collections than those made by his father (e.g. *Lichen chalybeiformis*), indicating a more genuine interest in the group.

OTHER SOURCES FOR TYPIFICATION

Linnaeus frequently cites earlier polynomials from other sources in his protologues, some of which are associated with illustrations. Under Art. 9.9 (footnote) of the Code (Greuter *et al.*, 1994), such cited illustrations form part of the 'original material' for a name, and as such they are therefore eligible for selection as lectotypes. In a number of cases here, these illustrations represent the only remaining original material available. Apart from his own works, Linnaeus most frequently refers to Michelius (1729) and Dillenius (1742). From his introduction to *Flora lapponica* it is obvious that he particularly admired Michelius' taxonomy of cryptograms and rightly so, as this botanist was very advanced for his time in his understanding of these groups.

However, it is the citations from Dillenius' work which call for special comment. Since Crombie (1880) revised the Dillenian herbarium, it has been the custom to typify Linnaean lichen names on specimens in this herbarium (OXF), an early example being that of Howe (1910a). This has been necessary due to the frequent absence of relevant material in LINN, the accessibility, good curation and completeness of the Dillenian herbarium at Oxford, and the common belief that Linnaeus did study the material during his short visit to England in 1736. Although at the end of his stay in London Linnaeus did go to Oxford to visit Dillenius, he stayed there only for a very short time, and the available sources give no indication that he studied the lichen specimens personally. It is significant that in the introduction to *Species plantarum*, Linnaeus does not list the Dillenian herbarium as being one of those which he had studied. From the original manuscript of *Species plantarum* it is clear that he entered and corrected the Dillenian citations in exactly the same way as for other works, and
we are convinced that he did this only by interpreting the illustrations of Dillenius' *Historia muscorum* alone. Crombie (1880: 553) bluntly and succinctly refers to this process as "simply guesswork". Because of this, Linnaeus made several simple mistakes which he would hardly have done if he had had access to the actual specimens (e.g. *Lichen byssoides* and *L. vulpinus*, pp. 281, 367). We are therefore of the opinion that the Dillenian illustrations only can be used for typification, with epitypes (Art. 9.7) to stabilize their interpretation. In most cases we have used the corresponding specimens in the Dillenian herbarium as epitypes, but when these are poorly developed, atypical or not in accordance with Linnaeus' understanding of the illustration, we have chosen other and better material.

It is easy to understand the problems Linnaeus had in interpreting the Dillenian illustrations, not only in view of his own relatively poor understanding of the group, but also as a result of the quality of the illustrations themselves. Unlike Linnaeus, we have had access to the original pencil drawings, some of which are also hand-painted, and sketches made by Dillenius for *Historia muscorum*, now in the library of The Natural History Museum, London. Two features are remarkable. Firstly, quite a number of the printed illustrations have been simplified and altered, in particular the representation of the fruiting structures has suffered (e.g. *L. ampullaceus*, Fig. 4). Secondly, Dillenius had the bad habit of combining the characters of different specimens to constitute a representative example for his illustration, so that more than one taxon could have formed the basis for his printed illustration (e.g. *L. barbatus*, Fig. 7).

**PREVIOUS TYPIFICATIONS**

The typification of a number of Linnaean lichen names has already been attempted with varying degree of success. It is not always easy to interpret these early typifications and as the Code is fairly rigorous in defining the grounds upon which typifications can be overruled, it is therefore necessary to outline our criteria for accepting or rejecting such typifications.

The earliest typifications of Linnaean lichen names are those by Howe (1910–15). There have been divided opinions on how these should be interpreted. In his specific paper on the lichens of the Linnaean herbarium, Howe (1912) clearly states that he regarded the specimens that he indicated in heavier print and italics as authentic types, and this appears to fulfil the requirements of Art. 7.11 for effective typification. His species list was the result of careful personal studies, and it is usually possible to identify the specimens which he designated, despite lack of the numbering system introduced subsequently by Savage (1945). In succeeding papers, dealing particularly with the Usneaceae s. l. (Howe, 1913–14), he also provided photographs of each type specimen and appended annotated, bright red type-labels to the relevant specimens at LINN. In only a few cases has his selection of type been proved to be incorrect. However, some of his choices are unfortunate due to his lack of knowledge of, and experience with the European lichen flora. They are, nevertheless, formally correct, and it is possible to handle them in a satisfactory way. Many of Howe's typifications have been taken up by subsequent authors, and the interpretation of these later citations is often much more difficult and dubious than those in the original publication.
Quite a number of papers record certain specimens simply as 'type' or 'holotype' when they only are original elements on which lectotypification should have been done. If specifically recorded as the type and the relevant material has been examined (as in Maas Geesteranus, 1947), we regard this as being an effective lectotypification, as specified in Art. 7.11 and 9.8 of the Code. However, if there is reference only to 'type in herbarium . . .', lacking specific reference to an examined specimen, we do not regard this as an effective typification, as is the case in Howe's earliest papers (1910a, b, 1911). A particular problem found even in modern well-researched works, is that designation of a lectotype is often indicated only by citation of the number of the sheet in the Linnaean herbarium. However, this is not always sufficient as more than one taxon may be present on the sheet (e.g. L. venosus). Also, in cases where the specimens on one sheet belong in one taxon, as presently defined, typification should preferably be done on a single specimen rather than on the sheet. There is often both morphological and chemical variation in the material on the sheet, and there is no proof that the specimens were collected in the same locality. We have therefore lectotypified names based on sheets with many specimens of the same taxon on single specimens.

As discussed above, typification on actual specimens in the Dillenian herbarium is incorrect, and unpublished typifications are, of course, not effective.

METHODS

We have carefully studied all sources that might assist in making the best and correct choice of types. These include all relevant publications, and in the case of Linnaeus also related manuscripts, letters and annotated personal copies and relevant herbarium specimens as far as these could be traced. All types have been assayed by thin layer chromatography by standard methods (White & James, 1985) and in a few cases by more specialized methods by Prof. J. A. Elix, Canberra. Microscopic examinations have been carried out when necessary.

We have found very few cases where a Linnaean species name is represented by a holotype; these are nearly always unique specimens from abroad sent to Linnaeus for identification. We have selected lectotypes for most of the names, but in a number of cases neotypification has been necessary. This has been done in order to secure the current usage of the names as far as possible under the rules of the present Code. The Code, however, has until recently not satisfactorily dealt with old names which have, often for good reason, fallen from use. There are several examples of this problem here where, because of a poor general description and lack of authentic material, we have not been able to decide what species the Linnaean name might represent. We see no valid reason for reviving such names which may threaten long established names which have been in undisputed use for a long period. In such cases these names have been designated as nomina non satis notae, and will be proposed for rejection according to Art. 56 of the Tokyo Code.

Another vexed problem is that of the role of illustrations in typification. Illustrations not showing the necessary detail (see above concerning the Dillenian figures) are considered by us as very poor types, which can often be interpreted in diverse ways. As such illustrations do not stabilize the nomenclature, we regard it as essential that a specimen is designated in addition
as representing our interpretation of the illustration. We have accordingly selected epitypes in these cases, as defined by Art. 9.7 of the Tokyo Code, unless it has proven necessary to ask for a conserved type.

A particular problem occurred in the cases where no original specimens could be located, and typification could only be attempted using illustrations that Linnaeus had misinterpreted. His diagnoses are in those cases often more or less at variance with those illustrations. We were originally of the opinion that it simply was incorrect to select these as types. However, the Code (Art. 9.9) clearly includes even such illustrations in its concept of original material that should be used before a neotype can be designated. If previous lectotypifications have been made on such illustrations, they cannot be superseded as the Code (Art. 9.13) demands the impossible: it must be shown that the lectotype is in serious conflict with the protologue. As all illustrations cited by the original author are part of the protologue as defined by the Code, it is never possible to supersede a previous, technically correct lectotypification.

It has been found necessary, in a separate paper (Jorgensen et al., in press), to make proposals for conservation or rejection of 28 names in order to maintain their current usage. Some of these could possibly have been saved by bending the rules somewhat, for example by trying to prove that a specific, cited illustration could not have been used by Linnaeus when writing the diagnosis, although it is cited in the protologue. A risk with this approach is that decisions based on such arguments may be challenged by other nomenclaturalists, thus creating more problems instead of providing the intended nomenclatural stability. We therefore prefer the extra effort of a formal conservation proposal to be considered by the Nomenclature Committee, now that it is possible to reject or conserve even specific names.

In those cases where flawed statements concerning typification have been published, we have nevertheless tried to retain these specimens as types whenever possible, to avoid upsetting nomenclatural stability unnecessarily. Otherwise we have designated ample, typical specimens from Sweden, often represented in exsiccates and from localities close to those known to have been visited by Linnaeus. In a few cases we have selected specimens of historical interest in LINN, because of their particular relevance.

As a standard reference to the current concept of the treated species we refer to the recently published British lichen flora (Purvis et al., 1992). In cases where we either disagree with the species concept there, or the species in question are not found in the region covered by this flora, references are made to other relevant works. In a few cases of critical or previously poorly understood taxa, we provide the discriminating data, reflecting our concept of the species. We have illustrated all the Linnaean type specimens. As a photograph of the whole sheet normally is not sufficiently detailed to allow identification of the lichen, and also most of the sheet is empty, we have in many cases chosen to present an enlarged close-up of the type specimen, adding beneath the important Linnaean annotations from the lower part of the sheet.

**Typifications**

All names are treated in alphabetical order, based on the original protologue which is reprinted in full and discussed. All potential syntypes and problems
relating to them are fully discussed in order to make a sound designation of types. Finally the identity of the selected type specimen is indicated.


10. **BYSSUS pulverulenta viridis.**


*Dill. musc. 3. t. 1. f. 5.*

*Habitat in terra diversis humidi, umbrosa, ut in ellis Hortulanorum.*

Linnaeus took the diagnostic phrase-name unaltered from Dillenius (1742: 3), but had evidently seen specimens himself on soil in a gardener’s flowerpot which he, most probably incorrectly, referred to this species.

The single specimen in his herbarium (LINN 1278.16) is annotated only by F. Ehrhart and is not original material. Drouet & Daily (1956: 145) incorrectly regarded this as “the type”. However, Redhead and Kuyper (1987: 321) correctly designated the cited illustration in Dillenius (1742) as lectotype with the equivalent specimen in his herbarium (OXF) as typotype, based on information supplied by J. Laundon. Laundon later (1992) repeated this typification, adding that better developed duplicate material exists in Herb. Sherard (sheet 1995, OXF). This in our opinion represents the main part of the collection, on which the account of Ray (1724), written by Dillenius, is based, and we select this as epitype for the Dillenian illustration.

These collections are, according to the studies of Redhead & Kuyper (1987), the sterile lichenized thalli of the basidiomycete we prefer to call *Omphalina umbellifera* (L.: Fr.) Quélet (see Jørgensen & Ryman, 1989, 1994), but note that *Agaricus umbelliferus* L. as typified by Redhead & Kuyper (1987) is a non-lichenized species of the genus *Mycena*.


9. **BYSSUS pulverulenta flava lignis adnatis.** *Dill. candelaris.*

*musc. 3. t. 1. f. 4.*

*Bysus farinacea flava.* *It. wgs.:* b. 159. 52. *It. al.* 30.

*Habitat per omnes quattuor mundi flagas in corticibus arborum, partietiosus antiginis, toallis diversis ven- to humido expositis.*

Linnaeus took the diagnostic phrase-name unaltered from Dillenius (1742: 3), also including observations he made on his travels to Öland and in Västergötland (1745, 1747).

There are no relevant specimens in LINN, sheets 1278.12–15 being unannotated by Linnaeus, and Ross & Irvine (1967: 185) correctly designated the cited Dillenian illustration as lectotype. We agree, however, with Laundon (1981: 110), that the specimens in the Dillenian herbarium do not correspond with the illustration. Laundon therefore appointed a “neotypotype” to represent the interpretation of the Dillenian illustration. This specimen is here selected as epitype of that illustration.

The material represents *Chrysothrix candelaris* (L.) Laund.

11. **BYSSUS** *pulverulento incana*, *farina infa tllata incana*, Dill. *musc. t. 1. f. 2*; *Fl. Suec. 1131.*

_Habitat solo glarea, ad latera fossularum._

*incana* *publicas.*

Linnaeus took the diagnostic phrase-name unaltered from Dillenius (1742: 3), also citing this via his own *Flora suecica* (1745).

There are no relevant specimens in LINN, 1278.17 being only annotated by Ehrhart, and the name was incorrectly typified by Laundon (1963: 67) on a Dillenian specimen. However, he later corrected this (Laundon, 1992: 333) choosing the illustration as lectotype with the corresponding specimen in the Dillenian herbarium as typotype. This latter is here selected as epitype of the Dillenian illustration.

The material represents *Lepraria incana* (L.) Ach., the generitype of *Lepraria* Ach.


12. **BYSSUS** *pulverulento-crustacea albiflora.*

*Byllus* *candidinflora, caleis infa tllat mulcos vestiens._* Dill.

*musc. t. 1. f. 2.*

_Habitat in Multis & arborum corticibus._

Linnaeus provided his own diagnostic phrase-name, also citing Dillenius (1742).

There are no relevant specimens in LINN, and the typification by Drouet & Daily (1956: 145), based on sheet 1278.19, is incorrect as this specimen is annotated only by Linnaeus filius, as already indicated by Ross & Irvine (1967: 186). The Dillenian illustration is not easy to interpret (Fig. 3) and the corresponding material in the Dillenian herbarium does not agree with this illustration. As was noted by Laundon (1992: 343), this material represents two different species of *Ochrolechia*, one fertile with apothecia, the other with well-delimited soralia, neither of these structures being apparent in the Dillenian illustration.

As the Linnaean description is very generalized and the illustration on which it is founded difficult to interpret, perhaps based on a now lost specimen, it is impossible to determine how the name should be applied. It has also not been in

![Figure 3. The Dillenian illustrations of species in the genus Byssus, none of which are identifiable. Nevertheless Figure 2 is cited by Linnaeus as being identical with his Byssus lacteus.](image-url)
use for a considerable time, and we regard it as a *species non satis nota* which will be proposed for rejection.

Note that *Lichen lacteus* L. is a different name (see p. 326).


   **ampullaceus***

   L. **f.** Lichen f. falcatus pl. lobatus crenatus, pel-tis globotis liffatis.
   Lichen f. laciniatus, marginibus convolutis in veli-cum abuntibus. *Roy. ing. 59.*
   Lichenoides tinctorum glaebum veliculofum. *Dill.*
   *Habitat in Lusitania Anglia.*

Linnaeus provided a new diagnostic phrase-name, mainly based on Dillenius (1742), but he also cited van Royen (1740).

Obviously Linnaeus had no material of his own and it is quite surprising that he should have included this taxon rather than one of the many more important lichens known at that time. We suspect this was because of the unusual appearance of the species. Unfortunately there is no specimen, only an inserted drawing, in the Dillenian herbarium, and Maas Geesteranus, former curator of the lichen collection at Leiden, has informed us that he has not located any of the lichens referred to by van Royen there.

The identity of the Dillenian illustration has been in doubt for a long time, though as recorded by Culberson & Culberson (1968: 534), the name has often been interpreted “to refer to monstrous forms of *Platismatia glauca* infected by parasitic fungi...”. These authors therefore reject it as a monstrosity, a possibility allowed by the Code (Art. 71) at that time, but now no longer permissible. The printed drawing (see Fig. 4b) does show a fruitbody

![Figure 4](image-url)

Figure 4. *Lichen ampullaceus* L., *a*, Hoffmann’s drawing of the original material. *b*, Dillenius, Table XXIV, fig. 82, the printed version. *c*, The original Dillenian drawing. Note the marked difference between the two versions *b* and *c.*
representing a perithecium, but in the original sketches by Dillenius (Fig. 4c), which Linnaeus did not see, no apical pore can be observed. There are also indications, both in the illustration and in the text, that the host lichen is only doubtfully *P. glauca*. The size of the thallus, as compared with the ‘fruits’, is out of proportion and the description indicates a saxicolous species which is brownish above, occurring in mountain pastures, an unusual habitat for *P. glauca*.

Quite unexpectedly the solution to this problem was found in Hoffmann (1789), who presents another, much better drawing in colour (Table XII, 2; see Fig. 4b) made from the specimen sent to Jacquin by Dillenius (and obviously never returned). This clearly shows a young apothecium of *Parmelia omphalodes* in the stage of opening. We therefore regard *Lichen ampullaceus* as a synonym of *Lichen omphalodes*, and have selected an epitype for the Dillenian illustration accordingly.


Linnaeus adopted the diagnostic phrase-name unchanged from *Flora suecica* (1745), and also cited two other of his own works, as well as that of Dillenius (1742).

There are four sheets in LINN bearing this name, two of which (1273.175 and 1276.176) are annotated by Linnaeus himself. The former bears both the *Flora suecica* (963) and the *Species plantarum* (46) numbers, and is the obvious choice as lectotype (Fig. 5), as correctly designated by Howe (1912: 201).

The specimen represents *Peltigera aphthosa* (L.) Willd., and belongs to the most frequently occurring chemotype in northern Europe (see Tønsberg & Holtan-Hartwig, 1983, who also define the taxa of this group).

It should be noted that Linnaeus in the original *Species plantarum* manuscript (see p. 274) first spelled the epithet with two ‘h’, as is usual today, but he obviously corrected it to a single one in the final version. The transcription of the Greek letter θ is now standardized to ‘th’, and the presently used form is allowed as a corrected spelling (Art. 60).

Linnaeus provided a new diagnostic phrase-name for this species, but he included, adding a question mark, a reference to Dillenius (1742).

There is no relevant material in LINN and the Dillenian illustration, which represents *Parmotrema perforatum* (Jacq.) Hale from eastern North America, would be a most unfortunate choice of lectotype. In any case the description does not match this species in any way, differing notably in the absence of hemispherical fruitbodies and in not growing submerged on rocks, but on branches of trees! This is clearly an error by Linnaeus, and he obviously had doubts about this element as indicated by his addition of the question mark. It cannot therefore be regarded as original material.

There is also no Swedish lichen which combines this special ecology with the described morphology, particularly regarding the apothecia. In fact *L. aquaticus* has puzzled lichenologists since it was described and Acharius (1799: 164) noted that neither he, nor any other botanist, had been able to re-find this species in the *locus classicus* at Uppsala. Zahlbruckner (1931: 780) lists it among the uncertain names in his *Catalogus*, and we would have treated it in this way, had we not had access to the original manuscript (see p. 401). Here Linnaeus originally placed *L. aquaticus* with the *Umbilicaria* species, with the description “*Lichen foliaceus repens sinuatus obtusus planiusculus, peltis hemisphaericus*”. More importantly he cites, without any question mark, Dill. musc. 224, t. 30, f. 128. The diagnosis, the habitat and the reference clearly show that he originally must have had the lichen now called *Dermatocarpon luridum* (With.) Laund. (syn. *D. aquaticum* Zahlbr.) in mind. This certainly explains the habitat information in
Species plantarum. The printed protologue there is an emendation of the original one in the manuscript. Obviously Linnaeus obtained more material from the cited bog in Uppsala, which he probably mistakenly interpreted as a more mature stage of his new species, causing him to transfer it to the end of the Coriacei after L. resupinatus (see p. 398). The description of very elevated hemispherical fruitbodies, with thalline parts even on the disc, is hard to match with any known lichen and this element remains a mystery.

We accordingly conclude by designating as neotype the only identifiable element associated with the name, viz. Dermatocarpon luridum. The transfer of the Linnaean epithet to Dermatocarpon is blocked by the already existing name Dermatocarpon aquaticum Zahlbr. (see Laundon, 1984b: 222).


Linnaeus took the diagnostic phrase-name from Flora suecica (1745), adding the single word laevis, also citing his Flora lapponica (1737).

There are five sheets in LINN inscribed with this name, all annotated by Linnaeus. Of these Howe (1912: 201) correctly designated 1273.183 as (lecto)type, a specimen with both Species plantarum and Flora suecica numbers (47, 962). Later James & White (1987: 223) designated 1273.180 as lectotype, a specimen with the Species plantarum number (47), also marked 'Lapp'. Both these collections represent Nephroma arcticum (L.) Tors., but Howe's typification has priority and we regard the lower specimen associated with the Flora suecica number (Fig. 6) to be the lectotype. It is the generitype of Nephroma Ach.


This is one of the non-Scandinavian species which Linnaeus had not seen in the field. He took the diagnostic phrase-name unchanged from van Royen (1740) and added four more synonyms (see above).
Figure 6. The lectotype (at arrow) of *Lichen arcticus* L., LINN 1273.183 (that number written by Savage). Lowermost numbers written by Linnaeus.
There are no relevant specimens in LINN, no van Royen material has been traced in Leiden, nor has any connected with the other cited works been found, except in the case of Dillenius. Howe (1910a, b; 1914b) makes only general comments, noting the absence of relevant material at LINN, and referring to Crombie (1880) for the identity of the Dillenian specimens. This cannot be regarded as effective lectotypification. A specimen cited by Dillenius (1742) in Herb. Sherard (OXF) has incorrectly been designated as lectotype by Swinscow & Krog (1976: 261). However, we here modify their choice by selecting the Dillenian illustration as lectotype with the Sherard specimen as its epitype.

This represents *Usnea articulata* (L.) Hoffm.


8. **LICHEN leprosus niger, tuberculis albis.**
   
   *Habitat in Alpium rupibus.*

   Linnaeus provided a new diagnostic phrase-name for this lichen, and cited no synonyms.

   This is a crustose, saxicolous lichen, which is not represented in LINN. As a result of this, and the vague protologue, the name has been very poorly understood. Acharius (1799) attempted to use the name for a taxon in the *Rhizocarpon badioatrum* (Flörke ex Sprengel) Th. Fr. group, but its identity remained uncertain and it fell from use during the last century. The description is very generalized and could be applicable to several alpine crusts. It is therefore a *species non satis nota* and the name will be proposed for rejection.


7. **LICHEN leprosus ater, tuberculis viridibus confertis.**
   
   *Fl. suec. 939.*

   *Habitat in Europea rupibus.*

   *Tuberculæ parva, flavo-virescentia, conferta, ut tota area flavo-virescentis conspiciatur, quam cingitur margo niger.*

   Linnaeus took the diagnostic phrase-name unchanged from *Flora suecica* (1745), and cited no synonyms.

   There are no specimens in LINN of this saxicolous crust. The name has been applied to taxa in the very difficult and variable *Rhizocarpon geographicum* (L.) complex, but since the description is generalized and undiagnostic, it could refer to any member of this group. Runemark (1956: 90) proposed that the name should be regarded as a *nomen ambiguum*, and it is not in current use. Without material there is no way of deciding which particular entity is involved, and it is therefore best regarded as a *species non satis nota*.

   The name will be proposed for rejection.
Figure 7. The Dillenian table XII, fig. 6 (with fig. 5) believed by Linnaeus to represent his *Lichen barbatus*. To the right, the original drawing, not seen by Linnaeus, clearly showing the non-articulate specimen at left on Dillenius' herbarium sheet (Fig. 8).
Figure 8. The specimens in the Dillenian herbarium corresponding to Table XII fig. 6. The left-hand and central specimens both represent *Usnea articulata*, one indicated as being collected by Mr. Cole (in England). The right-hand specimen (at arrow), belongs in the *U. filipendula* complex and was possibly collected in Pennsylvania.
Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but changed the word *patentissimus* to *patentibus*. He also cited three other botanists' works (see above).

There is a specimen at LINN, 1273.276, which is annotated by Linnaeus with the *Species plantarum* number and name, and Howe (1912: 201; 1914: 376) regarded this as the type. The specimen represents *Usnea articulata* (L.) Hoffm. However, the specimen is inscribed 'Kh', which indicates that it came from Mårten Kölner, whose list of specimens is dated 1757 (see Savage, 1945: 199). The name could therefore not have been based on this material.

No other specimens linked to the cited works have been traced, except for the Dillenian illustration. This is a case of a composite illustration derived from more than one specimen (see p. 267). Dillenius 'improved' the original drawing (Fig. 7) by involving other specimens, those of *Usnea articulata*, so the lectotype illustration includes features of two different elements. It is, however, quite clear that Linnaeus had in mind an element similar to that originally drawn by Dillenius, the phrase-name being taken from *Flora suecica*, a region where *U. articulata*, as also recognized by Linnaeus, does not occur. The right-hand specimen (Fig. 8) is therefore the one which matches Linnaeus' interpretation closest. This appears to be a taxon in the *U. filipendula* Stirt. complex, but with a chemistry (barbatic and salazinic acids) unknown in the group in the British Isles and Scandinavia. We prefer to select an epitype for this ambiguous lectotype illustration as it was interpreted by Linnaeus and in conformity with the present use of the name, which dates back to Motyka (1937: 209), for a taxon in the poorly understood *U. filipendula* group present in Scandinavia.

It should be noted that this species, as presently understood, does not contain barbatic acid. When this acid was described by Stenhouse & Groves (1880), the specimens from which it was extracted were named *U. barbata* (L.) Weber by Mr Carruthers of the British Museum and Sir Joseph Hooker at Kew, but as this species does not occur in Great Britain, they clearly misidentified the material. No specimens have been preserved, but as they were collected in Scotland (Roxburghshire and Durris in Kincardineshire according to Stenhouse & Groves, 1880: 286), it must have been *U. wasnuthii* Rås., the only *Usnea* containing barbatic (with salazinic) acid occurring commonly there. Also, the material used by Robertson & Stephenson (1932), when they determined the structure of barbatic acid, originated from Scotland (one kilogram from Aberdeenshire and Elgin) and must have belonged to this species.

**Burgessii.** L. foliaceus subimbricatus crispus, peltis elevatis muricato-crispis fundo depresso plano. Lichen foliaceus erchuiulosus pellucidus crispus, fructis planis nitidis margine crispis, *Burgess. m. f. f.*

Linnaeus provided a new diagnostic phrase-name for this lichen. He based it, however, on the phrase-name used by Burgess in an accompanying letter dated 20 May 1771 (Fig. 9).

There is a specimen in LINN (1273.91), first inscribed crispus, but altered to Burgessii. Although not annotated by Linnaeus, but by Linnaeus filius (see above p. 264), it is clearly the material sent by Burgess from Scotland, as on the back of the sheet there is a phrase-name, similar to Burgess' original. We designate the left-hand specimen as lectotype (Fig. 10).

The specimen represents *Leptogium burgessii* (L.) Mont.


**BYSSOIDES.**

LICHEN leproso-farinaceus, peltis fluitatis sub-globosis.

Coralloides fungiforme ex ungula equina, livide rubescens. *Dill. mufs. 78. f. 14. f. 5.*

Fungi parvi globosi ex ungue equino putrefcentes. *Raj.*

*Crusta* Farinosa, viridi-cinerea. *Fungi pro ratione magis.*

Linnaeus provided a new diagnostic phrase-name for this lichen, also interpreting the illustrations of Ray (1724) and Dillenius (1742) as belonging here.

There are no relevant specimens in LINN; 1273.2 carries only annotations by Ehrhart. The illustrations cited are in serious conflict with the Linnaean diagnosis and description (but not the protologue, see above p. 269). This is a case where Linnaeus clearly misinterpreted the illustrations, both of which represent a non-lichenized fungus, *Onygena equina* (Willd.: Fr.) Pers.: Fr., a specialized species mainly growing on the hooves of dead horses. It is hard to comprehend how Linnaeus could have overlooked this remarkable fact in the text and it strongly suggests that he consulted the illustrations only. The Linnaean concept is clearly that of a lichen on gravel.

We will propose the name to be conserved with a specimen which is in accord with the Linnaean diagnosis and its subsequent use, LINN 1273.2, a specimen annotated by Linnaeus' pupil Ehrhart. It represents *Baeomyces rufus* (Huds.) Revent.

*Lichen byssoides* is the generitype of *Baeomyces* Pers.
Figure 9. From Burgess' letter to Linnaeus with his description of the lichen later called *Lichen burgessii* by Linnaeus, and Burgess' signature, address and date of letter.

Figure 10. The lectotype of *Lichen burgessii* L., LINN 1273.91, left-hand specimen (of three). Epithets written by Linnaeus filius.
15. Lichen calcareus L., Species plantarum 2: 1140 (1753).

Linnaeus’ phrase-name for this lichen is taken verbatim from Flora suecica (1745). He also cited treatments from two of his travels (see above). He further regarded Dillenius’ illustration as representing the same taxon.

There is no material in LINN. The only original material is accordingly the Dillenian illustration which Linnaeus obviously misinterpreted. In this case it is more understandable that he was misled as the illustration bears some resemblance to Linnaeus’ concept of his species. However, from the text in Dillenius’ work it is quite clear that a very different species is intended, which is not associated with calcareous rocks and marble. The species illustrated by Dillenius appears to be one which is now mostly in a disintegrated state in his herbarium and represents Mycoblastus affinis (Schaer.) Schauer, a species of acidic bark, soil and debris. The other element of this collection, which is not in accord with the illustration, represents sterile, isidiate Pertusaria pseudocorallina (Liljeblad) Arnold, certainly responsible for the English phrase-name quoted by Dillenius as “The white tartarous Scarlet-dying Lichenoides”.

To secure continued use of the name in the traditional and Linnaean sense, we will propose the name for conservation with a new type from Gotland where Linnaeus first saw this species, and where he reported that it covered the calcareous rocks, making it difficult to read the runic inscriptions thereon (Linnaeus, 1743: 183).

The material proposed as a conserved type represents Aspicilia calcarea (L.) Körb.


Linnaeus’ phrase-name for this lichen was taken unchanged from Flora suecica (1745), and he added references from three further works (see above).

There are two relevant sheets in LINN, both with Species plantarum (36) and Flora suecica (956) numbers in Linnaeus’ handwriting. Howe (1913: 83) typified the name on sheet 1273.115 (Fig. 11). This typification has been challenged by Krog & James (1977: 25) mainly on account of the unfortunate nomenclatural
consequences of Howe’s choice. As stated above (p. 267) we have, by re-examining Howe’s typifications, come to the conclusion that this is one of his lectotypifications which is formally correct according to the Code. The specimen is certainly one Linnaeus had available when writing *Species plantarum*, and it is not in conflict with the protologue as Linnaeus included both saxicolous and corticolous material. Quite clearly his name embraces both the saxicolous species, which is now called *Ramalina siliquosa* (Huds.) A.L. Sm., as well as the corticolous species which has always been known as *Ramalina calicaris* (L.) Fr. It was most unfortunate that Howe designated 1273.115 as type, but not incorrect. The lectotype represents the saxicolous species *R. siliquosa*. In order to prevent
a most undesirable name-change, we will separately propose conservation of the name with the same type as that designated by Krog & James (1977).

17. Lichen candelarius L., Species plantarum 2: 1141 (1753).

* Lepoi Scutellati.

13. LICHEN crucifectus flavus, Scutellis luteis.

* Lepoi Scutellati.

Lepoi Scutellati.

Byssus farinacea. It. al. 30.

Habitat in Europe. parietibus, muriis, truncis arborum. preaeftiu Quercus.

Linnaeus provided a new diagnostic phrase-name for this lichen, as well as citing his own phrase-names from two travel accounts (see above).

There are no relevant specimens in LINN, and an appropriate neotype from Öland has been selected by Santesson (in Moberg, 1986: 10). It represents Xanthoria candelaria (L.) Th. Fr., the lichen which traditionally has been used for colouring tallow candles to simulate the yellowed appearance of wax candles, hence the specific epithet chosen by Linnaeus.

Note that Byssus candelaris L. is a separate name for a different species (see above, p. 270) which Linnaeus introduced in Species plantarum for a sterile, sorediate species used for a similar purpose. In Öland and Gotland, Xanthoria candelaria is quite often fertile, as was observed by Linnaeus.


48. LICHEN foliaceus repens lobatus obtusus planus caninus.

Fll. suec. 961. Miter. med. 491.


Linnaeus's diagnostic phrase-name for this lichen was taken unchanged from Flora suecica (1745), also cited via Materia medica (1749). He also cites a further four synonyms, one of his own, and three from other sources (see above).

There are three sheets in LINN inscribed "Lichen caninus", but only two of these have the Species plantarum number (48) added. The sheet 1273.186 was evidently added after 1753, since it also bears the number 44 from Systema naturae ed. 10 (1759), possibly the year this specimen was added to the herbarium. Sheet 1273.184 bears, in addition to name and Species plantarum number in Linnaeus' own handwriting, the letter 'M', indicating that the material came from Magnol (Fig. 12) and was therefore present before 1753. This specimen is in accord with the protologue but referable, as annotated by Vitikainen, to an unusual, non-
Figure 12. The lectotype of *Lichen caninus*, LINN 1273.184, an unusual form of the lichen currently known as *Peltigera praetextata*. Note the little ‘m’ inscribed by Linnaeus just below the specimen, indicating that it came from Magnol in France. The number and epithet are also inscribed by him.

schizidiate form of *Peltigera praetextata* (Flörke ex Sommerf.) Zopf. This was correctly designated as (lecto)type by Howe (1912: 201). The cited illustrations all appear to represent *Peltigera membranacea* (Ach.) Nyl., the specimens in the herbaria of Dillenius and Morison confirming this.

Accordingly none of the original material matches *Peltigera canina* (L.) Willd. as presently understood. This name will therefore separately be proposed for conservation with a conserved type corresponding with its present usage. This is the generitype of *Peltigera* Willd.


41. **LICHEN** pallide viridis rugosus margine undulatus. *caperatus.*

*Roy. legell. 510. Guett. flump. 1. p. 31.*

*Lichenoides caperatum rosaceous exsanguinum.* *Dill. muiji.*

193. t. 25. f. 97.

*Muco-fungus lichenoides, crudse modo adnaasens major cinereus.* *Morif. kift. 3. p. 633. f. 15. t. 7.*

*f. 1.*

**Habitat in Europa & America ad saxa & arbores.**

Linnaeus did not know this lichen from Scandinavia, and he took his diagnostic phrase-name unchanged from van Royen (1740). He also cited two further synonyms accompanied by illustrations (see above).
There is no relevant material in LINN, nor has it been possible to trace any van Royen material at Leiden. Hale incorrectly (1976: 20) designated an unspecified specimen in the Dillenian herbarium as type. We select the Dillenian illustration as lectotype, with the corresponding specimen 97B in his herbarium (OXF) as epitype.

The lectotype represents *Flavoparmelia caperata* (L.) Hale (= *Parmelia caperata* (L.) Ach.), the generitype of *Flavoparmelia* Hale.


11. **LICHEN** leprosus cinereus, tuberculis albidis rugo-***carpineus***.

_Lichen geographicalus_. _Tr._ _scan._ 48.

_Habitat in Carpin* trunca*is, ramis._

Linnaeus provided a new diagnostic phrase-name for this lichen, referring to the account of his travels in Skåne (1751) where he first discovered the species on *Carpinus*.

There is one sheet in LINN, 1273.18, with the *Species plantarum* number (11) and name in Linnaeus' handwriting, additionally annotated 'ex carpino' by him. Most likely this is the collection he made in Skåne, already designated as type by Howe (1912: 201).

However, the piece of bark has three different species on it in a composite, map-like mosaic (Fig. 13), the reason Linnaeus (1751) called it *Lichen geographicalus*, a name he later used for a quite different saxicolous species. Two of the species on the bark piece are readily identified as *Leccidella elaeochroma* (Ach.) M. Choisy and *Lecanora chlorotera* Nyl., neither of which fits the description satisfactorily, although the latter has some characters in common with it. The third species is the only one with incipient white-pruinose ('albidis') apothecia. The apothecia are unfortunately young and the pruina consequently much less developed than in fully mature specimens of *Lecanora carpinea* (L.) Vain. However, the ephymenium is minutely fine-granular with numerous crystals penetrating downwards to and between the paraphyses (the _pulicaris_-type of Brodo, 1984: 75) and the thalline margin is packed with small crystals (the _campestris_-type of Brodo, 1984: 79). This crystal formation is typical of _L. carpinea_ as is also the thallus chemistry. Brodo & Vitikainen (in litt.) have assured us that the apothecia of LINN 1273.18 are representative of an immature state of this lichen.

Since Howe (1912) did not distinguish between the three taxa present on the bark-piece, we designate the largest specimen on the bark-piece (see Fig. 13) as lectotype, the one representing _Lecanora carpinea* (L.) Vain.


_Lichen foliis planis multifidis obtusi_ : *lacinii linearibus*, calycibus concavis. _Fl._ _lap._ 448, _t._ 11, _f._ 2.

_Lichen imbricatum viridum*_, tectillis badis. _Dill._ _nms._ 180, _f._ 24, _f._ 75.

_Habitat in Europa frigida rupibus._ _rumpetris._
Linnaeus’ diagnostic phrase-name is taken unaltered from *Flora suecica* (1745), and he also cited his *Flora lapponica* (1737) where he first described the species, along with a reference to Dillenius erroneously included as a synonym.

There are three sheets in LINN of this species, two of which, 1273.58 & .59, carry annotations by Linnaeus. The former carries both *Species plantarum* and *Flora suecica* numbers (18, 945), matches the original description well, is an obvious choice as lectotype and has already been designated by Howe (1912: 201). Since there is more than one specimen on the sheet, we restrict this choice to the uppermost one (see Fig. 14).

The specimen represents *Arctoparmelia centrifuga* (L.) Hale (*= Parmelia centrifuga* (L.) Ach.), the generitype of *Arctoparmelia* Hale. For a description of the species, see Thomson (1984: 475).
Figure 14: The lectotype (at arrow) of *Lichen centrifugus* L., LINN 1273.58 (that number written by Savage). Other numbers and epithet written by Linnaeus. The three pencil-inscriptions at different levels to the right are all by Sir J. E. Smith.

76. *Lichen* filamentosus subramosus decumbens im- chalybeiform- mult.

*Ulnea rigida horium vorsum extensu. Dill. muse. 66.

t. 13. f. 10.


*p. 65.

*Habitat in Europa supra rupes & sepimenta.*

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Figure 15. The lectotype of *Lichen chalybeiformis* L., LINN 1273.290, the lichen currently known as *Bryoria fuscescens*. The epithet is in the handwriting of Linnaeus filius, but the number was written by Linnaeus.
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745) where he had first described this species. He also cited two synonyms from works by British botanists (see above).

There are three sheets bearing this name in LINN, two of which, 1273.289 & 290 carry the *Species plantarum* number (76) inscribed by Linnaeus. Howe (1912: 201) designated a specimen numbered 76 as type, and marked the sheet 1273.290 with a red type-label (Fig. 15). Hawksworth (1971: 123) accepted this specimen as lectotype without discussion. Since there is no *Flora suecica* number, it is likely that this specimen was not the one on which the phrase-name from 1745 was based. However, Linnaeus almost certainly had this specimen in his possession by 1753 and we therefore accept this specimen as the lectotype.

As already pointed out by Krog (1980: 245), it represents *Bryoria fusescens* (Gyelnik) Brodo & D. Hawksw. In order to avoid a most undesirable name-change, we will separately propose the name be conserved with a new type.


Linnaeus provides a new diagnostic phrase-name taken ad verbatim from Koenig's manuscript (now in the collections at LINN). There are no other references.

There is a single relevant specimen in LINN, 1273.89, regarded as the type by Howe (1912: 201). This is one of the rare instances where a Linnaean holotype can be identified, as already suggested by Almborn (1989: 526). The specimen is inscribed '32 Koenig' (Fig. 16), the same number as that used in Koenig's manuscript and certainly the only element used by Linnaeus for his protologue. The specimen represents *Teloschistes chrysophthalmus* (L.) Th. Fr.; it should be noted that Linnaeus (1774: 807) later latinized the original Greek spelling, a correction allowed by the Code (Art. 60).


Linnaeus' diagnostic phrase-name for this lichen was first published in *Flora suecica*, and remains unaltered in *Species plantarum*. He also cites five synonyms from other sources (see above).
Figure 16. The holotype of *Lichen chrysophthalmus* L., LINN 1273.89, with Howe’s typification label. The minute name after 32 reads ‘Koenig’. All inscriptions by Linnaeus.

There are two sheets at LINN, but only one of these, 1273.92, is annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (28, 952). It was correctly designated as the (lecto)type by Howe (1912: 201); we restrict this choice to the uppermost specimen (Fig. 17). James & Rose later (1973: 467) incorrectly indicated an unspecified specimen in the Dillenian herbarium (OXF) as lectotype.

The lectotype represents *Anaptychia ciliaris* (L.) Körb., the generitype of *Anaptychia* Körb.
Figure 17. The lectotype (at arrow) of *Lichen ciliaris* L., LINN 1273.92 (that number written by Savage). All other inscriptions by Linnaeus.

Linnaeus provided this lichen with a new diagnostic phrase-name. He cited no other works.

There are no specimens of this saxicolous, crustose lichen in LINN.

Magnusson (1939: 128) discussed the typification of this name, and seemingly selected a specimen as (neo)type to be distributed in Malme’s exsiccate. However, he used the term type in an ambiguous way, at least mostly in the sense of ‘taxonomically typical’. Furthermore this collection was not issued in the exsiccate, and the material (now at UPS) is not uniform and distributed in several packets, none of which is marked type. His typification does not meet the requirements of the Code. We have therefore designated a neotype in conformity with the present usage of the name for *Aspicilia cinerea* (L.) Körb.; the same specimen is the generitype of *Aspicilia* Massal.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), also cited via *Materia medica* (1749). He further cited two of his own works as well as four other sources (see above).

There are three sheets in LINN. One, 1273.216, is annotated only by Linnaeus filius, and 1273.218 was possibly added later as it is annotated with the number 46 in addition to that of *Species plantarum* (57). Sheet 1273.215, however, has both *Species plantarum* and *Flora suecica* numbers (57, 972), and was regarded as a possible lectotype by Ahti & Stenroos (1986: 238), and was formally designated as such by Ahti (1993: 72). However, the sheet contains five specimens of two taxa (*C. cocciferus* and *C. pleurota*) and we therefore select the top specimen (Fig. 18) as the lectotype.

Chemically this specimen is in conformity with *Cladonia coccifer* (L.) Willd. s.s.
Figure 18. The lectotype of *Lichen cocceiferus* L. (at arrow), LINN 1273.215. All inscriptions by Linnaeus.
Linnaeus provided a new diagnostic phrase-name for this lichen. He cited no synonyms.

There are no original specimens in LINN of this saxicolous crust. We have therefore designated a neotype annotated by Ehrhart which is in accord both with the diagnosis and the present use of the name as *Pertusaria corallina* (L.) Arnold.


Linnaeus took the diagnostic phrase-name from *Flora suecica*, and he also cited his first description of it in *Flora lapponica*, as well as three other works (see above).

There is only one sheet, 1273.217, in LINN which bears both the *Species plantarum* and the *Flora suecica* numbers (58, 974). The specimen at first sight does not appear to match the protologue in any way. The specimen is a richly branched morph of *Cladonia squamosa* Hoffm., and certainly not a species with simple scyphae as described. However, on closer inspection it appears that this specimen has been glued on top of a single podetium of another species of *Cladonia* which does match the vegetative description of the protologue (Fig. 19). This specimen is a form of *Cladonia cornuta* (L.) Hoffm. with a narrow cup. Linnaeus describes, however, the apothecia as red (*coccineus*). This specimen is without fruits and if fertile would have had brown apothecia.

The material on which the cited Dillenian figure was based, belongs to *Cladonia cervicornis* (Ach.) Flotow subsp. *verticillata* (Hoffm.) Ahti, and this species also has brown apothecia. The figure in Barrelius (1714) is clearly also *C. cervicornis* subsp. *verticillata*. Linnaeus undoubtedly included this taxon as an unnamed variety under *Lichen pyxidatus* L. in *Species plantarum*, and why he chose to place these synonyms here is unclear to us. It is particularly noteworthy since in these cases the texts clearly record brown apothecia, in clear contradiction of Linnaeus’ own diagnosis of *L. cornucopioides*.

*Lichen cornuconioides* is a name which has hardly been in use since Vainio (1887:...
418) proposed abandoning it because of the discrepancies between the material in LINN and the diagnosis. We find it likely that Linnaeus based the description on the sterile specimen 1273.217 and guessed that it should have red fruits, or thought it to be similar to other red-fruited specimens he had seen. We therefore lectotypify it on that element of sheet 1273.217.

The only specimen is a young podetium of *C. cornuta* s.l., a very complex species (see Ahti, 1980). It is quite difficult to place this specimen with certainty among the accepted subspecies, but in our opinion it is best referred to subsp. *groenlandica* (E. Dahl) Ahti. Since this only possible type specimen is of uncertain identity and *L. cornucopioides* is a potential threat to *Cladonia groenlandica* (E. Dahl) Trass, when treated on species level, we will propose it for rejection.

29. **Lichen cornutus** L., *Species plantarum* 2: 1152 (1753).

> 63. LICHEN scyphifer, simpliciusculus subventricosus, calycibus integris. *Fl. svec. 976.*
> *Coralloides vir ramotum, scypis obscuris.* *Dill. mnsf. 92.* t. 15. f. 14.
> *Mufcus filufolius corniculatus.* *Barr. var. 1286.* t. 1277.
> *Habitat in Europa ericitis.*
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). He also cited the publication where he first records it, *Flora lapponica* (1737), and four other works as well (see above).

There are two sheets in LINN, both with *Species plantarum* and *Flora suecica* numbers (63, 976). Most of the material belongs to *Cladonia gracilis* (L.) Willd., but the lower specimen on 1273.223 (Fig. 20) is *Cladonia cornuta* (L.) Hoffm. as currently understood, and Ahti (1993: 73) designated this as lectotype.

Figure 20. The lectotype of *Lichen cornutus* L. (at arrow), LINN 1273.223. The upper 'branch' is a separate specimen of *Cladonia fuscata*. All inscriptions by Linnaeus.

24. LICHEN foliis imbricatis dentato-ciliatis, fuscis crispatis, folio majoribus.
Lichenoides gelatinosum, foliis imbricatis & crisatis.
_Habitat in Europa australi._

Linnaeus provided a new diagnostic phrase-name for this lichen which he did not know from Sweden. He obviously based this on the only publication referred to, that of Dillenius.

There are no specimens in LINN. The material in Dillenius’ herbarium (OXF) on which his illustration was based, here selected as epitype, represents _Collema tenax_ (Sw.) Ach. Degelius (1954: 308) designated a neotype from Italy which conforms with current use of the name (as _C. cristatum_ (L.) Weber ex F.H. Wigg.). However, the Dillenian illustration is original material as defined by the Code, and therefore has priority over a neotype. In order to prevent an undesirable name-change, we will separately propose the name be conserved with the type selected by Degelius.


crocatus.  LICHEN foliaceus, margine pulvereo-flavo.
_Habitat in India. Koenig._
Folia Lichenis hepatici infar foliacea, levia, margine supinncata scabraque, subustus villoso-adherentia.
_Margo adspersus pulvere flavo._

Linnaeus provided a new diagnostic phrase-name for this lichen, which he had evidently received only from one source. This specimen from Koenig is in LINN, sheet 1273.137 (Fig. 21). It was recorded as the type by Howe (1912: 201), and correctly regarded to be the holotype by Galloway & James (1980: 295).

The specimen represents _Pseudocyphellaria crocata_ (L.) Vain.

32. Lichen croceus L., Species plantarum 2: 1149 (1753).

49. LICHEN foliaceus repens subrotundus planus sub-crocceus, fuscus venefus villoosus croceus, peltis sparsis adnatis.
_Fl. suec._ 965.
Lichen foliis subrotundis planis levifrons incliti, caly- cibus orbiculatis dicibus folii adnatis. _Fl. lap._ 443. _s.
Lichen alpinus viridis subustus aurantius, fuscus magnis nitris planeatis. _Hall._ helv. 74.
Lichenoides subustus croceus, peltis appressis. _Dill._ _ms._
121. _f._ 39. _f._ 120.
_Habitat in Lapponia, Helvetia, Grænlandia, terraebris._
Linnaeus took the diagnostic phrase-name from *Flora suecica* (1745), and also included a reference to the first work where he described it, *Flora lapponica* (1737). He also cited three other works (see above).

There are four sheets of this species in LINN, three annotated by Linnaeus. Of these only one, 1273.189, has both *Flora suecica* and *Species plantarum* numbers (49, 965). The single specimen (in two pieces) on this sheet (Fig. 22) is an obvious choice as lectotype, recorded as the type by Howe (1912: 201), and incorrectly regarded as the holotype by Gilbert (1975: 190).

The specimen represents *Solorina crocea* (L.) Ach.
Linnaeus took the diagnostic phrase-name from Montin's dissertation on Splachnum (Linnaeus 1750). He also cited Dillenius (1742).

There are no Swedish (or other) specimens of this taxon in LINN. This is particularly unfortunate since we are convinced that the material concerned must have been that of Umbilicaria cylindrica (L.) Delise ex Duby as currently understood, in spite of the fact that Linnaeus placed his lichen in his group Foliacei. However, from his original manuscript (p. 135) it is clear that he had some doubts about the correctness of this particular placement, and in his personal interleaved copy of Species plantarum, he notes under Lichen proboscideus 'idem cum cylindrico 29 id. ad eam referenda' (identical with 29 Lichen proboscideus and to be referred to that species). In the second edition of this work (1763), he placed the name Lichen cylindricus as a synonym of his L. proboscideus, and therefore the latter name has priority if these two names are considered to represent the same species. This treatment was followed by most subsequent botanists, until Acharius (1799: 148), somewhat reluctantly, resurrected...
Figure 23. Table XX, fig. 42 of Dillenius (1743). The upper left specimen is superficially very similar to *Lichen cylindricus* sensu Montin, and is certainly responsible for Linnaeus' mistake in including the illustration under this species.

*L. cylindricus* in the sense we know it (and incorrectly adopted the name *L. proboscideus* for a different species). Acharius' view was soon accepted, and his nomenclature has persisted.

The cited Dillenian illustration, based on specimens from Pennsylvania, was already included by Linnaeus in Montin's dissertation. The material on which it is based is *Parmotrema perforata* (Jacq.) Hale. The reason for this mistake is certainly the small sterile specimen in the upper left corner of the Dillenian illustration (Fig. 23), which superficially is very similar to the Acharian concept of *Umbilicaria cylindrica*. The young apothecia of the lower specimen also resemble those of *Umbilicaria*, and Linnaeus may have believed that the similar apothecia on his Swedish specimen would develop to the large perforated apothecia in the other specimens portrayed in the Dillenian illustration.

Wei (1993: 4–6) has suggested that *L. cylindricus* L. should be rejected, but failed to propose this formally, and made an illegitimate *nomen novum* for the species sensu Delise (in fact sensu Acharius), *Umbilicaria neocylindrica* Wei. There are, however, several older names available for *U. cylindrica* sensu Ach. which would need to be studied and typified before any *nomen novum* could be applied. We believe a much better solution is to propose conservation of the name with a new type agreeing with the 200 year long application of the name, so that a most undesirable name change can be avoided.


Linnaeus took the diagnostic phrase-name for this lichen unaltered from *Flora suecica* (1745), citing the first work in which he treated it, *Flora lapponica* (1737),
as well as two other sources, though adding that the figure in Dillenius was bad (mala).

Unfortunately there are no specimens in LINN, and the cited illustrations are all problematical. The illustration in Flora lapponica is difficult to interpret. The poor match with the Dillenian illustration, noted by Linnaeus, arises from the fact that the Dillenian specimens represent Cladonia polydactyla (Flörke) Sprengel. The reference to Michelius is also doubtful, this illustration possibly representing a form of C. chlorophaea (Flörke ex Sommerf.) Sprengel.

We therefore find it best to try to interpret the Linnean illustration in Flora lapponica. It appears to represent two species, of which the element with narrow cups could be interpreted as a form of C. deformis. We accordingly designate that element of the illustration (Fig. 24) as lectotype with Malme's exsiccate 533 as epitype, the same specimen on which Ahti (1993: 75) neotypified it.

35. Lichen deustus L., Species plantarum 2: 1150 (1753).
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). He cited his own *Flora lapponica* (1737), where it first appeared and three other sources (see above).

There is one sheet in LINN, 1273.206, with *Species plantarum* as well as *Flora suecica* numbers (54, 970) in the handwriting of Linnaeus, the obvious choice as lectotype (Fig. 25) as recorded by Howe (1912: 201), and repeated by Wei (1993: 12).

The type represents *Umbilicaria proboscidea* sensu Ach. (non L., see above p. 264). Wei (1993: 13) has introduced an illegitimate nomen novum, *U. neoproboscidea* Wei for it, and has taken up *U. deusta* auct. ( = sensu Acharius). In order to avoid these undesirable changes of names, we will separately propose the name *Lichen deustus* to be conserved with a new type to secure the continuity of nearly 200 years use of the name in the Acharian sense.


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**Figure 25.** The lectotype of *Lichen deustus* L., LINN 1273.206, the lichen currently known as *Umbilicaria proboscidea*. All inscriptions by Linnaeus.
Linnaeus adopted the diagnostic phrase name from *Flora suecica*, but added the word *nodosis*. He also cited two synonyms (see above).

There are no relevant specimens in LINN. The material matching the Dillenian illustration (OXF) represents *Cladonia floerkeaana* (Fr.) Florke. As this illustration was cited in the protologue, it is the only possible lectotype. However, in order to prevent an undesirable name change, we will propose the name conserved with a new type, the same specimen selected as neotype by Ahti (1993: 75).


Linnaeus provided a new diagnostic phrase-name for this species, and also cited two other works (see above).

There is one relevant sheet in LINN, 1273.277, bearing the specimen sent to him by Schreber, still with the original label attached (Fig. 26). Howe (1912: 201) regarded this as the type. Since there are several specimens on the sheet, we have restricted this choice to the specimen on the extreme right (Fig. 26).

The type represents *Evernia divaricata* (L.) Ach. For a recent description, see Krog *et al.* (1980).


Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but changed the description of the colour from *candidis* to *incarnatis*. He also cited his first publication of the species, in *Flora lapponica* (1737), and added three other sources (see above).

There are five sheets of this species in LINN, of which first Howe (1912: 201) and later Imshaug (1972b: 301) selected 1273.19 as lectotype (Figure 27). This sheet bears both *Flora suecica* and *Species plantarum* numbers (12, 936).

The lectotype represents *Icmadophila ericetorum* (L.) Zahlbr., the generitype of *Icmadophila* Trev.
Figure 26. The lectotype of *Lichen divaricatus* L. (at arrow), LINN 1273.277 (that number written by Savage), with the original Schreber label and Howe's typification label. Epithet written by Linnaeus.
Figure 27. The lectotype of *Lichen ericetorum* L., LINN 1273.19. The name *Icmadophila* might possibly have been written by Linnaeus filius (certainly not by Swartz as claimed by Savage, 1945: 198). All other inscriptions by Linnaeus.


10. **LICHEN leprosus albus, tuberculis albis farinaceis, Fagineus.**

   *Habitat in Europa, vestiens trunca Fagi.*

Linnaeus adopted the diagnostic phrase-name from *Iter scanicum* (1751), but modified *crustaceus* to *leprosus*, and cited no synonyms.

There are no specimens in LINN. As pointed out by Laundon (1963: 143) the name can be and has been applied to several grey, sorediate, corticolous, crustose species because of the generalized nature of the protologue; it could apply to any of these sterile lichens and, consequently, we can only regard this as a *species non satis nota* and will propose the name for rejection.


22. **LICHEN imbricatus: foliis linearibus dichotomis fahlunensis, planiulculis acutis nigris, scutellis atris. Fl. suec. 1140.**

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and added a reference to Dillenius (1742).

There are two sheets in LINN inscribed *fahlunensis*; one (1273.69) is in the hand of Linnaeus filius, a specimen of *Cetraria commixta* (Nyl.) Th. Fr. The other (1273.68) is annotated in Linnaeus' hand and represents what is presently called *Melanelia stygia* (L.) Essl. However, this sheet bears no numbers referring to any work and was almost certainly added later than 1753. This specimen is, however, taxonomically identical with that on another sheet (1273.70) annotated '22 stygius, 1140' in Linnaeus' hand. This is certainly a specimen he possessed in 1753, the numbers referring to the accounts of *L. fahlunensis* in *Flora suecica* and *Species plantarum* respectively (Fig. 28). We are quite convinced that this is a case where Linnaeus first annotated the sheet with the relevant numbers only, and later with a different pen added the wrong species epithet. He obviously had difficulties in distinguishing between these species. The material on sheet 1273.70 closely matches the protologue of *Lichen fahlunensis*, and we accordingly select it as the lectotype for *L. fahlunensis*.

![Figure 28. The lectotype of *Lichen fahlunensis* L., LINN 1273.70, the lichen currently known as *Melanelia stygia* as in fact later annotated by Linnaeus, but the numbers which were first applied both refer to *L. fahlunensis*.](image-url)
The lectotype represents *Melanelia stygia* (L.) Essl. ( = *Parmelia stygia* (L.) Ach.). Unfortunately Schaerer (1840) chose the epithet *fahlunensis* when he united it with *L. stygius*, and under Art. 11.5 his choice must be followed. It would, however, be very unfortunate to have to reintroduce this epithet for the taxon since *fahlunensis* has mostly been used for the species currently called *Cetraria commixta* (Nyl.) Th. Fr. (sometimes also for *C. hepaticzon* (Ach.) Vain. after Acharius (1799) incorrectly transferred the name *Lichen fahlunensis* to this species). We will therefore propose *Lichen fahlunensis* for rejection in order to avoid a most undesirable confusion of names.


*farinaceus.* 35. LICHEN foliacex erectus compressus ramosus farinaceus; foliis verticillatis. Fl. Suec. 957.

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745) and also cited three other synonyms (see above).

There are two sheets in LINN, one of which, 1273.110, is annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (35, 957). This was regarded as the type by Howe (1912: 201). Later, Hawksworth (1969: 255) restricted this choice to the lowest specimen on this sheet (Fig. 29).

The lectotype represents *Ramalina farinacea* (L.) Ach.


*fascicularis.* 93. LICHEN foliacex gelatinosus, tuberculais turbinatis. Fas. fasciculatis fronde majoribus.

Linnaeus provided a new diagnostic phrase-name for this species and cited one additional synonym.

There are two sheets in LINN, neither annotated by Linnaeus. Howe (1912: 201) and later Degelius (1954: 451) selected 1273.141 as lectotype (Fig. 30). This collection is annotated by Linnaeus filius, who is cited as the collector in the protologue. This specimen was most probably collected by him with Zoëga on
Figure 29. The lectotype of *Lichen farinaceus* L., LINN 1273.110, the lowermost specimen on the sheet, with Howe's typification label. Numbers written by Linnaeus. The epithet *farinaceus* is in Olof Swartz's handwriting.

Figure 30. The lectotype of *Lichen fascicularis* L., LINN 1273.141, annotated by Linnaeus filius.
the excursion near Stenbrohult referred to above, and almost certainly represents the original collecting, although Linnaeus himself has not made any specific annotation. As outlined above, Linnaeus at this time clearly left much of the work on his lichens to his son.

The material represents *Collema fasciculare* (L.) Weber ex F.H. Wigg.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and cited his first record of it in *Floralapponica* (1737), as well as adding three other references (see above).

There is no material in LINN. The material on which the Dillenian illustration is based has been located at OXF, and is the species as understood today. Ahti (1993: 77) designated the Dillenian figure as lectotype, and we select the first specimen of the lower row of Tab. XIV no. 8 in Dillenius’ herbarium as epitype.

It represents *Cladonia fimbriata* (L.) Fr.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica*. He also cited six other works (see above).

There are two sheets in LINN, one (1273.300) annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (80, 991). Howe (1910a: 3; 1910b: 608) regarded Dillenian material as the type, but failed to typify it effectively on that element. However, he later (Howe 1912: 201 and 1914: 374) typified it effectively and correctly on the Linnaean sheet, and Clerc (1984: 346) restricted the lectotype to the lowest specimen (Fig. 31).
The material represents *Usnea florid* (L.) Weber *ex* F.H. Wigg., the generitype of *Usnea* Hill.


69. **LICHEN fruticulosus solidus, ramulis teretibus obtusis. Fl. suec. 983.**

*Lichen erectus ramooffluminus, ramulis teretibus nudis filiformibus obtusis. Fl. lapp. 440. t. 11. f. 4.*

*Coralloides alpinum, coralline minoris facie. Dill.muse.*

116. t. 17. f. 34.

*Habitat in Europa alpibus alpinisque, per Sueciam in rupibus.*
Linnaeus adopted the diagnostic phrase-name from *Flora suecica* for this species, but removed the word *nudis*. He also cited two synonyms (see above).

There are three sheets of this lichen in LINN, only one of which, 1273.261, is annotated by Linnaeus. It has both *Species plantarum* and *Flora suecica* numbers (69, 983) and has been designated as lectotype by Howe (1912: 201). Wedin (1993: 216) restricted this choice to the uppermost specimen on this sheet (Fig. 32).

The lectotype represents *Sphaerophorus fragilis* (L.) Pers.

Linnaeus took the diagnostic phrase-name for this lichen unaltered from *Flora suecica* (1745), and also cited four synonyms (see above).

There are five sheets of this lichen in LINN, three of which are annotated by Linnaeus. The obvious choice of lectotype is 1273.121 which has both *Species plantarum* and *Flora suecica* numbers. This was designated as (lecto)type by Howe (1912: 201), and restricted to the specimen marked B by Krog & James (1977: 33) (Fig. 33).

The lectotype represents *Ramalina fraxinea* (L.) Ach., the generitype of *Ramalina* Ach.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), also referring to his first account of the species in *Flora lapponica* (1737). He further cited three synonyms of other botanists (see above).

There are two sheets of this lichen in LINN, only one of which is annotated by Linnaeus, 1273.107, a specimen with both *Species plantarum* and *Flora suecica* numbers (33, 953). It is the obvious lectotype and was recorded as the type by Howe (1912: 201). Hawksworth and Chapman (1971: 51) later restricted this choice by typifying the var. *furfuraceus* on the central specimen containing physodic acid (Fig. 34), a rather unfortunate choice since it does not represent
Figure 34. The lectotype (at arrow) of *Lichen jurjaceus* L., LINN 1273.107 (that number written by Savage), with Howe's typification label. The other inscriptions by Linnaeus.
the main chemotype in northern Europe, as do the four other specimens on the sheet which belong to var. ceratea (Ach.) D. Hawksw.

The lectotype represents *Pseudevernia furfuracea* (L.) Zopf, the genericotype of *Pseudevernia* Zopf.


Linnaeus provided a new diagnostic phrase-name for this lichen. He cited no synonyms.

There are no specimens of this saxicolous, crustose species in LINN, and a neotype has been designated by Hertel (1977: 244).

The neotype represents *Lecidea fuscoatra* (L.) Ach., the genericotype of *Lecidea* Ach.


Linnaeus did not know this species from Sweden and evidently based his description entirely on a specimen sent to him, possibly via Zoëga, among the crustose lichens treated in *Mantissa*, specimens of which are all missing from the Linnaean herbarium. The reference to Dillenius (1742) is not a synonym, but a discussion of the difference between his illustration and the material studied by Linnaeus.

There are no specimens in LINN, and we have not been able to trace the König specimen elsewhere. Lamb (1947: 202) recorded the type as lost, and gave a detailed description based on another specimen from Iceland “collected probably near the type locality”. Lamb appears to have regarded this as a neotype, but as he fails explicitly to say so, we here formally designate his selected specimen as neotype. Lamb incorrectly records the county in Iceland where the specimen was collected as Arnes (= Arnasysla), instead of Kjosarsysla.

The specimen represents *Placopsis gelida* (L.) Lindsay, the genericotype of *Placopsis* (Nyl.) Lindsay.


Linnaeus did not know this species from Sweden and evidently based his description entirely on a specimen sent to him, possibly via Zoëga, among the crustose lichens treated in *Mantissa*, specimens of which are all missing from the Linnaean herbarium. The reference to Dillenius (1742) is not a synonym, but a discussion of the difference between his illustration and the material studied by Linnaeus.

There are no specimens in LINN, and we have not been able to trace the König specimen elsewhere. Lamb (1947: 202) recorded the type as lost, and gave a detailed description based on another specimen from Iceland “collected probably near the type locality”. Lamb appears to have regarded this as a neotype, but as he fails explicitly to say so, we here formally designate his selected specimen as neotype. Lamb incorrectly records the county in Iceland where the specimen was collected as Arnes (= Arnasysla), instead of Kjosarsysla.

The specimen represents *Placopsis gelida* (L.) Lindsay, the genericotype of *Placopsis* (Nyl.) Lindsay.
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), citing a single synonym, that of Dillenius (1742).

There are no specimens of this saxicolous crust in LINN. Hawksworth & Sowter (1969: 58) showed that the name can be typified on the Dillenian element, but incorrectly designated the specimen in the Dillenian herbarium as the type. We have therefore designated the cited Dillenian illustration as lectotype with the corresponding specimen in his herbarium as epitype. As already pointed out by Santesson (in Weber, 1963: 25), there is no reason to regard the name as a *nomen ambiguum* as suggested by Runemark (1956: 89). Linnaeus did not use this name in any broader sense than many of the other species names we accept, and it is quite possible to typify the name without ambiguity.

The type represents *Rhizocarpon geographicum* (L.) DC. and belongs to the main form, called *R. tinei* (Tornab) Runem. subsp. *vulgare* Runem. by Runemark, both chemically (psoromic and rhizocarpic acids) and in spore-size (32 × 12 µm). It is the generitype of *Rhizocarpon* Ram. ex DC.


Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but removed the word *repens*. He cited two synonyms from other sources (see above).

There are two sheets in LINN, one annotated by Linnaeus, 1273.139, with both *Species plantarum* and *Flora suecica* numbers (42, 966). This is the obvious lectotype which was designated by Howe (1912: 201) and repeated by Culberson & Culberson (1968: 534). We restrict this choice to the lowest specimen, directly associated with the *Flora suecica* number (Fig. 35).

The lectotype represents *Platismatia glauca* (L.) Culb. & C. Culb., the generitype of *Platismatia* Culb. & C. Culb.

Linnaeus provided a new diagnostic phrase-name for this lichen. He also cited two synonyms from other sources (see above).

There are two sheets in LINN, 1273.251 and .252 annotated by Linnaeus filius, who is recorded as the collector in the text. These are most certainly specimens from the excursion with Zoëga at Stenbrohult mentioned above, and Howe's typification (1912: 201) using 1273.251 (Fig. 36) is accordingly correct, though he believed the specimen to be annotated by Linnaeus.

The lectotype represents *Sphaerophorus globosus* (Huds.) Vain. of which it is a synonym.


61. **LICHEN** scyphifer ramosus denticulatus filiformis. *Fl. suec.* 975.

*Lichen pyxidatus* & *corniculatus* ramosus alpinus e fu-

*Coralloides* scyphiferme serratum elatus, caulis bra-

*Musco-fungus* pyxidatus gracilior ramosus, calycibus

*Habitat* in Europe ericeti, monosii, sylvatici.
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica*, adding three synonyms from other sources (see above).

There are two sheets in LINN, one of which, 1273.221, is annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (61, 975). However, this specimen belongs to what is currently named *Cladonia crispata* (Ach.) Flotow.

The specimen representing the Dillenian illustration is, however, *Cladonia gracilis* (L.) Willd. as presently understood, and Ahti (1993: 79) has lectotypified it on this element (‘f. 31’ is a correctable misprint for ‘f. 13’). We select here the corresponding specimen in the Dillenian herbarium as epitype.


77. *Lichen* filamentosus ramosissimus erectus, tuber- hirtus.
   culis rarioribus (partis, *Fl. lapp.*, 989.
   Ulìca vulgaris tenuior & brevier line orbiculis.
   *Dill. musi*, 67. f. 13. f. 12.
   *Habitat in Europæ arboriis, sepiments.*
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (mistakenly cited as *Fl. lapp.*) and appends two synonyms from other sources (see above).

There are six sheets in LINN, three with Linnaean annotations, but only one, sheet 1273.292, with both *Species plantarum* and *Flora suecica* numbers (77, 984). This sheet was recorded as type by Howe (1912: 201), but with a note that it was a composite. Although he also indicated, with a label, this sheet as the type, he unfortunately regarded it as the type of *L. plicatus*, and not *L. hirtus*. This error was caused by the confused numbering, as the *Flora suecica* number (984) refers to *L. plicatus* of that work. However, Linnaeus has also annotated the sheet with '77 hirtus' (Fig. 37), which is in accordance with *Species plantarum*. We interpret this as a change of mind on his part, a re-identification of this specimen. It cannot therefore serve as a type for *L. plicatus* as understood in *Species plantarum*, nor can we accept that *L. hirtus* was formally correctly typified by it by Howe. The specimen selected by Howe represents *Usnea lapponica* Vain.

We have therefore turned to the Dillenian element, reported by Crombie (1880) to be *Usnea hirta* (L.) Weber ex F.H. Wigg. Unfortunately this is not

Figure 37. The lectotype of *Lichen hirtus* L., LINN 1273.292 (part of this number written by Savage, seen to the right), with Howe’s typification label. This is the lichen currently known as *Usnea lapponica* Vain. The sheet was initially annotated by Linnaeus with the number of *Lichen plicatus* from *Flora suecica*, but was reidentified by him later as *L. hirtus* when working on *Species plantarum*. 
correct as the relevant specimens (marked ‘C’, ‘D’) are *Usnea cornuta* Körb. and two other collections (marked ‘A’) represent *Usnea wasmuthii* Räs. (from England) and *Usnea hieronymii* Krempelh. (from Buenos Aires). An additional young specimen, marked ‘B’, appears to be *Usnea cf. subfloridana* Stirt.

Since this illustration is the only original material at our disposal, we have lectotypified *Lichen hirtus* on it. However, in order to avoid an unnecessary name change we will separately propose that the name be conserved with a new type, conforming with the present concept of the species.


30. LICHEN foliaceus adscendens laciniatus; marginis islandicae. 


Lichen terrestris, folis etnigii. *Buxb. cent. 2. p. 11.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and also cited through *Materia medica* (1749), as well as his first treatment in *Flora lapponica* (1737). He further cited synonyms from three other sources (see above). There are three sheets of this lichen in LINN, one of which, 1273.97, is annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (30, 959). This is the obvious lectotype, and has already been designated as the type by Howe (1912: 201). Kärnefelt (1979: 98) restricted this choice to the lower specimen on the sheet (Fig. 38).

The lectotype represents *Cetraria islandica* (L.) Ach. subsp. *islandica*, the generitype of *Cetraria* Ach.
Figure 38. The lectotype of *Lichen islandicus* L., LINN 1273.97, the lowermost of three on the sheet, with Howe's typification label. All inscriptions by Linnaeus.

Figure 39. The lectotype of *Lichen islandicus var. tenuissimus* L., LINN 1273.100, with Howe's typification label. The first two numbers written by Linnaeus. ‘30 islandicus’ written by Olof Swartz. This is the lichen currently called *Coelocaulon aculeatum*. 
The lectotype specimen represents *Coelocaulon aculeatum* (Schreb.) Link, the genericotype of *Coelocaulon* Link.


73. *LICHEN filamentosus pendulus: axillis compressis, jubatus, Fl. suec. 586.

Lichen ramis filiformibus ramosis pendulis, alis compressis, *Fl. lapp. 456.

*Ulmus jubata nigricans. Dill. muse. 64. t. 12, f. 7.*


*Habitat in Europa fylvis & rupibus.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and also cited his first treatment of it in *Flora lapponica* (1737). He further cited two synonyms from other sources (see above).

There are two sheets of this name in LINN, one of which 1273.281, is annotated by Linnaeus with both *Species plantarum* and *Flora suecica* numbers (73, 1386; in mistake for 986). This is the obvious lectotype, designated by Howe (1912: 201), and Hawksworth (1970: 238) restricted this to the left hand specimen, excluding the specimen referable to *Alectoria sarmentosa* (Ach.) Ach. (Fig. 40).

The lectotype appears to be a coarse, sparsely branched specimen of *Bryoria fremontii* (Tuck.) Brodo & Hawksworth without the characteristic yellow soralia, rather than *A. prolixa* as understood by Motyka (1958). Since the name had been so widely adopted for brown hanging *Bryoria* species, Hawksworth & Sherwood (1981: 348) proposed the name for rejection, and this was recommended by the Committee for Fungi and Lichens (Korf, 1986: 555), and *Lichen jubatus* is now listed as a rejected name.


40. *LICHEN foliaceus laciniatus crüpus fulvus, peltis li-juniperinus, vidis, Fl. suec. 967.

Lichen fulvus juvitis dödalis laciniatus. *Fl. lapp. 450.

Roy. -loyd. 51c.

*Habitat in Europa juniperinis, arboresus.

Diff.: a L. particeps colore pallide flavo; folis laxis crez. infusionis; peltis dico brunneis.*

Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but notably added the words *peltis lividis.* He further recorded his first treatment of the species in *Flora lapponica* (1737) and cited one other work (see above).

There are six sheets in LINN referred to this species, of which Linnaeus has annotated four. Two of these, 1273.129 and 1273.132, have both *Species plantarum* and *Flora suecica* numbers and both are particularly relevant in the discussion on the lectotype choice.

None of the Linnaean specimens belongs to *Vulpicida* (= *Cetraria* juniperinus (L.) Mattsson & M.J. Lai as presently understood. This is a case where the Linnaean species-concept changed considerably over the years. There is no doubt about the identity of the lichen described by him from Lapland, but
Figure 40. The lectotype of *Lichen jubatus* L. (at arrow), LINN 1273.281 (that number written by Savage), with Howe’s typification label. The other inscriptions by Linnaeus. This is a form of the lichen currently known as *Bryoria fremontii*. 
unfortunately this specimen has not been traced (see p. 265). As shown by the existing specimens, as well as the text, Linnaeus considerably widened his concept of *Lichen juniperinus* in *Flora suecica* (1745), by including both *Xanthoria parietina* (L.) Th. Fr. (viz. 1273.129) and *Vulpicida tubulosus* (Schaer.) Mattsson & M. J. Lai (= *Cetraria alvarensis* (Wahlenb.) Vain.) (viz. 1273.128 & .132) in it. The manuscript of *Species plantarum* clearly shows (see p. 392) that he only became aware of the confusion with *Xanthoria parietina*, after having written the first version of *Species plantarum*. He added *Lichen parietinus* to the manuscript and at the same time he emended the text of *L. juniperinus*, removing the reference to Dillenius, specifically indicating the distinguishing characters (but evidently forgetting to correct the inscription on sheet 1273.129). The mention of apothecia in the protologue plays an important part in this change and comments. Since both 1273.128 and .132 are represented by sterile specimens, it is clear that Linnaeus must have based his revised species concept on a fertile specimen of *Vulpicida juniperinus*, now missing from his herbarium. In spite of this, it is impossible to escape the fact that the existing sterile specimens were included within the Linnaean concept in both these works. It is therefore not possible to prove that Howe (1912: 201) was in error in designating one of these sheets (1273.128) as lectotype and Mattsson (1994) restricts this choice to the right hand specimen (Fig. 41).

The lectotype represents *Vulpicida tubulosus*, and to avoid an undesirable name change, the name *Lichen juniperinus* will separately (Mattsson, 1994) be proposed for conservation with a new type according to the present concept of the species, which is in agreement with the Linnaean concept in *Flora lapponica*.


*laeus. 86. LICHEN leprosus albus, tuberculis concoloribus hemispherics,
Habitat ubique in rupibus, faxis. Zaga.
Tubercula majuscula sunt.*

Linnaeus provided a new diagnostic phrase-name for this lichen, basing it entirely on the specimen sent to him by Zoëga, citing no other references.

There are no specimens of this saxicolous crustose lichen in LINN. Accordingly a neotype securing the present concept of the name, has been designated.

The neotype represents *Pertusaria lactea* (L.) Arnold.


*74. LICHEN filamentosus ramosissimus decumbens in lanatus, plicatus opacus. Fl. Suec. 987.
Ulina lanii nigrae in faxis adhaerens. Dill. musc. 66.
t. 13. f. 8.
Habitat in Europae frigida rupibus.*
Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but added the word *opacus*. He also cited Dillenius (1742).

There is a single sheet in LINN, 1273.284, annotated by Linnaeus, inscribed only with the *Species plantarum* number, 74. Howe (1912: 201) regarded this as the type (Fig. 42). There are, however, several problems concerning the dating of this specimen. The annotation, 'L 89', has been attributed to Loefling who was a
student of Linnaeus (1745–49) and collected in Portugal and particularly in Spain (1751–53). Some of Loefling’s Spanish material reached Linnaeus in time to be included in Species plantarum, and was added with clear reference to Loefling, obviously in the last stages before the work went to print. In the case of Lichen lanatus there is no such printed reference nor have we been able in the letters from Loefling to Linnaeus or in lists of his material to find any reference to this lichen or the collecting number. Such low numbers are usually found among the grasses collected by Loefling in Spain (López González, pers. comm.). We cannot therefore rule out the possibility that ‘L’ in this particular case does not refer to Loefling or that the material might have been collected by Loefling when he was a student in Uppsala. In spite of these uncertainties Howe’s typification must be accepted, since we have not been able to prove him wrong.

The specimen represents Ephebe lanata (L.) Vain., the generitype of Ephebe Fr.
Linnaeus provided a new diagnostic phrase-name for this lichen, evidently based on the specimen which had been sent to him, together with a description. This specimen is still present in LINN, 1273.109, marked ‘Amer.’ by Linnaeus (Fig. 43). It represents the holotype (Swinscow & Krog, 1976: 124), and is Heterodermia leucomelaena (L.) Poelt.

As pointed out by Salisbury (1978: 132–134), the epithet leucomelos is
meaningless, referring to ‘white melody’. We agree with him that Linnaeus clearly intended to reflect the contrast between white and black, a feature of the thallus of this species, the correct Greek terminology for this being \textit{leucomelas/leucomelaena}. The then editor of \textit{The Lichenologist} (D. L. Hawksworth) in an appended comment to Salisbury’s paper maintained with support from ‘several colleagues’ that it is not possible to prove that this is a misprint, and the name cannot therefore be corrected according to the Code. However, the sheet of the type specimen is inscribed \textit{leucomelus}, clearly showing that Linnaeus attempted to latinize the Greek black-white epithet (though he did not succeed in doing it correctly, as in several other cases of epithets of Greek origin). We therefore regard it as correctable and see no reason for the continued use of a meaningless epithet.


Linnaeus provided a new diagnostic phrase-name for this lichen, also citing two other synonyms (see above).

There are no specimens in LINN, and Linnaeus evidently had no specimens of his own. We therefore designate the cited Dillenian plate as lectotype with the corresponding specimen in his herbarium (OXF) as the epitype.

The lectotype represents \textit{Dermatocarpon miniatum} (L.) Mann, the generitype of \textit{Dermatocarpon} Eschw.

64. \textit{Lichen nivalis} L., \textit{Species plantarum} 2: 1149 (1753).

Linnaeus took the diagnostic phrase-name unaltered from \textit{Flora suecica} (1745), and also included a reference to his first record of this lichen in \textit{Flora lapponica} (1737). He further cited Dillenius (1742).

There are two sheets in LINN, one of which, 1273.101, is annotated by Linnaeus with both \textit{Species plantarum} and \textit{Flora suecica} number (31, 958). It is the obvious lectotype, already selected by Howe (1912: 201). We restrict this choice to the bottom left specimen (Fig. 44).

The lectotype represents \textit{Cetraria nivalis} (L.) Ach.
Figure 44. The lectotype (at arrow) of *Lichen nivalis* L., LINN 1273.101, with Howe’s typification label. Other inscriptions by Linnaeus.
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and cited the first place he published this lichen, *Flora lapponica* (1737). He also included references to two other synonyms (see above).

There are two sheets in LINN, one of which, 1273.66, is annotated by Linnaeus. It has both *Species plantarum* and *Flora suecica* numbers (21, 948), and has been designated as lectotype by Howe (1912: 201) (Fig. 45), a choice later accepted by Ahti (1966: 10).

This is again a case where it is quite clear what Linnaeus was describing in *Flora lapponica*, the corticolous species which shows the limit of snow-depth on the trees, currently called *Melanelia olivacea* (L.) Essl. (= *Parmelia olivacea* (L.) Ach.). He later broadened the concept of his species to include the saxicolours *Neofuscella pulla* (Ach.) Essl. (= *Parmelia pulla* Ach.), the species found on sheet 1273.66. Quite clearly Howe’s lectotypification is formally correct, and in order to prevent an undesirable change of name we will propose the name to be conserved with a new type, securing the present use of the name. For a recent description of the species see Ahti (1966: 10).

Linnaeus took the diagnostic phrase-name from *Flora suecica* (1745) with a slight emendation, using the word *incanis* instead of *canis*. He cited two other botanical works in synonymy (see above).

There is only one sheet in LINN, 1273.61, which is named *omphalodes*. This bears both *Species plantarum* and *Flora suecica* numbers (19, 946). These are, however, the numbers for *Lichen saxatilis* and indeed most of the specimens on the sheet represent this species (one specimen is *Parmelia sulcata* Tayl.). The incorrect addition of the epithet *omphalodes* must have been a (later?) slip of the pen or an aberration of thought.

Linnaeus had obvious difficulties with these two species. In his manuscript for *Species plantarum* (see p. 388) he first gave the epithet *saxeus* to *L. saxatilis*, but changed it to *rupestris*, and applied *saxeus* to *L. omphalodes*. It was only in the
Figure 45. The lectotype of *Lichen olivaceus* L., LINN 1273.66, the lichen currently known as *Neofuscelia pulla*. All inscriptions by Linnaeus.

proof-stages of the book that he finally chose the names by which we now know these two lichens. The citation of Dillenius in the protologue makes it possible for us to designate his illustration 80A, as lectotype with the corresponding specimen in his herbarium (OXF) as epitype. Hale's typification (1986: 34) of specimens and illustration 80A, is not specific enough to be acceptable.

The lectotype represents *Parmelia omphalodes* (L.) Ach.


\[ palle\textit{scens.} \]

15. *LICHEN crustaceus albicans, sectellis pallidis. Fl. suec. 944.*

*Lichenoides crustosum orbiculare incanum. Dill.muse. 135. t. 18. f. 17.*

*Habitat in Europæ corticibus arboreum.*
Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but changed the original word *leprosus* to *crustaceus*. He also cited one synonym.

There is only a single sheet related to this name in LINN (1273.33), annotated by Linnaeus filius, apparently added to the herbarium after 1753. The reference to Dillenius is clearly a misinterpretation. The specimens on which it is based do not match the Linnaean diagnosis well. Two different species are illustrated, a sorediate species, *Diploicia canescens* (Dicks.) Massal., and a saxicolous member of the *Lecanora dispersa* (Pers.) Sommerf. group, neither of which has ‘*scutellis pallidis*’, but the latter is at least a fertile species, and therefore a better choice as lectotype.

In order to retain current use of the name, it will be proposed for conservation with a new type. The name has traditionally been used for a corticolous member of the *Ochrolechia parella* (L.) Massal. group, and we have chosen a specimen in conformity with the concept of Hanko et al. (1985: 185) and Brodo (1991: 767). This is a species with variolaric acid in thallus and apothecia, and also gyrophoric acid in the apothecial discs, a chemistry also, though rarely, found in the saxicolous *O. parella*. We have had considerable difficulties in distinguishing between certain forms of *O. pallescens* and *O. parella*, and further studies are necessary to decide whether it is possible to separate the corticolous and saxicolous entities in this group. (If they are united *O. parella*, the more widely used name, is to be preferred.)

In northern Europe another similar corticolous species has usually been included in *O. pallescens* (for example in Purvis et al., 1992), the unrelated *O. szatalaensis* Vers. which belongs in the *O. upsaliensis* group (see Brodo, 1991 and Purvis et al., in press).


`Parellus. 89. LICHEN crustaceus albus, peltis concavis obtufis pallidi.`

`Lichenoides leprosum tangtorium, scutellis lapidum can-cri figura. Dill. n.s. 130. t. 18. f. 10."


Habitat in Muris.

Linnaeus provided this lichen with a new diagnostic phrase-name and cited Dillenius (1742).

There are no specimens of this saxicolous, crustose lichen in LINN. We accordingly select the cited Dillenian illustration as lectotype with a corresponding specimen in his herbarium (OXF) as epitype.

The lectotype represents *Ochrolechia parella* (L.) Massal.


`25. LICHEN imbricatus, foliis cripis-fulvis, peltis con- parietinus.`

`coloribus fulvis."

`Lichenoides vulgare finuosum, foliis & scutellis luteis. Dill. n.s. 183. t. 24. f. 76."

Habitat in Europa parietibus, rubibus, lignis. arbo- reus j. rupestris.`
Linnaeus provided a new diagnostic phrase-name for this lichen, which he separated from his *Lichen juniperinus* (see above p. 324). He also cited Dillenius (1742).

There are two sheets in LINN associated with the name, 1273.73 and .74, both bearing the *Species plantarum* number (25) written by Linnaeus. As Howe (1912: 201) does not distinguish between these two sheets, his comments are not specific enough to be accepted as effective typification. 1273.74 is inscribed ‘L42’ and may have been collected in Spain by Loefling (but see above p. 328 for the difficulties concerning this interpretation). It represents *Xanthoria elegans* (Link) Th. Fr.; the other, 1273.73, appears to be lobulate, a typical form of *X. parietina* (L.) Th. Fr. approaching *X. ectaneoides* (Nyl.) Zahlbr. There is, however, one specimen, 1273.129, of typical *X. parietina* in the herbarium remaining from the *Flora suecica* treatment, but this was then treated as a part of *L. juniperinus* (see above p. 324), but Linnaeus failed to correct the inscription in accordance with his new taxonomic concepts in *Species plantarum*. Since the two former sheets are not in conformity with the present use of the name, and the latter has not been annotated by Linnaeus according to his *Species plantarum* nomenclature, we have designated the cited Dillenian illustration as lectotype with the corresponding specimen in his herbarium (OXF) as epitype.

The lectotype represents *Xanthoria parietina* (L.) Th. Fr., the generitype of *Xanthoria* Th. Fr.

70. *Lichen paschalis* L., *Species plantarum* 2: 1153 (1753)

68. *lichen* fruticulosis solidus tectus folioliis crusta- paschalis ceis. *Fl. sec. 982.*

*Lichen caule ramo tardo folioliis foliaceis tecto. Fl. lapp. 419. Ruy. lugdub. 512.*

*Lichen alpinus glaucus ramosus botryoides. Sch. alp. 137. t. 19. f. 4.*

*Cortaloïdes crispum & botryoides alpinum. Dill. muf. 114. t. 17. f. 93.*

*Cortina alpina vaide crispa. Pet. muf. t. 65. f. 7.*

*Mulco-fungus cortaloïdes teretellis dente ramiicatus cinerius & veluti ineruptus norvegicus. Morif. hist. 3. p. 633. f. 15. t. 7. f. 12.*

*Mulces cupr-siliciformis ramosos. Lœf pruss. 168. t. 48.*

*Habitat in Heветио, Italië, Cambrië, Lapponië, Scania, Гренландиë, Peulyviana alpërigus.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and also included a reference to his first publication of this lichen in *Flora lapponica* (1737). He furthermore cited synonyms from five other publications (see above).

There are six sheets of this species in LINN, two of which, 1273.258 and .259, are annotated by Linnaeus, with numbers from both *Species plantarum* and *Flora suecica* (68, 982). As Howe (1912: 201) did not distinguish between these two sheets, his comments are not specific enough to be accepted as a typification. L. W. Riddle has indicated on a label that the central specimen of sheet .259 is the ‘authentic type’. This specimen is annotated by Lamb as belonging to *Stereocaulon tomentosum var. orizabae* (Th. Fr.) Vain. (= *Stereocaulon myriocarpum*
Figure 46. The lectotype of *Lichen paschalis* L. (at arrow), LINN 1273.259 (that number written by Savage). The central specimen regarded as type by Riddle on attached label (unpublished and not effective typification) is *Stereocaulon tomentosum*. The other inscriptions by Linnaeus.
Th. Fr.), to which he later (Lamb 1977: 308) referred as being either S. tomentosum Th. Fr. or S. myriocarpum—in our opinion the former. Riddle's choice, however, does not appear to have been published and is for that reason not effective. Lamb (1977: 200) has selected the lowermost specimen of 1273.259 as lectotype (Fig. 46).

The lectotype represents Stereocalon paschale (L.) Hoffm., the generitype of Stereocalon (Schreb.) Hoffm. For a recent description of the species, see Thomson (1984: 416).

71. Lichen pertusus L., Systema naturae ed. 12, 2: 709; Mantissa plantarum: 131 (1767), nom. illeg.

Linnaeus provided a new diagnostic phrase-name to this lichen. He also cited three synonyms of other authors, and by the reference to Hudson (1762) also included the type for the species Hudson had named Lichen verrucosus, thus rendering L. pertusus illegitimate.

There is one sheet in LINN, 1273.5, which is annotated by Linnaeus, and bears the locality ‘Svec.’. This appears to be his original specimen and is in accordance with the species usually called Pertusaria pertusa (L.) Tuck. Howe (1912: 201) indicated this as the type, but the type of L. pertusus L. is automatically the same as that for L. verrucosus Huds. Hudson (1762: 445) cited only one source for his name, viz. “Dill. 128. t. 18. f. 9”, the same illustration included by Linnaeus. This is, unfortunately, a case of a composite illustration derived from more than one specimen and including characters of two different species: Pertusaria pertusa (with several immersed apothecia per wart) and P. hymenea (Ach.) Schaer. (with one apothecium per wart with a wider, visible apothecial disc). We lectotypify L. verrucosus (and accordingly also L. pertusus L.) on the pertusa element of that illustration with a corresponding epitype in the Dillenian herbarium (OXF).

Because of the existence of Pertusaria verrucosa Mont., Hudson's epithet cannot be transferred to the genus Pertusaria. Fortunately the epithet pertusa can be retained as P. pertusa (Weigel) Tuck. through use of Art. 58.3 and the new basionym Sphaeria pertusa Weigel in Observationes botanicae: 46 (1772), as noted in Hawksworth et al. (1980: 75), with the above mentioned lectotype as type.
72. Lichen physodes L., Species plantarum 2: 1144 (1753).

Linnaeus provided a new diagnostic phrase-name and cites also Flora suecica (1745), as well as four other synonyms (see above).

There are four sheets in LINN, two of which, 1273.77 and .79, are annotated by Linnaeus and have both Species plantarum and Flora suecica numbers (26, 951). Howe (1912: 201) chose 1273.77, the one inscribed 'phys.', as lectotype, and we restrict this choice to the lower specimen (Fig. 47).

The lectotype represents Hypogymnia physodes (L.) Nyl., the generitype of Hypogymnia (Nyl.) Nyl.

73. Lichen plicatus L., Species plantarum 2: 1154 (1753).

Linnaeus took the diagnostic phrase-name unaltered from Flora suecica (1745), also cited via Materia medica (1749), and further recorded the first work where he treated it, Flora lapponica (1737). He added two other synonyms.

There are no relevant specimens in LINN named L. plicatus. However, a specimen named L. hirtus, but with the Flora suecica number (984) of L. plicatus (Sheet 1273.292) is present. We interpret this as a specimen which Linnaeus referred to by the latter name only in Flora suecica (see above p. 321). This again is a case where Linnaeus quite obviously widened his original concept from Flora lapponica considerably. Both Vainio (1880) and Howe (1910b) are of the opinion that Linnaeus originally had in mind Alectoria ochroleuca (Hoffm.) Massal. We
find it very difficult to say anything precise on the identity of his species from Lappland because the protologue is too generalized, but *A. ochroleuca* is not a pendulose species as recorded in the protologue. There is, however, a specimen without any name in LINN, 1273.310, annotated *Fl. lapp.* 457 on the reverse, which actually is *A. ochroleuca*. But, at least later, he included in his concept, as witnessed by the *Flora suecica* specimens cited above, material from the difficult *Usnea subfloridana* Stirt. complex. Since he referred these to *L. hirtus* in *Species plantarum*, the only original element of *L. plicatus* remaining is the Dillenian illustration and the specimens it is based on. They belong in *Usnea ceratina* Ach., a species known from southern Sweden, but not from Lapland.

The name *Usnea plicata* (L.) F.H. Weber has, because of the imprecise description, been used for several taxa. Motyka (1937: 230–231) has tried to revive the name for a very rare (known only from one collection), poorly understood and circumscribed entity from Central Sweden. We believe it is best to propose the name for rejection, because of its previous wide use and to avoid an undesirable name-change.

*polyphyllus. 55. LICHEN foliaceus polyphyllus utrinque lævis crum- natus.*

*Lichenoides tenue pullum, foliis utrinque glabris. Dill. msc. 225. t. 30. f. 129.*

*Habitat in Europae rupibus elatis apricis. repfris.*

Linnaeus provided a new diagnostic phrase-name for this lichen, also citing Dillenius (1742).

He did not appear to have had any specimens himself, and there is no relevant material in LINN. Accordingly we lectotypify it on the Dillenian illustration with the corresponding material in the Dillenian herbarium (OXF) as epitype. It represents *Umbilicaria polyphylla* (L.) Baumg.


*56. LICHEN foliaceus polyphyllus utrinque lævis poly- polyrhizos.*

*Lichenoides pullum superne & glabrum, inferne nigrum & cirrholum. Dill. msc. 226. t. 30. f. 130.*

*Habitat in Arvonio, Svecia rupibus apricis elatis. ru- pefris.*

Linnaeus provided a new diagnostic phrase-name for this lichen, also citing Dillenius (1742).

There are no relevant specimens in LINN. Accordingly we lectotypify this on the Dillenian illustration with the corresponding material in the Dillenian herbarium (OXF) as epitype. It represents *Umbilicaria polyrhiza* (L.) Fr.


*proboscideus 53. LICHEN foliaceus umbilicatus, peltis turbinatis trini- catis perforatis.*

*Habitat in Suecia.*

*Folium magnitudine pollicis, subrotundum, orbiculatum, margine inequaliter & obtuse lobatum, centro radi- catum, fultus lave, binc inde & rarius fibras radi- cantem exferens; Pagina superior planiscula vel nummiforme contorta, cinerea, praedita fuscis elevatis ex- alperata. Pelte per densum sparsae, utrae, minima, tur- binatae, truncatae, poro pertusa usque ad folium, mar- gine lato plano.*

Linnaeus provided a new diagnostic phrase-name for this lichen. He based it on his own material which, according to Afzelius (1788: 151), had been collected by Solander in “Piteå Lappmark i Lunöes Vaggi vid fjället Klakkakvarallje”. After the diagnosis Linnaeus included an unusually long and detailed description of the material. This was evidently a late introduction in the work, added at the proof-stage, as the species is not included in the original manuscript.

There is a single specimen in LINN, 1273.204, annotated by Linnaeus. We are quite convinced that this is the holotype, and not a lectotype as indicated by Wei
(1993: 12), because it agrees with the description in the smallest detail. Particularly notable is Linnaeus' mention of 'punctis fuscis elevatis exasperata', representing numerous young fruitbodies easily observable on this specimen (Fig. 48).

The holotype represents the form of *Umbilicaria cylindrica* sensu Acharius with few marginal rhizinae. As outlined above (p. 264) there has been considerable confusion over this name and *U. proboscidea*, and Wei (1993) erected an illegitimate *nomen novum*, *Umbilicaria neocylindrica* Wei, for the species. There are, however, several older possible synonyms which are available, but a much better solution is our forthcoming proposal to conserve the names involved with new types in accordance with the nearly 200 year long usage.


59. LICHEN foliaceus eretiscus lacunosus: subus prunastri.
Lichen folis mollibus candidantibus dichotomis, caly- 
Lichen cinereus vulgarissimus cornua cernae referens. 
*Val.* par. 115. f. 20. f. 11. 12.
Lichenoides cornutum, broucheiane mole subus inca- 
*Habitat in Europa* arboribus, *praeferim* in Prunospi-
   nus. arborceus.
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica*. He also cited three other works.

There are three sheets in LINN, two of which are annotated by Linnaeus. 1273.125 has both *Species plantarum* and *Flora suecica* numbers (39, 954) and is the obvious lectotype, already designated by Howe (1912: 201), but since there are several specimens we restrict this choice to the central specimen as the type (Fig. 49).

The lectotype represents *Evernia prunastri* (L.) Ach., the generitype of *Evernia* Ach.

75. **LICHEN** filamentofus ramosissimus decumbens im*-pubescens*, plexus nitidus
*Ufnea capitolia exilis capillacea atra.* *Dill. musf.* 66, t. 13, f. 9.
*Habitat in* Europa septentrionali, Lapponia, Suecia.

Linnaeus provided a new diagnostic phrase-name for this lichen, and cited a synonym from Dillenius (1742).

Although Linnaeus records the species from ‘Lapponia, Suecia’, he appears not to have had any specimens in his herbarium, (see p. 265) and there are no relevant specimens in LINN. Hawksworth (1972: 235) incorrectly selected 1273.286 as lectotype, a specimen annotated only by Linnaeus filius. The cited illustration in Dillenius (tab. 13, f. 9) is poor, but could well be *Pseudephebe pubescens* as presently understood, though in a rather stunted form as shown by the corresponding specimens in his herbarium. We have therefore selected the Dillenian illustration as lectotype with the better developed LINN 1273.286 as epitype. This is the generitype of *Pseudephebe* M. Choisy.


*Lichenoides pulmonarium reticulatum vulgare, marginibus peltiferis.* *Dill. musf.* 212, t. 29, f. 113.
*Musci pulmonarius.* *Baab.* pin., 361.
*Pulmonaria.* *Fuch.* bijt. 631, *Cam.* epfr. 783.

*Habitat in* Europa* xylis umbrosis super arbores antiquas, praeterim in Fagi & Quercusbus. arbores.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). He cited three of his own works, and four others in synonymy (see above).

There are four sheets in LINN of this lichen, three of which are annotated by Linnaeus; two of these, 1273.103 and .104, bear both *Species plantarum* and *Flora suecica* numbers (32, 960). As Howe (1912: 201) did not distinguish between these two, his action does not constitute an effective typification. Yoshimura & Hawksworth (1970: 36) lectotypified the name correctly, using the lower specimen on sheet 1273.103 (Fig. 50).

This specimen represents *Lobaria pulmonaria* (L.) Hoffm., the generitype of *Lobaria* (Schreb.) Hoffm.
Figure 50. The lectotype of *Lichen pulmonarius* L., LINN 1273.103 (that number written by Savage). The other numbers written by Linnaeus, but the epithet added by his son.
80. Lichen pustulatus L. *Species plantarum* 2: 1150 (1753).

_Lichén foliaceus umbilicatus: subitus lacunofus.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and also cited his first record of this species in *Flora lapponica* (1737). He further cited two other synonyms.

There are three sheets in LINN, two of which are annotated by Linnaeus. 1273.201 has both *Species plantarum* and *Flora suecica* numbers (52, 969). It is the obvious choice as lectotype. It has already been indicated as such by Howe (1912: 201) and repeated by Wei (1993: 3). Since there are several specimens on the sheet, we have restricted this choice to the uppermost specimen (Fig. 51).

The specimen represents *Lasallia pustulata* (L.) Mérat, the generitype of *Lasallia* Mérat.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). In addition to his own *Flora lapponica* (1737), he cited no fewer than seven works by other botanists (the synonyms under the unnamed variety β excluded).

There are only two relevant sheets in LINN, one of which, 1273.219, is annotated by Linnaeus, but only with the *Species plantarum* number, 59. It is also marked 'Kh', which is a reference to the list of Mårten Köhler, which confirms that it was added to the herbarium about 1757. It is therefore not original material, but matches his unnamed variety β well, representing *Cladonia cervicornis* subsp. *verticillata* (Hoffm.) Ahti, as does the drawing in his field
Figure 51. The lectotype (at arrow) of *Lichen pustulatus* L., LINN 1273.201 (that number written by Savage). All other inscriptions by Linnaeus.

notebook from Lapland (Fig. 2) and many of the cited works. The corresponding specimens in the Dillenian herbarium (OXF) are mostly (specimens marked D–H), this subspecies. A is *C. fimbriata* (L.) Fr., B is *C. carneola* (Fr.) Fr. and C is most probably referable to *C. chlorophaea* (Flörke ex Sommerf.) Spreng. The cited illustration t. 41, f. 1 (Fig. 52) from Michelius is, according the specimens in his herbarium (FI), partly *C. fimbriata*, but the material matching the three specimens to the right (just below ‘Ordo. VIII.’) marked L, as well as t. 41, f. 2 is a very coarsely squamulose morphotype of *C. pyxidata* which is quite common in northern Italy (Ahti, pers. comm.).

We have accordingly designated the middle specimen of these three on the
Michelian illustration t. 41, f. 1 ‘L’ (Fig. 52) as lectotype with the corresponding specimen in his herbarium (FI) as epitype.

The specimen represents C. pyxidata (L.) Hoffm.

82. Lichen rangzferinus L., Species plantarum 2: 1153 (1753).

Linnaeus took the diagnostic phrase-name unaltered from Flora suecica (1745), and cited in addition to his own Flora lapponica (1737), six works by other botanists.

There are seven sheets in LINN, five of which have been annotated by Linnaeus. Four of these carry both Species plantarum and Flora suecica numbers (65, 980): 1273.239, .240, .242, .243. They represent Cladonia stellaris (Opiz) Pouzar & Vezda p. max. p., C. rangzferina (L.) Weber ex F. H. Wigg., C. amaurocraea (Flörke) Schaer. and C. stygia (Fr.) Ruoss respectively, demonstrating how broadly Linnaeus circumscribed this, and indeed many other, lichen species.

Since Howe (1912: 201) did not distinguish between the four sheets, his action does not constitute effective typification. However, Nourish & Oliver (1974)
made a detailed study of the relevant material and designated 1273.240 as lectotype (Fig. 53). It represents *C. rangiferina* which is the generitype of *Cladina* Nyl.


For the original text, see the species.

Linnaeus did not provide a separate diagnosis for this name. He obviously first introduced the name in the proof stage of *Species plantarum*, just next to the *Flora lapponica* phrase-name of *L. rangiferinus*, and this has subsequently caused considerable confusion. This case has been carefully evaluated by Santesson (1966: 64) and we agree with him that Linnaeus only intended to treat two taxa, var. *alpestris* and var. *sylvaticus*. Nevertheless he published three names which must be typified.

Interestingly no specimens in LINN are annotated as var. *alpestris*. Pouzar and
Vézda (1971: 195) designated specimen 'F' of the cited Dillenian illustration, t. 16, fig. 29 as lectotype. We select the corresponding specimen in Dillenius herbarium (OXF) as epitype.

The lectotype represents *Cladonia stellaris* (Opiz) Pouzar & Vézda which has the same type.

84. *Lichen rangiferinus* var. *sylvaticus* L., *Species plantarum* 2: 1153 (1753)

For the original text, see the species.

Linnaeus did not provide a new diagnosis for this taxon, but used a polynomial of van Royen (1740), also citing Dillenius (1742) and Bauhinius (1623) as synonyms of this named variety β.

There is no material in LINN, nor in L, and we have therefore chosen the Dillenian illustration as lectotype. The corresponding specimen in the Dillenian herbarium (OXF) is what is currently named *Cladonia portentosa* (Dufour) Coem. (see Ahti, 1978), a younger name at species rank than *Cladonia sylvatica* (L.) Hoffm. Since Ahti (1961), this latter name has not been in use, and we see no reason to reintroduce *C. sylvatica*, a name previously used for several taxa. It will therefore separately be proposed for rejection, as has already been suggested by Santesson (1966).

85. *Lichen resupinatus* L., *Species plantarum* 2: 1148 (1753)

Linnaeus provided a new diagnostic phrase-name for this lichen, and cited two synonyms of other botanists (see above).

There are two sheets in LINN, only one of which, 1273.169, has the *Species plantarum* number (44) and is annotated by Linnaeus with the species epithet and a short description 'pelta aversa', referring to the apothecia being formed on the lower surface lobe apices. This has been designated as (lecto)type by Howe (1912: 201) (Fig. 54) and was repeated by James & White (1987: 255).

The lectotype represents *Nephroma resupinatum* (L.) Ach.

86. *Lichen Roccella* L., *Species plantarum* 2: 1154 (1753)

Linnaeus provided a new diagnostic phrase-name for this lichen, and cited two synonyms of other botanists (see above).

There are two sheets in LINN, only one of which, 1273.169, has the *Species plantarum* number (44) and is annotated by Linnaeus with the species epithet and a short description 'pelta aversa', referring to the apothecia being formed on the lower surface lobe apices. This has been designated as (lecto)type by Howe (1912: 201) (Fig. 54) and was repeated by James & White (1987: 255).

The lectotype represents *Nephroma resupinatum* (L.) Ach.
Linnaeus provided a new diagnostic phrase-name for this lichen and he cited the works of four other botanists in synonymy (see above). There are four specimens in LINN, one of which, 1273.263, is annotated by Linnaeus. The locality given on the back of the sheet ‘Insula Fyal’ (= Faial) is one of the islands of the Azores, certainly regarded by Linnaeus to belong to ‘Insulis Archipelagi Canariis’. We have been puzzled by the inscription ‘Chin’ just beneath one of the specimens (Fig. 55). This species is not known to occur in China, nor does Linnaeus record it from there. Perhaps this inscription is a ‘misprint’ for Can(ariis)? However, we are in no doubt that this specimen must have been in Linnaeus’ possession and accordingly accept Howe’s typification (1912: 201), but restrict it to the lower specimen (Fig. 55).

The lectotype is *Roccella patellata* Stirt., which is the correct name for this species, as the tautonym *R. roccella* is not permitted by the Code. It is treated as *R. tuberculata* var. *vincentina* Vain. by Tavares (1958: 140).
87. *Lichen rugosum* L., *Species plantarum* 2: 1140 (1753)


*Habitat in Europæ sylvis supra arborum truncos.*

Linnaeus provided a new diagnostic phrase-name for this species which was evidently based only on the Dillenian reference. There is no specimen in LINN, and Hawksworth & Punithalingam (1973:
503) designated the Dillenian illustration as lectotype. The corresponding material in the Dillenian herbarium represents the non-lichenized fungus *Ascodichaena rugosa* (L.) Butin and we select this as the epitype of the illustration. The epithet is incorrectly given in neuter form in the original publication by Linnaeus, but he corrected this in the second edition of *Species plantarum*.


```plaintext
rupicola 85. LICHEN leprosus albidus, tuberculis pallidis albo
marginatis. Habitat supra rupes planisculas nudas apricas in
vis. Zoëga.
Crusta partitiima. Tubercula interdum sunt vires-
scencia, subconvexa absque margine, unde diversa
apparit.
```

Linnaeus provided a new diagnostic name and description for this lichen. There are no specimens in LINN of this saxicolous, crustose species, sent to Linnaeus by Zoëga. A neotype has been designated by Leuckert & Poelt (1989: 149).

The neotype represents *Lecanora rupicola* (L.) Zahlbr.


```plaintext
saccatus 102. LICHEN (saccatus) foliaceus repens roundus, peltis
depressis tubus laccatis.
Lichenoides lichenis facie, peltis acetabulis immersis. Dill.
musc. 223. t. 30. f. 121.
Specis Sack maila.
Habitat in Alpous Lapponicis; copiose ad latera Norwegian.
Habitat in Eiiro in rupibus truncatis.
Fasile digneitate hic lichen, quod pro peltis saccum, a pa-
gina inferiore dependentem format.
```

Linnaeus provided a new diagnostic phrase-name for this lichen and Dillenius (1742) is also cited. There are two sheets in LINN, 1273.196 & .197, both from the original collection by Tycho Holm, a Danish student of Linnaeus. Since Howe (1912: 201) did not distinguish between the two sheets, his action is not precise enough to be accepted as effective typification. Almborn (1966: 104) designated 1273.197 as lectotype, and we restrict this choice to the lower specimen (Fig. 56).

The lectotype represents *Solorina saccata* (L.) Ach., the generitype of *Solorina* Ach.


```plaintext
sanguinar-
4. LICHEN leprosus cinereo-virescens, tuberculis atris.
ium. Dill. musc. 938.
Lichenoides leprosum, crista cinereo-virescente, tuber-
culis integerrimis. Dill. musc. 126. t. 18. f. 3.
Habitat in Europæ rupibus truncisique arborum.
Tubercula majuscula, gibba, atra, at diffracla internus
rubra sunt.
```
Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and added a reference to Dillenius (1742).

There are three sheets in LINN, only one of which, 1273.8, has an inscription with handwriting attributed to Linnaeus by Savage (1945). It carries only the *Species plantarum* number, but from its characters, it is obviously not the specimen on which the phrase-name of 1745 is based. It is uncertain when this specimen was added to the herbarium, but it was probably after 1763, as there are annotations by Linnaeus in his personal copy of the second edition of *Species plantarum* describing flat (‘plana’) apothecia as found in *Lecidella elaeochroma* (Ach.) M. Choisy, the specimen in question, and not in accord with the original protologue (see below). This sheet cannot serve as type, as believed by Howe (1912: 201).

There is, however, another sheet, 1273.10, inscribed ‘4’ (Fig. 57). This Savage believed was written by Linnaeus filius. However, we disagree with him on this point. Although it is unusually elegantly written to be in Linnaeus’ hand, there is a great variation in his way of writing this figure. After having examined this variation, we have concluded that this figure 4 comes close to some of the others, e.g. the first one in ‘44 resupinatus’. In addition, we do not know of any case where Linnaeus filius used numbers from the first edition of *Species plantarum*. He either, and mostly, wrote the full epithet, or used numbers of later editions of *Systema naturae*. We accordingly select 1273.10 as lectotype.

The lectotype represents *Mycoblastus sanguinarius* (L.) Norman, the generitype of *Mycoblastus* Norman.

The epithet was originally incorrectly used in neuter form, a mistake Linnaeus corrected in the second edition (as well as in his herbarium list, p. 263).

Mat. med. 494.*

*Lichen* foliiis planis acute laciniatis rubiginoso-albidis.

*Fl. lapp. 447. Roy. Ingdb. 507.*

Lichen tumulatus. *L. canum 469.*


*Lichenoides vulgatissimum cinereo-glaucum lacunarium & cirrhotum. Diti. muf. 188. t. 24. f. 83.*

*Mulco-rungus Lichenoides minor cinereus vulgatissimus. Morii. biol. 3. p. 634. f. 15. t. 7. f. 6.*

*Habitat in Europae rupibus.* rupestris.

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). He also quoted four synonyms from other botanists’ works (see above).

There are four sheets in LINN referred to this name, two of which are annotated by Linnaeus. 1273.62 carries both *Species plantarum* and *Flora suecica* numbers (19, 946). There is also a specimen, 1273.61, annotated *omphalodes* by Linnaeus, but with the numbers for *L. saxatilis* showing the annotation of the name to be a later (?) error of naming (see above p. 332). Sheet 1273.62 was recorded as the type by Howe (1912: 201), as well as by Maas Geesteranus (1947: 143), and Galloway & Elix (1983: 405) specifically chose the second specimen from the bottom as lectotype (Fig. 58). Hale (1986: 38) mistakenly selected the mixed sheet 1273.61 as lectotype, a typification without priority.
The lectotype represents *Parmelia saxatilis* (L.) Ach., the generitype of *Parmelia* Ach., as well as for the rejected generic name *Lichen* L.


_scriptu._ 1. **LICHEN leprosus albiunas**, lincolis nigri ramosis caracteriformibus. *Fl. spec. 94*.


*Habitat in Europæ corticebus arborum.*
Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), adding the word *ramosis* and a reference to Dillenius.

There are no specimens in LINN annotated by Linnaeus. The material corresponding to the Dillenian illustrations (OXF) belongs to *Opegrapha varia* Pers. (upper specimen), and what appears to be a poor specimen of *Phaeographis cf. dendritica* (Ach.) Müll. Arg. or of *Graphis scripta* (L.) Ach. (lower specimen). As the Linnaean diagnosis has generally been understood to be the latter, we lectotypify *Lichen scriptus* on the lower specimen on the Dillenian illustration, and select an epitype which clearly represents *Graphis scripta* (L.) Ach., the generitype of *Graphis* Adans.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and added three synonyms (see above).

There are two sheets in LINN, one of which, 1273.81, is annotated by Linnaeus with the *Species plantarum* number only. Although it is certainly not the element on which the phrase-name from 1745 was based, we believe that Linnaeus had the specimen in his herbarium in 1753. Howe (1912: 201) recorded this specimen as type, and since we cannot prove him wrong, we accept this choice, though with a restriction to the upper left specimen (Fig. 59).

The lectotype represents *Physcia stellaris* (L.) Nyl.


Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745). There are no synonyms.

There are two sheets in LINN named *stygius*, one of which, 1273.70, is annotated by Linnaeus. However, as pointed out above (p. 308), this bears the numbers for *L. fahlunensis*, and is clearly not the element used for the diagnosis of *L. stygius*.

It is not easy to interpret Linnaeus’ diagnosis, particularly since there are three common, rather similar-looking species with the same ecology, and Linnaeus clearly had difficulties in separating them. We have selected a neotype...
in accordance with the present usage of the name for *Melanelia stygia* (L.) Essl., the generitype of *Melanelia* Essl., but to achieve this the name *Lichen fahlunensis* must be rejected at the same time (see above).

95. **Lichen subfuscus** L., *Species plantarum* 2: 1142 (1753), nom. rejic.

Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745), but changed the word *leprosus* to *crustaceus*. He also cited one synonym from Dillenius (1742).

There are no specimens in LINN annotated by Linnaeus. Although Motyka (1977) selected a neotype (in Herb. Acharius, UPS), the Dillenian illustration
must be regarded as original material available for lectotypification. This procedure was adopted by Brodo & Vitikainen (1984: 294) who also identified a typotype in the Dillenian herbarium (OXF), which they claimed to be *Lecanora allophana* (Ach.) Nyl., a species not known to occur in Great Britain; the specimen most possibly represents a form of *L. horiza* (Ach.) Lindsay. Vitikainen & Brodo later (1985) proposed that the name be rejected because of its diverse application within the difficult *L. subfusca* complex. This was approved by the General Committee (Nicolson, 1983).


67. LICHEN fruticulosus subdichotomus, ramis simplici- subulatus. 
bus subulatis. *Fl. suec. 981.
Lichen caule ereto dichotomo, ramis subulatis. *Fl.
Coralloides corniculis longioribus & rarioribus. *Dill.
musc. 102. t. 16. s. 26.
p. 767.
*Habitat in Europæ sylvis ericetis.*

Linnaeus adopted the diagnostic phrase-name from *Flora suecica*, but omitted the word *tubulosus* (obviously removed in the proof stage) and substituted the word *subdichotomus* for *dichotomus*. He noted his first publication of this lichen in *Flora lapponica* (1737), and cited works of four other botanists (see above).

There are two sheets in LINN, one of which, 1273.249, is annotated by name only by Linnaeus. This specimen is *Cladonia subulata* (L.) Weber ex F.H. Wigg., and it was designated as lectotype by Laundon (1984: 110). However, the absence of a number makes it almost certain that, unfortunately, it was added to the herbarium after 1753, and accordingly cannot serve as a type.

The material (OXF) on which the Dillenian illustration is based represents *Cladonia furcata* (Huds.) Schrader. No van Royen material has been traced. However, the cited Tabernaemontanus illustration (1590) is surprisingly good (Fig. 60), and though stylized, it can well be interpreted as *C. subulata*. We accordingly designate the upper specimen of this as the lectotype and select LINN 1273.249 as the epitype. This is the generitype of *Cladonia* Hill.


14. LICHEN crustaceus ex albido viridevs, scutellis tartareus.

daveicentibus: margine albo. 
Lichen leprosus candidus, scutellis fuscis: margine al-
bo. *Fl. suec. 942.
Lichen tinctorius ruber. *Is. al. 20. Is. wigm. 146.
Lichenoides tartareum farinaceus, scutellarum umbro-
ze fuscis. *Dill. musc. 102. t. 16. s. 12.
Lichen crustaceus tartaricus farinaceus verrucosus candid-\n
dus omnium crustisimubus, receptaculis florum nigre-
*Habitat in Europæ ad parsies rupium.*
Linnaeus provided a new diagnostic phrase-name for this lichen, but cited several of his own works, as well as two other synonyms (see above).

There are no specimens annotated by Linnaeus in LINN. The material in the Dillenian herbarium (OXF) corresponding to the cited illustration is in a poor state, but belongs in *Lecanora* and is not in good accord with the Linnaean protologue, since neither the thallus nor the apothecia are in conformity with those characters in the Linnaean description. The same is the case with the reference to Michelius. The corresponding material in his herbarium (FI) is *Diploschistes ocellatus* (Vill.) Norman. Nevertheless these illustrations are part of the protologue, and we choose the Dillenian illustration as lectotype. However, we will propose *Lichen tartareus* to be conserved with a new type in accordance with the more than 200 years usage of the name for this important dyeing lichen. The proposed conserved type is the specimen marked ‘n.1’ of the material Burgess sent to Linnaeus from Scotland in 1771 (LINN 1273.31), with a detailed account about the use of this lichen in dyeing, annotated by Linnaeus filius, but most certainly seen by Linnaeus.

This specimen represents typical *Ochrolechia tartarea* (L.) Massal. with a thick,
non-sorediate, pale grey thallus and large, finally flat, pinkish apothecia. It is the generitype of *Ochrolechia* Massal.


66. **Lichen fruticulosus perforatus**, ramulis brevissimis _unciais_.
   acutis. *Fl. suec.* 979.
   _Lichen caule ramoso, alis perforatis, ramis brevissimis_
   Coralloides perforaturn minus mollis & tenue. *Dill.*
   _musc.* 99, t. 16. f. 22.
   **Habitat in Europae eriectis**

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and he also recorded his own first publication of this lichen in *Flora lapponica* (1737) as well as references to two other works (see above).

There are three sheets named _uncialis_ at LINN, one of which, 1273.246, is annotated by Linnaeus and has both *Species plantarum* and *Flora suecica* numbers (66, 979). This sheet was indicated as the (lecto)type by Howe (1912: 201) and we restrict this to the lower specimen. It represents a related species now known as _Cladonia amauurocracea_ (Flörke) Schaer. (Fig. 61).

In order to retain the present longstanding concept of _C. uncialis_, we will propose the name conserved with a new type.


op/saliens. 17. **Lichen crustaceus**, foliis subulatis fratis.
   **Habitat in summis Jugis supra terram seriffumam**
   campi poionici, Upsalia, nec alibi nostra visus.
   Magnifico Lichenis saxatilis, sincere albus, constant
   Setis relictis, albis, emacriitis, prostratis, inaequalibus,
   confusis, simplicissimis, longitudine unguis, fragilissi-
   mis, spae pluribus basi coalisis, Scutella alba, margi-
   ne obtusa, majuscula, radicula, nec setis indigentia.

Linnaeus provided this lichen with a new diagnostic phrase-name. He cited no synonyms.

There are three sheets of this species in LINN, two of which are annotated by Linnaeus. Howe (1912: 201) correctly indicated 1273.44 as the (lecto)type, and we have restricted this choice to the upper right-hand specimen (Fig. 63).

The lectotype represents _Ochrolechia upsaliensis_ (L.) Massal. For a recent description, see Verseghy (1962: 74).
Figure 61. The lectotype (at arrow) of Lichen uncialis L., LINN 1273.246, the lichen currently known as Cladonia amaurocraea. All inscriptions by Linnaeus.

100. Lichen usnea L., Systema naturae ed. 12, 2: 713; Mantissa plantarum: 131 (1767).

Ulnea ceratoides candida glabra odorata. Dill. msf.
71. t. 14. f. 13. & t. 34. f. 10.

Habitat in arboribus Indis Or. Inf. Helene, madagascariarum. Jacq.
Filiformis, ramosus, inaequalis, pedalis, axillis obtusangulis, in lamellas 2 separabilis; recens albidus, ambrafractus.
Figure 62. The lectotype of *Lichen usnea* L., LINN 1273.278 (that number written by Savage), with the original Jacquin label. Epithet written by Linnaeus.
Linnaeus provided this with a new diagnostic phrase-name, and cited one synonym from Dillenius (1742).

There are three sheets marked ‘usnea’ in LINN, one of which, 1273.278, is annotated by Linnaeus and actually bears the original label in Jacquin’s handwriting with the locality Martinique indicated (Fig. 62). It is an obvious choice of lectotype and was noted as a type by Howe (1912: 201; 1914: pl. 12, fig. 2), also regarded as the lectotype by Imshaug (1972b) and Rundel (1978: 149).

The lectotype represents *Ramalina usnea* (L.) R. Howe. For a recent description of the species, see Rundel (1978).


Linnaeus adopted the diagnostic phrase-name from *Flora suecica* (1745) with a slight change in one word from *hirsutus* to *hirsutissimus*. He also cited his first treatment in *Flora lapponica* (1737) and works of two other botanists (see above).
Figure 64. The lectotype (at arrow) of *Lichen velleus* L., LINN 1273.199 (that number written by Savage). All other inscriptions by Linnaeus.

There are three sheets in LINN, one of which, 1273.199, is annotated by Linnaeus. It has both *Flora suecica* and *Species plantarum* numbers (51, 969), and is the obvious choice as lectotype (Fig. 64), already designated by Howe (1912: 201) and repeated by Wei (1993: 14). We restrict this choice to the right-hand specimen.

The lectotype represents *Umbilicaria vellea* (L.) Ach. For a recent description see Thomson (1984: 461).

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica* (1745), and cited one synonym from Dillenius (1742).

There are three sheets in LINN, one of which, 1273.172, is annotated by Linnaeus. It has both *Species plantarum* and *Flora suecica* numbers (45, 964), and is the obvious choice as lectotype. However, as noted by Howe (1912: 201), this sheet bears material belonging to several taxa ('composite'). As annotated by Vitikainen on the sheet, three different species are represented, and only the central four specimens belong to *Peltigera venosa* (L.) Hoffm. and one of these will be designated as lectotype (Fig. 65) by Vitikainen (pers. comm.).


Linnaeus provided this lichen with a new diagnostic phrase-name, and cited no synonyms.

There are no specimens annotated by Linnaeus in LINN. Hawksworth (1970: 248) wrongly designated 1273.14 as lectotype, a poorly developed specimen which, with a question mark, is referred to this species by Linnaeus filius.

A neotype is required, and we select 1273.15 in LINN which is a well-developed exsiccate specimen distributed by Ehrhart, a pupil of Linnaeus.

The neotype represents the usnic-containing strain of *Ophioparma ventosa* (L.) Norman (= *Haematomma ventosum* (L.) Massal.), the generitype of *Ophioparma* Norman.


Linnaeus provided a new diagnostic phrase-name for this lichen, and he cited one synonym from Dillenius (1742).

There are no specimens annotated by Linnaeus in LINN. The specimens
Figure 65. The lectotype (at arrow) of *Lichen venosus* L., LINN 1273.172 (that number written by Savage). The other numbers and epithet written by Linnaeus. Pencil annotations on right-hand side by Sir J. E. Smith. The annotation *sylaticus* in ink by Olof Swartz.

corresponding to t. 18, f. 4 in the Dillenius herbarium (OXF), represent *Bacidia rubella* (Hoffm.) Massal. and *Arthonia tumidula* (Ach.) Ach. No lichen specimen is now extant on the herbarium sheet corresponding to t. 55, f. 8, but the original drawing leaves no doubt about the original presence of a brown-fruited lichen, most possibly a species of the *Lecanora subfusca* group. Of these only *Bacidia rubella* has some resemblance to the lichen described in the Linnaean protologue. We accordingly select that Dillenian illustration as lectotype.

However, in order to avoid a most undesirable name-change, a new type will
be proposed to preserve the current use of the name. This type represents *Bia tora vernalis* (L.) Fr., the generitype of *Bia tora* Fr.


78. *Lichen* *filamentosus ramolus feminus erectus faustigia-* *vulparius.*

*Tus inequalis-angulosus.* *Fl.* *fœesi.* 990.

*Umbra capillacea citrina,* fruticuli specie. *Dill.* *musco.*


*Habitat in Europæ tellis ligneis, muris.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica,* and mistakenly considered the cited Dillenian reference to be a synonym (it represents *Teloschistes flavicans* (Sw.) Norman, a very different lichen).

There are two sheets at LINN, one of which, 1273.298, is annotated by Linnaeus, but bears only the *Species plantarum* number (78). However, we believe this is original material, and accordingly accept Howe’s typification, restricting his choice to the upper left-hand specimen as the lectotype (Fig. 66).

The lectotype represents *Letharia vulpina* (L.) Hue, the generitype of *Letharia* (Th. Fr.) Zahlbr. For a recent description, see Krog et al. (1980: 182).


4. *MUCOR* *perennis palidus,* plieofulvo.

*Habitat Uplandæ D. Solander.*

Linnaeus provided this lichen with a new diagnostic phrase-name and cited no synonyms.

There are no specimens in LINN and it is difficult to arrive at any conclusion as to what species this name represents. It has been interpreted as a synonym of *Chaenotheca furfuracea* (L.) Tibell (see Zahlbruckner, 1922: 640). The thallus of that species is citrine to greenish yellow, while this epithet suggests a more tawny, yellowish-brown colour, as in *Chaenotheca chrysocephala* (Turner ex Ach.) Th. Fr. However, the name remains a *species non satis nota.* Since it is not in current use, it will be proposed for rejection.


5. *MUCOR* *perennis viridis,* foliiis furfuraceis, *flipe fufuraceus.*


Linnaeus provided this lichen with a new diagnostic phrase-name and cited no synonyms.

There are no specimens in LINN, but in this case the description, in particular the habitat, bare soil, is sufficient to establish a satisfactory identification. We have accordingly designated a neotype in accordance with current use.

The neotype represents *Chaenotheca furfuracea* (L.) Tibell, the generitype of *Conio cybe* Ach.
Figure 66. The lectotype (at arrow) of *Lichen vulpinus* L., LINN 1273-298 (that number written by Savage), with Howe's typification label. Text below written by Linnaeus.
LINNAEAN LICHEN NAMES


2. **MUCOR** *perennis, filipite filubulato nigro, capitulo Lichenoides. lenticulari cincreo. Fl. suec. 1122. •
Corallizoides fungiforme arborum nigrum vix crustosum.

*Dill. musc. 78. t. 14. f. 3.*

*Habitat in corticibus Pinii.*

Linnaeus adopted the diagnostic phrase-name from *Flora suecica*, changing only the word *lentiformi* to *lenticulari* and cited one synonym from Dillenius (1742).

There are no specimens annotated by Linnaeus in LINN. The material corresponding to the Dillenian illustration in his herbarium (OXF) represents two species: *Calicium viride* Pers. and *C. salicinum* Pers. As a greenish thallus is not mentioned in the Linnaean protologue, we believe the best interpretation of the name is via the second specimen which matches the illustration. This is the smaller, lower specimen (B), which is *C. salicinum*. Dillenius (1742: 78) confused the thallus colour of the two in the text. Specimen B is the small one with a grey thallus—not greenish as he claims.

The lectotype accordingly represents the species presently called *C. salicinum*, and *C. lichenoides* (L.) Schum. is the older name which, unfortunately, must be resurrected under the present Code, unless rejected under Art. 56. Since *C. lichenoides* has not been in use for a considerable time it will be proposed for rejection.


1. **MUCOR** *perennis, filipite filiformi nigro, capitulo Sphaerocephalus. globoïdot cincreo. Fl. suec. 1121 t. 18. f. 20.*

*Sphaerocephalus niger, villo ochroleuco. Hall. belv. 3.*

*Habitat in Parietibus, Lapidibus, Lignis.*

Linnaeus took the diagnostic phrase-name unaltered from *Flora suecica*, also citing Haller (1717) as a synonym.

There are no specimens in LINN, and the treatment in *Flora suecica* indicates that the name included many discordant elements. A species commonly found on *Mesembryanthemum* in the Botanical Garden in Uppsala must have been a non-lichenized fungus or a myxomycete. The Haller illustration shows two quite different plants. Figure 3A has a grey, fluffy, round head, and is most possibly a myxomycete (or less likely a *Comocybe*), while 3B with a cup-shaped blackish head is a *Calicium* which, however, does not conform with the Linnaean protologue citing ‘capitula cineria’. Linnaeus must therefore have intended to refer to Figure 3A, but without having studied the material, we find it difficult to say with certainty what species it could represent. With such a mixture of unclear elements, it is easy to understand why the name has not been taken into general use. We entirely agree with Acharius (1816: 267): “Since it is still uncertain what Linnaeus meant by his *Mucor sphaerocephalus . . .*, it does not serve any purpose to maintain the name *sphaerocephalus*” (translated from Swedish). We will accordingly propose it for rejection.

   fpo lacinulato. *Fl. suec.* 1030. 
   Lichenoides pellucidum, endivia foliis tenuibus crispsis. 
   *Dill. muse.* 143. t. 19. f. 31. 
   gen.* 26. t. 38. 
   Musco fungus terrestris minor fuscus, foliis e latitudi- 
   15. t. 7. f. 4. 
   *Habitat in Muscis, locis ambrosis ad mosses.*

Figure 67. Lectotype (at arrow in between the mosses) of *Tremella lichenoides*, LINN 1276.9 (that number written by Savage). Pencil annotations at the bottom of the sheet by Sir J. E. Smith. Other inscriptions by Linnaeus.
Linnaeus adopted the diagnostic phrase-name from *Flora suecica*, substituting the word *foliis* with *frondibus*. He also cites three synonyms from works by other botanists.

There are four sheets at LINN, three of which are annotated by Linnaeus, two with both localities and *Species plantarum* numbers. However, it seems unlikely that sheet 1276.4 from India was the basis for the diagnosis in 1753. Sheet 1276.3 marked ‘*Suec.*’ and inscribed ‘*Locus paludibus sub aqua ad Laby*’ on the back is possibly responsible for the addition to the habitat description of *locis umbrosis* in *Species plantarum*. It represents the first known collection of *Leptogium rivulare* (Ach.) Mont. (see Jørgensen & James, 1983: 120–121). The third sheet, 1276.9, has both *Flora suecica* and *Species plantarum* numbers in Linnaeus’ handwriting, and is the obvious lectotype. Unfortunately Jørgensen & James (1983: 116), who then were under the impression that no original Linnaean material existed, incorrectly designated the specimen of the cited Dillenian illustration as the lectotype, instead of the illustration. We therefore supersede this choice by lectotypifying *Tremella lichenoides* on the lower specimen on sheet 1276.9 (Fig. 67).

The lectotype represents *Leptogium lichenoides* (L.) Zahlbr., the generitype of *Leptogium* (Ach.) Nyl.

### INDEX OF LINNAEAN LICHEN NAMES AND THEIR TYPES

This index records in abbreviated form the results of our study and the conclusions of the discussions. It lists the Linnaean names, their place of publication, their types and currently accepted status, as well as the content of lichen acids for each type specimen. Finally the current name for each species is given.

   = sterile thallus of *Omphalina umbellifera* (L.: Fr.) Quél.

   TYPE: Tab. I, fig. 4 in Dillenius, *Historia muscorum*; lectotype by Ross & Irvine (1967:185); Fig. 3. Epitype: England, London Borough of Lewisham, Blackheath, on timber (LINN, J. E. Smith herbarium); selected here. TLC: Calcyin.
   = *Chrysothrix candelaris* (L.) Laund.

   TYPE: Tab. I, fig. 3 in Dillenius, *Historia muscorum*; lectotype (called holotype) designated by Laundon (1992: 333); Fig. 3. Epitype: Tab. I, no. 3, in Dillenius herbarium (OXF), selected here. TLC: Divaricatic acid and zeorin.
   = *Leparia kana* (L.) Ach.

   TYPE: Not designated, *species non satis nota.*
TYPE: Tab. XXIV, fig. 82 in Dillenius, *Historia muscorum*; lectotype designated here; Fig. 4. Epitype: Great Britain, Isles of Scilly, St. Martin’s, Chapel Down, overlooking Stoney Port, 5.5. 1980, P.W. James (BM); selected here. TLC: Atranorin, lobaric and salazinic acids.
= *Parmelia omphalodes* (L.) Ach.

TYPE: LINN 1273.175; lectotype by Howe (1912: 201); Fig. 5. TLC: Methyl gyrophorate, tenuiorin, phlebic acids A & B, zeorin and unknown terpenoid.
= *Peltigera aphthosa* (L.) Willd. (corrected spelling).

= *Dermatocarpon luridum* (With.) Laund.

TYPE: LINN 1273.183; lectotype by Howe (1912: 201); Fig. 6. TLC: Nephroarctin, phenarctin and zeorin.
= *Nephroma arcticum* (L.) Torss.

= *Usnea articulata* (L.) Hoffm.

TYPE: Not designated, *species non satis notae*.

TYPE: Not designated, *species non satis notae*.

TYPE: Tab. XII, fig. 6 in Dillenius, *Historia muscorum*; lectotype designated here; Fig. 7. Epitype: Sweden, Västmanland, Kila par., torpruin SO om Granmuren, 20.7. 1962, I. Nordin (UPS). TLC: Usnic and salazinic acids.
= *Usnea barbata* (L.) Weber

TYPE: LINN 1273.91, left-hand specimen; lectotype designated here; Fig. 10. TLC: No lichen substances.
= *Leptogium burgessii* (L.) Mont.

TYPE: Tab. XIV, fig. 5 in Dillenius, *Historia muscorum*; lectotype designated here.
= *Onygena equina* (Willd.: Fr.) Pers.: Fr.
Proposed conserved type: LINN 1273.2. TLC: Constictic, cryptostictic, menegazziaic and stictic acids.
= *Baeomyces rufus* (Huds.) Rebent.
TYPE: Tab. XVIII, fig. 8 in Dillenius, *Historia muscorum*; lectotype designated here.

= *Mycoblastus affinis* (Schaer.) Schauer.

TYPE: LINN 1273.115; lectotype designated by Howe (1912: 201); Fig. 11. TLC: Usnic and protocetraric acids.

= *Ramalina siliquosa* (Huds.) A.L. Sm.


= *Xanthoria candelaria* (L.) Th. Fr.

TYPE: LINN 1273.184; lectotype designated by Howe (1912: 201); Fig. 12. TLC: No lichen substances.

= *Peltigera praetextata* (Flörke ex Sommerf.) Zopf

TYPE: Tab. XXV, fig. 97 in Dillenius, *Historia muscorum*; lectotype designated here. Epitype: Tab. XXV, no. 97B in the Dillenius herbarium (OXF); selected here. TLC: Caperatic, pinastric, protocetraric and usnic acids.

= *Flavoparmelia caperata* (L.) Hale (≡ *Parmelia caperata* (L.) Ach.).

TYPE: LINN 1273.18 p.p., lower specimen; lectotype selected here; Fig. 13. TLC: Not performed due to the small size of the specimen, but thallus K+ yellow, indicating presence of atranorin (and chloratranorin).

= *Lecanora carpinea* (L.) Vain.

TYPE: LINN 1273.58, upper specimen; lectotype selected here (sheet designated as type by Howe, 1912: 201); Fig. 14. TLC: Atranorin, alectoronic, β-aleuronic, α-collatolic (trace), 4-O-methylphysodic (trace), physodic and usnic acids, one unknown and traces of three further substances (det. J. A. Elix.).

= *Arctoparmelia centrifuga* (L.) Hale (≡ *Parmelia centrifuga* (L.) Ach.).

TYPE: LINN 1273.290; lectotype selected by Howe (1912: 201); Fig. 15. TLC: Fumarprotocetraric and protocetraric acids in thallus.

= *Bryoria fuscescens* (Gyeln.) Brodo & D. Hawksw.
Proposed conserved type: LINN 1273.291. TLC: Fumarprotocetraric acid in soralia only.
TYPE: LINN 1273.89; holotype; Fig. 16. TLC: Anthraquinones.
= *Teloschistes chrysophthalmus* (L.) Th. Fr. (corrected spelling).

TYPE: LINN 1273.92, upper specimen; selected here (sheet designated as type by Howe, 1912: 201); Fig. 17. TLC: No lichen substances.
= *Anaptychia ciliaris* (L.) Körb.

TYPE: Mount Belpberg (Schärer Lich. Helv. Exs. 127, UPS); neotype designated here. TLC: Norstictic, connorstictic, stictic (trace) acids and an unknown (trace) substance.
= *Aspicilia cinerea* (L.) Körb.

TYPE: LINN 1273.215, top specimen; lectotype designated here; Fig. 18. TLC: Porphyrilic, “conporphyrilic”, usnic acids and zeorin.
= *Cladonia coccifera* (L.) Willd.

TYPE: LINN 1273.17; neotype designated here. TLC: Thamnolic acid.
= *Pertusaria corallina* (L.) Arnold

TYPE: LINN 1273.217, central specimen; lectotype designated here; Fig. 19. TLC: Fumarprotocetraric acid.
= *Cladonia cornuta* (L.) Hoffm. s. lat.

TYPE: LINN 1273.223, lower specimen; lectotype designated by Ahti (1993: 73); Fig. 20. TLC: Fumarprotocetraric acid.
= *Cladonia cornuta* (L.) Hoffm.

TYPE: Tab. XIX, fig. 26 in Dillenius, *Historia muscorum*; lectotype designated here.
= *Collema tenax* (Sw.) Ach.
Proposed conserved type: Italy, Trentino, Cortina d’Ampezzo, Pocol, 1948, G. Degelius (UPS).

TYPE: LINN 1273.137; holotype; Fig. 21. TLC: Calycin, constictic acid, hopane-6α 7β,22 triol, methylglyrophorate, pulvinic acid, pulvinic lactone, stictic acid, tenuiorin, unknown terpenoid.
= *Pseudocyphellaria crocata* (L.) Vain.

TYPE: LINN 1273.189; lectotype designated by Howe (1912: 201); Fig. 22. TLC: Methyl glyrophorate, glyrophoric acid, 6-O-methylaverythrin (solorinic acid), unknown pigment.
= *Solorina crocea* (L.) Ach.
   TYPE: Tab. XX, fig. 42B in Dillenius, *Historia muscorum*; lectotype selected here; Fig. 23.
   = Parmotrema perforata (Jacq.) Hale
   Proposed conserved type: Sweden: in rupibus ad flumen Kamajock prope Qvickjock (= Kvikkjokk) Lapponiae Lulensis, 1871, P. J. & E. V. M. Hellbom (UPS) TLC: No lichen substances.

34. Lichen deformis L., *Species plantarum* 2: 1152 (1753).
   = Cladonia deformis (L.) Hoffm.

   TYPE: LINN 1273.206; lectotype designated by Howe (1912: 201); Fig. 25. TLC: Gyrophoric acid and trace of unknown substance.
   = Umbilicaria proboscidea sensu Ach. & auctt.

   TYPE: Tab. XV, fig. 19 in Dillenius, *Historia muscorum*; lectotype selected here. = Cladonia floerkea (Fr.) Flörke.

   TYPE: LINN 1273.277, right-hand specimen; lectotype selected here (sheet designated as lectotype by Howe, 1912: 201); Fig. 26. TLC: Divaricatic acid.
   = Evernia divaricata (L.) Ach.

   TYPE: LINN 1273.19; lectotype designated by Howe (1912: 201); Fig. 27. TLC: Perlatolic and thamnolic acids.
   = Icmadophila ericetorum (L.) Zahlbr.

   TYPE: Not typified, species non satis nota.

   TYPE: LINN 1273.70; lectotype designated here; Fig. 28. TLC: Fumarprotocetraric and protocetraric acids.
   = Melanelia stygia (L.) Essl. (≡ Parmelia stygia (L.) Ach.)

   TYPE: LINN 1273.110, lower specimen; lectotype designated by Hawksworth (1969: 255) (sheet selected as type by Howe, 1912: 201); Fig. 29. TLC: Protocetraric and usnic acids.
   = Ramalina farinacea (L.) Ach.

42. Lichen fascicularis L., *Systema naturae* ed. 12, 2: 711; *Mantissa plantarum*: 133 (1767).
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TYPE: LINN 1273.141; lectotype designated by Howe (1912: 201); Fig. 30. TLC: No lichen substances.

= Collema fasciculare (L.) Weber ex F.H. Wigg.

43. Lichen fimbriatus L., Species plantarum 2: 1152 (1753).
TYPE: Tab. XIV, fig. 8 in Dillenius, Historia muscorum; lectotype designated by Ahti (1993: 77). Epitype: Tab. XIV, no. 8, first specimen to the left in the lower row, in the Dillenius herbarium (OXF); selected here. TLC: Fumarprotocetraric acid.

= Cladonia fimbriata (L.) Fr.

44. Lichen floridus L., Species plantarum 2: 1156 (1753).
TYPE: LINN 1273.300, upper specimen; lectotype selected by Clerc (1984: 341) (sheet selected as type by Howe, 1912: 201); Fig. 31. TLC: Alectorialic (in apothecia), bourgeanic, hypothamnolic, thamnolic and usnic acids.

= Usnea florida (L.) Weber ex F.H. Wigg.

45. Lichen fragilis L., Species plantarum 2: 1156 (1753).
TYPE: LINN 1273.261, lower specimen; lectotype designated by Wedin (1993: 216) (sheet selected as type by Howe, 1912: 201); Fig. 32. TLC: Hypothamnolic acid and sphaerophorin.

= Sphaerophorus fragilis (L.) Pers.

46. Lichen fraxineus L., Species plantarum 2: 1146 (1753).
TYPE: LINN 1273.121, specimen B; lectotype designated by Krog & James (1977: 33) (sheet selected as type by Howe, 1912: 201); Fig. 33. TLC: Usnic acid.

= Ramalina fraxinea (L.) Ach.

47. Lichen fuciformis L., Species plantarum 2: 1147 (1753).
TYPE: Tab. XXII, fig. 61 in Dillenius, Historia muscorum; lectotype designated here. Epitype: Tab. XXII, no. 61, central specimen in the Dillenius herbarium (OXF); selected here. TLC: Erythrin, lepraric and roccellic acids.

= Roccella fuciformis (L.) DC.

TYPE: LINN 1273.107, central specimen; lectotype designated by Hawksworth & Chapman (1971: 51) (sheet selected as type by Howe, 1912: 201); Fig. 34. TLC: Atranorin, chloratranorin, α-collatolic (trace), alectoronic (trace), olivetoric (trace), 2-O-methylphysodic, oxyphysodic and physodic acids, and traces of three unknown substances (det. J. A. Elix).

= Pseudevernia furfuracea (L.) Zopf

49. Lichen fusco-ater L., Species plantarum 2: 1140 (1753).
TYPE: Sweden, Uppland, Uppsala, Vårdsäter, NE-SE of the mouth of the river Hägåå, 17.5.1964. R. Santesson 16299 (UPS); neotype designated by Hertel (1977: 244). TLC: Gyrophoric acid.

= Lecidea fuscoatra (L.) Ach.

50. Lichen gelidus L., Systema naturae ed. 12, 2: 709; Mantissa plantarum: 133 (1767).
TYPE: Iceland, Kjósarsysla, Reykir, 29.6.1937, B. Lyngê (O); neotype designated here in accordance with Lamb (1947: 202). TLC: Gyrophoric and lecanoric (trace) acids.

= Placopsis gelida (L.) Lindsay
51. Lichen geographicus L., Species plantarum 2: 1140 (1753).
   TYPE: Tab. XVIII, fig. 5 in Dilleniuss, Historia muscorum; lectotype designated by Hawksworth & Sowter (1969: 58). Epitype: Tab. XVIII, no. 5 in Dillenius herbarium (OXF); designated here. TLC: Psoromic, 2-O-demethylpsoromic and rhizocarpic acids.
   = Rhizocarpon geographicum (L.) DC.

52. Lichen glaucus L., Species plantarum 2: 1148 (1753).
   TYPE: LINN 1273, 139, lower specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 35. TLC: Atranorin and caperatic acid.
   = Platismatia glauca (L.) Culb. & C. Culb.

53. Lichen globiferus L., Systema naturae ed. 12, 2: 713; Mantissa plantarum: 133 (1767).
   TYPE: LINN 1273.251; lectotype by Howe (1912: 201); Fig. 36. TLC: Sphaerophorin and squamatic acid (trace).
   = Sphaerophorus globosus (Huds.) Vain.

54. Lichen gracilis L., Species plantarum 2: 1152 (1753).
   TYPE: Tab. XIV, fig. 13 in Dilleniuss, Historia muscorum; lectotype designated by Ahti (1993: 79). Epitype: Tab. XIV, no. 13C in Dillenius herbarium (OXF); selected here. TLC: Fumarprotocetraric acid.
   = Cladonia gracilis L. Willd.

55. Lichen hirtus L., Species plantarum 2: 1155 (1753).
   TYPE: Tab. XIII, fig. 12, in Dilleniuss, Historia muscorum; lectotype designated here; Fig. 37. TLC: Usnic and salazinic acids.
   = Usnea Cornuta Körb.

56. Lichen islandicus L., Species plantarum 2: 1145 (1753).
   TYPE: LINN 1273.97, lower specimen; lectotype designated by Kärnefelt (1979: 98) (sheet selected as type by Howe, 1912: 201); Fig. 38. TLC: Fumarpotocetraric, lichesterinic and protolichesterinic acids.
   = Cetraria islandica (L.) Ach.

57. Lichen islandicus L. var. tenuissimus L., Species plantarum 2: 1145 (1753).
   TYPE: LINN 1273.100; lectotype designated by Howe (1912: 201); Fig. 39. TLC: Lichesterinic and protolichesterinic acids.
   = Coelocaulon aculeatum (Schreb.) Link

58. Lichen jubatus L., Species plantarum 2: 1155 (1753), nom. rejic.
   TYPE: LINN 1273.281, left hand specimen; lectotype designated by Hawksworth (1970: 238); Fig. 40. TLC: No lichen substances.
   = Bryoria cf. fremontii (Tuck.) Brodo & D. Hawksw. without soralia.

59. Lichen juniperinus L., Species plantarum 2: 1147 (1753).
   TYPE: LINN 1273.128, upper right-hand specimen; lectotype designated by Mattsson (1994) (sheet selected as type by Howe, 1912: 201); Fig. 41. TLC: Pinastrinic, usnic, vulpinic acids and a range of terpenoids.
   = Vulpicida tubulosa (Schaer.) Mattsson & M.J. Lai (= Cetraria alvarensis (Wahlenb.) Vain.).

60. Lichen lacteus L., Systema naturae ed. 12, 2: 709; Mantissa plantarum: 132 (1767).
= Pertusaria lactea (L.) Arnold

61. Lichen lanatus L., Species plantarum 2: 1155 (1753).
TYPE: LINN 1273.284; lectotype designated by Howe (1912: 201); Fig. 42. TLC: No lichen substances.
= Ephebe lanata (L.) Vain.

TYPE: LINN 1273.109; holotype; Fig. 43. TLC: Aztranorin, zeorin, salazinic, consalazinic acids and two unknown terpenes.
= Heterodermia leucomelaena (L.) Poelt (corrected spelling)

63. Lichen miniatus L., Species plantarum 2: 1149 (1753).
TYPE: Tab. XXX, fig. 127 in Dillenius, Historia muscorum; lectotype designated here. Epitype: Tab. XXX, no. 127B in the Dillenius herbarium (OXF); designated here. TLC: No lichen substances.
= Dermatocarpon miniatum (L.) Mann

64. Lichen nivalis L., Species plantarum 2: 1145 (1753).
TYPE: LINN 1273.101, lower left specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 44. TLC: Usnic, ?lichesterinic and protolichesterinic acid.
= Cetraria nivalis (L.) Ach.

65. Lichen olivaceus L., Species plantarum 2: 1143 (1753).
TYPE: LINN 1273.66; lectotype designated by Howe (1912: 201); Fig. 45. TLC: Gyrophoric, stenosporic acids and TE1 or TE2.
= Neofuscelia pulla (Ach.) Essl. (= Parmelia pulla Ach.)

TYPE: Tab. XXIV, fig. 80A in Dillenius, Historia muscorum; lectotype designated here. Epitype: Tab. XXIV, no. 80 in the Dillenius herbarium (OXF); selected here. TLC: Atranorin, lobaric and salazinic acids.
= Parmelia omphalodes (L.) Ach.

67. Lichen pallescens L., Species plantarum 2: 1142 (1753).
TYPE: Tab. XVIII, fig. 17, the fertile element in Dillenius, Historia muscorum; lectotype designated here.
= Lecanora dispera (Pers.) Sommerf. s. l.
Proposed conserved type: Sweden, Härjedalen, Ramundberget, the slope NE of Kvarbackstjärn, c. 800 m, 27.6. 1973, R. Santesson 24384 (UPS). TLC: Gyrophoric (apothecia), variolaric acids.
   TYPE: Tab. XVIII, fig. 10 in Dillenius, *Historia muscorum*; lectotype designated here. Epitype: Tab. XVIII, no. 10, lower central specimen in the Dillenius herbarium (OXF); designated here. TLC: Gyrophoric, variolaric acids and one unknown.
   = *Ochrolechia parella* (L.) Massal.

   TYPE: Tab. XXIV, fig. 76A; lectotype designated here. Epitype: Tab. XXIV, no. 76A in the Dillenius herbarium (OXF); selected here. TLC: Anthraquinones.
   = *Xanthoria parietina* (L.) Th. Fr.

   TYPE: LINN 1273.259, lower specimen; lectotype designated by Lamb (1977: 200); Fig. 46. TLC: Atranorin and lobaric acid.
   = *Stereocaulon paschale* (L.) Hoffm.

   TYPE: As for *Lichen verrucosus* Huds.; Tab. XVIII, fig. 9, the pertusa-element, in Dillenius, *Historia muscorum*; lectotype designated here. Epitype: Tab. XVIII, no. 9, the upper central specimen; designated here. TLC: Coronaton, constictic, stictic acids, and traces of substances in the stictic acid complex.
   = *Pertusaria pertusa* (Weigel) Tuck.

   TYPE: LINN 1273.77, lower specimen; lectotype designated here (sheet designated by Howe, 1912: 201); Fig. 47. TLC: Atranorin, physisod, physisodalic and protocetraric acids.
   = *Hypogymnia physodes* (L.) Nyl.

   TYPE: Tab. XI, fig. 1 in Dillenius, *Historia muscorum*; lectotype designated here.
   = *Usnea ceratina* Ach.

   = *Umbilicaria polyphylla* (L.) Baumg.

   TYPE: Tab. XXX, fig. 130 in Dillenius, *Historia muscorum*; lectotype designated here. Epitype: Tab. XXX, no. 129 (incorrectly marked so), largest specimen in Dillenius herbarium (OXF). TLC: Gyrophoric acid.
   = *Umbilicaria polyrhiza* (L.) Fr.

   TYPE: LINN 1273.204; holotype; Fig. 48. TLC: No lichen substances.
   = *Umbilicaria cylindrica* (L.) Delise ex Duby.
77. Lichen prunastri L., Species plantarum 2: 1147 (1753).
TYPE: LINN 1273.125, central specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 49. TLC: Usnic and evernic acids.
= Evernia prunastri (L.) Ach.

78. Lichen pubescens L., Species plantarum 2: 1155 (1753).
TYPE: Tab. XIII, fig. 9 in Dillenius, Historia muscorum; lectotype selected here.
Epitype: LINN 1273.286; selected here. TLC: No lichen substances.
= Pseudephebe pubescens (L.) M. Choisy.

79. Lichen pulmonarius L., Species plantarum 2: 1145 (1753).
TYPE: LINN 1273.103, lower specimen; lectotype designated by Yoshimura & Hawksworth (1970: 36); Fig. 50. TLC: Stictic, constictic, cryptostictic and norstictic acids.
= Lobaria pulmonaria (L.) Hoffm.

80. Lichen pustulatus L., Species plantarum 2: 1150 (1753).
TYPE: LINN 1273.201, upper specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 51. TLC: Gyrophoric and lecanoric (trace) acids.
= Lasallia pustulata (L.) Mérat

81. Lichen pyxidatus L., Species plantarum 2: 1151 (1753).
TYPE: Tab. 41, fig. 1 L, central specimen in Michelius, Nova plantarum genera; lectotype selected here; Fig. 52. Epitype: corresponding specimen in the Michelian herbarium (FI); selected here. TLC: Fumarprotocetraric and protocetraric acids.
= Cladonia pyxidata (L.) Hoffm.

82. Lichen rangiferinus L., Species plantarum 2: 1153 (1753).
TYPE: LINN 1273.240; lectotype designated by Nourish & Oliver (1974: 259); Fig. 53. TLC: Atranorin, fumarprotocetraric acid.
= Cladonia rangiferina (L.) Weber ex F.H. Wigg. (≡ Cladina rangiferina (L.) Nyl.)

83. Lichen rangiferinus L. var. alpestris L., Species plantarum 2: 1153 (1753).
TYPE: Tab. XVI, fig. 29 F in Dillenius, Historia muscorum; lectotype designated by Pouzar & Vězda (1971: 195). Epitype: Tab. XVI, no. 29 F in Dillenius, herbarium (OXF); selected here. TLC: Usnic and perlatolic (trace) acids.
= Cladonia stellaris (Opiz) Pouzar & Vězda

84. Lichen rangiferinus L. var. sylvaticus L., Species plantarum 1153 (1753), nom. rejic. prop.
TYPE: Tab. XVI, fig. 30 in Dillenius, Historia muscorum; lectotype selected here.
= Cladonia portentosa (Dufour) Coem.

85. Lichen resupinatus L., Species plantarum 2: 1148 (1753).
TYPE: LINN 1273.169; lectotype designated by Howe (1912: 201); Fig. 54. TLC: No lichen substances.
= Nephroma resupinatum (L.) Ach.

86. Lichen Roccella L., Species plantarum 2: 1154 (1753).
TYPE: LINN 1273.263, lower specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 55. TLC: Lecanoric acid.
= Roccella patellata Stirt. (= R. tuberculosa var. vincentina Vain.)
TYPE: Tab. XVIII, fig. 2 in Dillenius, *Historia muscorum*; lectotype designated by Hawksworth & Punithalingam (1973: 503). Epitype: Tab. XVIII, no. 2, top right specimen in Dillenius herbarium (OXF); selected here.
= *Ascodichaena rugosa* (Fr.) Butin

= *Lecanora rupicola* (L.) Zahlbr.

TYPE: Norvegia, Tych. Holm (LINN 1273.197), lower specimen; lectotype designated here (sheet selected as type by Almborn, 1966: 104); Fig. 56. TLC: No lichen substances.
= *Solorina saccata* (L.) Ach.

TYPE: LINN 1273.10; lectotype designated here, Fig. 57. TLC: Atranorin, caperatic and rhodocladonic acids.
= *Mycoblastus sanguinarius* (L.) Norm.

TYPE: LINN 1273.62; second specimen from bottom; lectotype designated by Galloway and Elix (1983: 405) (sheet selected as type by Howe, 1912: 201); Fig. 58. TLC: Atranorin, chloratranorin, lobatic (trace) and salazinic acids.
= *Parmelia saxatilis* (L.) Ach.

= *Graphis scripta* (L.) Ach.

TYPE: LINN 1273.81, upper left-hand specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 59. TLC: Atranorin (in cortex).
= *Physcia stellaris* (L.) Nyl.

= *Melanelia stygia* (L.) Essl.

TYPE: Tab. XVIII, fig. 16 in Dillenius, *Historia muscorum*; lectotype designated by Brodó & Vitikainen (1984: 294).
= *Lecanora cf. horiza* (Ach.) Lindsay

TYPE: Tab. 809, fig. 1 in Tabernaemontanus, *Icones plantarum*; lectotype
designated here; Fig. 60. Epitype: LINN 1273. 249. TLC: Fumarprotocetraric acid.

= *Cladonia subulata* (L.) Weber ex F.H. Wigg.

TYPE: Tab. XVIII, fig. 12 in Dillenius, *Historia muscorum*; lectotype designated here.

= *Lecanora* sp.
Proposed conserved type: Scotland, Burgess no. 1 (LINN 1273.31). TLC: Gyrophoric and lecanoric (trace) acids.

TYPE: LINN 1273.246, lower specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 61. TLC: Usnic and barbatic acids.

= *Cladonia amaurocraea* (Flörke) Schaer.

TYPE: LINN 1273.44, upper right specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 63. TLC: Variolaric acid and unidentified fatty acids.

= *Ochrolechia upsaliensis* (L.) Massal.

TYPE: Martinique, LINN 1273.278; lectotype designated by Howe (1912: 201); Fig. 62. TLC: Usnic and divaricatic acids.

= *Ramalina usnea* (L.) R. Howe

TYPE: LINN 1273.199 right hand specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 64. TLC: Gyrophoric and lecanoric (trace) acids.

= *Umbilicaria vellea* (L.) Ach.

TYPE: LINN 1273.172, central specimen; lectotype designated by Vitikainen (pers. comm.). Fig. 65. TLC: Tenuiorin, methyl gyrophorate, gyrophoric acid (trace), phlebic acids A & B and 6 unidentified terpenoids (see White & James, 1987).

= *Peltigera venosa* (L.) Hoffm.

TYPE: Ehrhart exs. 30 (LINN 1273.15); neotype designated here. TLC: Usnic, divaricatic, thamnolic and trace of gyrophoric and ?psoromic acids, ventosin.

= *Ophioparma venosa* (L.) Norm. (≡ *Haematomma venosum* (L.) Massal.).

TYPE: Tab. XVIII, fig. 4 in Dillenius, *Historia muscorum*; lectotype selected here.

= *Bacidia rubella* (Hoffm.) Massal.
TYPE: LINN 1273.298, upper left specimen; lectotype designated here (sheet selected as type by Howe, 1912: 201); Fig. 66. TLC: Atranorin (trace), vulpinic acid.
= *Letharia vulpina* (L.) Hue

TYPE: Not designated, *species non satis nota*.

TYPE: Sweden, Uppland, Vänge parish, Fiby urskog, on upturned roots (‘rotvälta’), 4.8. 1962, R. Santesson 14432 (UPS); neotype designated here. TLC: Vulpinic and pulvinic acids, pulvinic acid dilactone.
= *Chaenotheca furfuracea* (L.) Tibell

TYPE: Tab. XIV, fig. 3 lower specimen in Dillenius, *Historia muscorum*; lectotype selected here.
= *Calicium salicinum* Pers.

TYPE: Not designated, *species non satis nota*.

TYPE: LINN 1276.9, lower specimen; lectotype selected here; Fig. 67. TLC: No lichen substances.
= *Leptogium lichenoides* (L.) Zahlbr.

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We have decided to reproduce in its entirety the original Linnaean working manuscript of the genus Lichen for Species plantarum (1753). It gives very good insight into Linnaeus’ working methods, and as seen above, we have been able to solve a number of problems by consulting this text. It should be read in conjunction with the printed version of the book, now readily available in the Ray Society reprint from 1957–59. The way in which Linnaeus compiled the work has been well described by Stearn (1957), and it is evident from this manuscript in more detail than the rest and provided with more lengthy descriptions and detailed discussions, the most extreme example being Lichen probuscideus, a species obviously added at such a late stage that it was not included in this version of the manuscript. An interesting example of his working methods is to be found on the first page, margins, some having obviously been added at a later date, including quite a number of corrections and second thoughts. In the manuscript text L. saxicus, L. mallis and L. hydriphlus have been altered to L. rugosum, L. prunastri and L. caminutus respectively. Further changes and additions were made even later, possibly at the proof stage, where for instance L. rugosum finally is named L. saxatilis. The following other changes are affected in the printed work: betulinus (to physodes), norlandicus (to arcticus), pulserulentus (to farinaeus), saeue (to omphalodes) and bronchialis (to furfuraceus). He also added epithets where these had not been filled in for several Cladonia species, for example, the varietal epithet alpestir under L. rangiferinus, an afterthought which has subsequently caused considerable nomenclatural difficulties.

APPENDIX

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In general it is the corrections and additions which are the most interesting. By studying these it can be seen how the *Flora sueca* text was emended, and how Linnaeus subsequently added citations as the work progressed. Of particular interest are those cases where he altered his taxonomic view, most notably in the cases of *L. juniperinus* and *L. aquaticus* discussed above.
LINNAEAN LICHEN NAMES

Lichen: 


Heads of the Linnaean Society of London. 1738.
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