

Aquatic fungi of Iceland:
Brevilegnia Coker and Couch.

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ABSTRACT: Nine isolates of *Brevilegnia* are described and illustrated. The fungi have in common these prominent features: small oögonia (some catenulate) of various shapes, simple, once-branched, or glomerulate oögonial stalks, and sympodial renewal of some oögonium-bearing filaments. Three isolates possess short, androgynous antheridial branches, but only rarely; two of these fungi are tentatively identified as *B. minutandra* and the third as *B. parvispora*. Five isolates, without antheridia, are identified as *B. unisperma* var. *montana*. A ninth isolate developed irregular, lateral swellings suggestive of deformed oögonia, but had other characters in common with those in all of the three foregoing taxa. The various specimens are closely allied to one another and to *B. unisperma* var. *delica*, differing only in the degree to which certain features predominate. Separating these taxa on the basis of spore discharge pattern (brevilegnoid exclusively, or both brevilegnoid and achlyoid) appears to be untenable.

In 1966, HOWARD [6] isolated a *Brevilegnia* (Herb. No. 607) from soil, the first confirmed report (a similar fungus had earlier been collected but not recognized) of a member of the genus from Iceland. In contrast to the depauperate nature of colonies of other brevilegnoid fungi, HOWARD's specimen produced strikingly large, open, diffuse colonies

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(5–7 cm in diameter) on hempseed. Moreover, throughout a series of experiments on the influence of culture methods on morphology [PADGETT, unpublished] the fungus retained this feature. HOWARD'S isolate formed sporangia with brevilegnoid and achlyoid spore discharge (dictyoid discharge rarely), and thus was evidently allied to *B. bispora* Couch [3]. The dual nature of the spore release pattern in *B. bispora* is certainly emphasized in the keys to species of *Brevilegnia* [1, 2, 4]. The fungus from Iceland had no antheridia, however, hence was set off sharply from COUCH'S species. On the basis of observational and experimental evidence he could assemble from study of a single isolate, HOWARD described his fungus as a new species, *B. parthenospora*. The report of some Saprolegniaceae from Iceland [7] did not include this species.

Eight additional representatives of *Brevilegnia* (see Table I) have been isolated from soils in various localities. All of these isolates share certain general features with HOWARD'S *B. parthenospora*, whatever other individual characters each might exhibit. These are: the production of glomeruli (openly- or compactly-branched oögonial stalks bearing lateral and terminal oögonia; Figs. 13, 23, 26, 39); sympodial branching for the renewal (or continuing) growth of oögonial stalks (Fig. 16); catenulate oögonia, and oögonia that are narrowly or broadly apiculate. Some of the major differences among the isolates in these same

TABLE I. List of Specimens.

Isolate (Herbarium) Number	Identification
466	<i>Brevilegnia unisperma</i> var. <i>montana</i>
607 ¹	same
722	same
2721	same
3346	same
2477	<i>Brevilegnia minutandra</i> ²
3531	same ²
2328	<i>Brevilegnia parvispora</i> ²
3519	<i>Brevilegnia</i> sp.

¹ *B. parthenospora* Howard, *nom. nud.*

² Provisional identifications.

characteristics appear to be only the frequencies in which the various structural aspects appear in culture.

This paper is an account of the morphology of the nine isolates together with taxonomic notes on identifications where appropriate. We were unable to resolve all taxonomic problems; these can be properly treated only by a critical analysis of the group of taxa clustering about *B. unisperma* and its varieties. While species names are associated with most of the isolates (Table I), these do not necessarily reflect a final decision on identification.

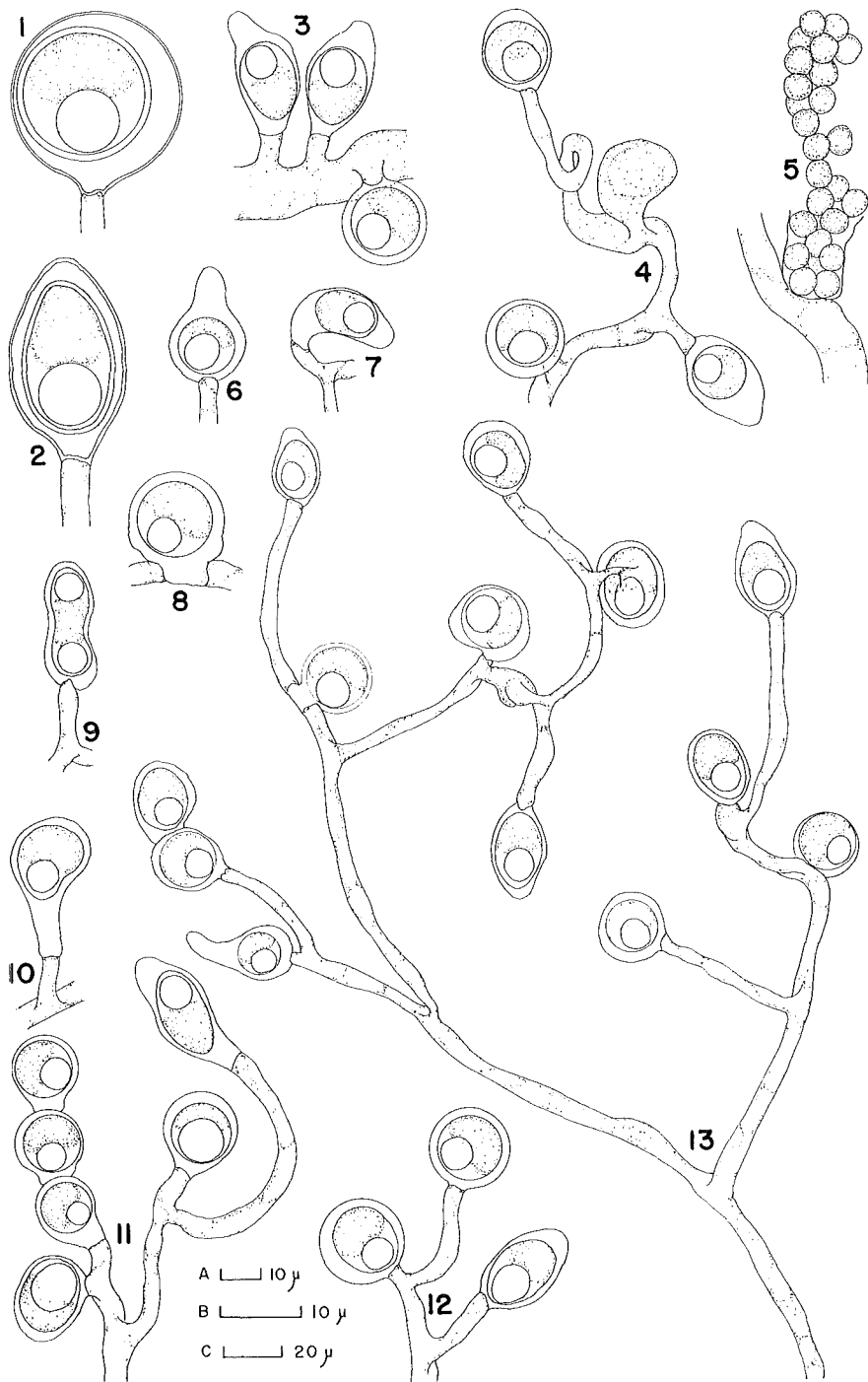
Representative specimens of the fungi are preserved and deposited in the collections at the Museum of Natural History, Reykjavík. Pure cultures (from single spore isolations) of the fungi were propagated on hempseed in water, using sterile, charcoal-filtered, distilled water, or (in Iceland) sterile tap water without prior treatment or distillation. The morphology of the isolates was determined from such cultures.

MORPHOLOGY AND TAXONOMY

Five isolates are identified as *Brevilegnia unisperma* var. *montana* Coker and Braxton [1]. The resemblance of these fungi to this variety (Figs. 1–15) is unmistakable in our view, despite some inconsistencies between our specimens and that of COKER and BRAXTON.

COKER and BRAXTON held a distinctive feature of *Brevilegnia unisperma* var. *montana* to be the production of oögonia in groups on long, branched lateral hyphae. They illustrated this feature [1, pl. 30, fig. 1] adequately, and the resemblance of their figure to the structure of our specimens (Figs. 13, 15 in part) is at once obvious. Indeed, glomeruli are a prominent feature of all five of our isolates (including HOWARD's *B. parthenospora*). Oögonial shape in the variety *montana* parallels precisely the predominating form of these structures in our fungi: ovoid to ellipsoidal-fusiform. Like the variety *montana*, our specimens produce some irregular oögonia, but these are not papillate as COKER [1, pl. 30, fig. 8] shows, and antheridia are absent. COKER and BRAXTON illustrate sympodial renewal of oögonial branches in the variety, but do not mention this in its description. Sympodial branching is a noticeable characteristic not only in the five isolates of the variety (Figs. 11–13, in part) but also in our other isolates (Table I; Figs. 16, 17, 26, 27, 32, 38), and *B. unisperma* var. *delica* [8].

Our isolates vary somewhat from one another (and from HOWARD's *Brevilegnia parthenospora*); they also have a few characteristics not



previously described for the variety *montana*. In one isolate (No. 466), we found a few gemmae, but in colonies of the others, no such structures have appeared. In *B. parthenospora* (Herb. No. 607), PADGETT [6] induced gemmae to form in colonies growing in very small amounts of water. Thus, gemma development is a property of some representatives of the variety, but not of others. These cells are in any case very uncommon even in colonies producing them.

All five isolates exhibited brevilegnoid discharge from the primary sporangia and in some subcultures (but not all) achlyoid discharge from primary and secondary ones. The original [1] and subsequent descriptions of the variety *montana* do not mention the achlyoid type of sporangial discharge. The variable appearance of such sporangia makes them undependable for identification.

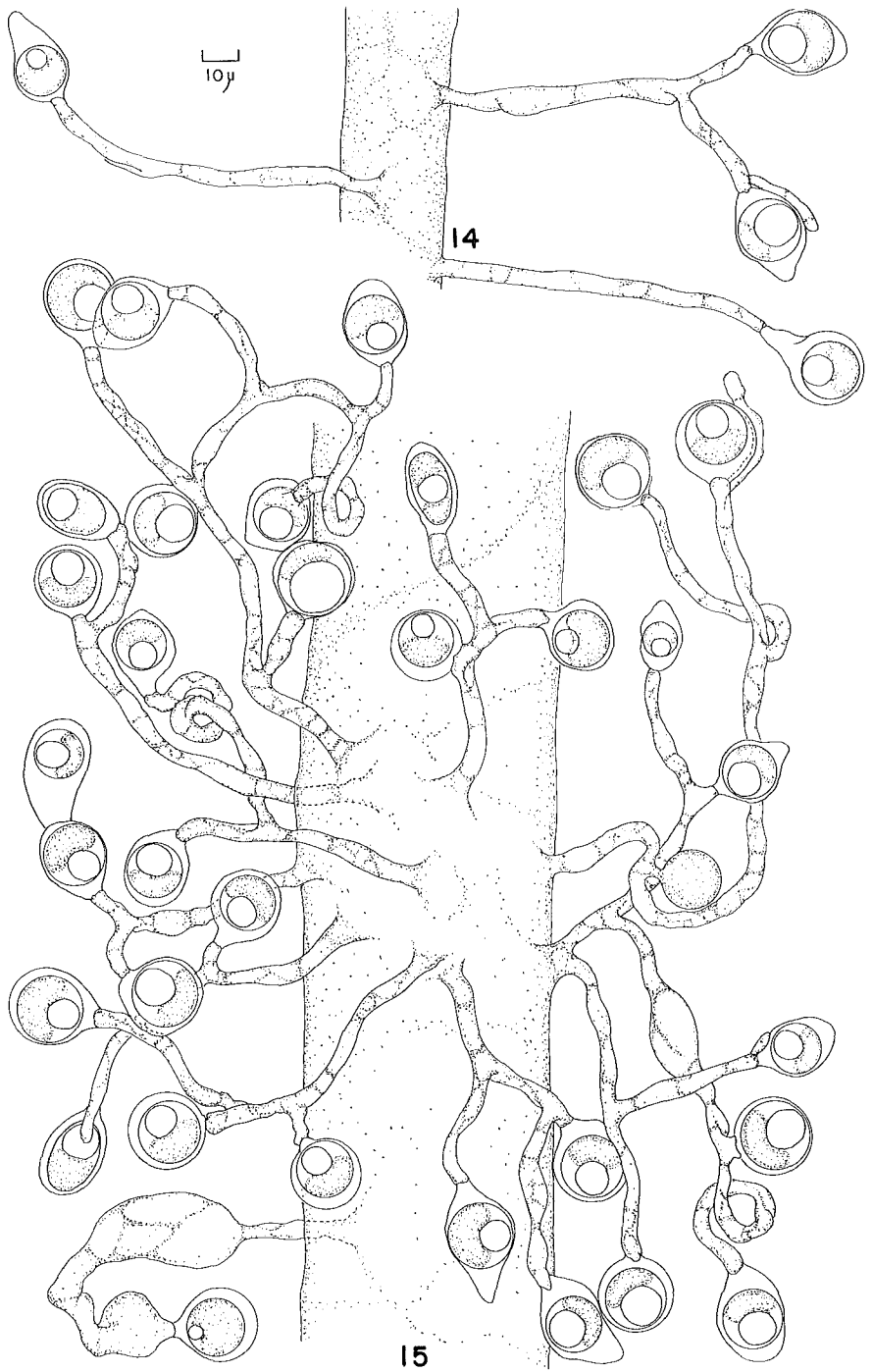
In cultures of isolate 2721, an additional feature appears, namely, the tendency of the oögonia to grow in dense clusters on some primary hyphae (Fig. 15). This is not known to be characteristic of *B. unisperma* var. *montana*. In our isolates also, simple or once-branched oögonial stalks occur (Fig. 14). While the oögonia may be crowded closely together on the hyphae, their resemblance to comparable cells of *B. unisperma* var. *delica* [1, pl. 31, figs. 3, 8] is obvious.

In spite of the foregoing differences among our isolates and between them and the variety *montana*, we believe our collections do represent this taxon. We simply cannot ignore similarities in both descriptive and illustrative accounts of the variety and our isolates. Although it seems to us likely that *Brevilegnia unisperma* var. *montana* should be raised to specific rank, we are not doing so in view of other isolates at hand.

Brevilegnia parthenospora (Table I) —though a *nomen nudum*—has to be considered separately from other species because of two characteristics: achlyoid sporangial discharge, and substantial colony diameter. Cultures of *B. parthenospora* were carried through a series of experiments identical to those performed by SALVIN [10] and JOHNSON

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FIGURES 1–13: *Brevilegnia unisperma* var. *montana*. — Figs. 1, 2. Mature, unpitted oögonia. — Fig. 3. Short-stalked oögonia. — Fig. 4. Terminal and lateral oögonia, and an oögonial initial. — Fig. 5. Sporangium with brevilegnoid spore release. — Figs. 6–10. Variations in oögonial shape. — Fig. 11. Stalked and catenulate oögonia. — Fig. 12. Sympodial renewal. — Fig. 13. Branched lateral hypha forming a glomerulus of oögonia. — Figs. 1, 2, scale B; Fig. 5, scale C; others, scale A.



[8]. While these experiments were unrefined, involving growth of the fungi on hempseed, they did force certain environmental stresses on the test plants.

HOWARD's species (Table I) showed a high degree of morphological stability in all tests, in contrast to the instability in SALVIN's [10]. Although the fungus did not produce sporangia in staling water, it did discharge spores in the brevilegnoid and achlyoid manner under all other conditions (e. g., both high and low oxygen tension). No antheridia were produced by any of the test cultures, and oögonial size remained within the limits of that found in control cultures. As has been noted, gemmae were produced by colonies growing in small amounts of water.

The description and illustrations of the oögonia of *Brevilegnia parthenospora* [6, figs. 219–221] are without a doubt descriptive of the variety *montana*. Similarly, the characteristics of the sexual apparatus in HOWARD's specimens match precisely those of the other isolates which we are confident represent *B. unisperma* var. *montana*. Large colony diameter and the formation of sporangia with achlyoid spore discharge (features of HOWARD's isolate) are characteristics of that single specimen. When viewed as an individual in a population, *B. parthenospora* is merely one expression of *B. unisperma* var. *montana*.

The following description of *Brevilegnia unisperma* var. *montana* (including *B. parthenospora*) as it is represented in Iceland in effect broadens but does not invalidate the concept of the taxon.

Brevilegnia unisperma* var. *montana Coker and Braxton, in Coker, Jour. Elisha Mitchell Sci. Soc. 42: 213, pl. 30, figs. 1–9. 1927.

Mycelium diffuse, extensive, 5–7 cm in diameter on hempseed halves, or dense and limited and forming a restricted colony 1–1.5 cm in diameter. Gemmae absent or induced in culture, then single or catenulate, terminal or intercalary, pyriform, clavate, or cylindrical. Spor-

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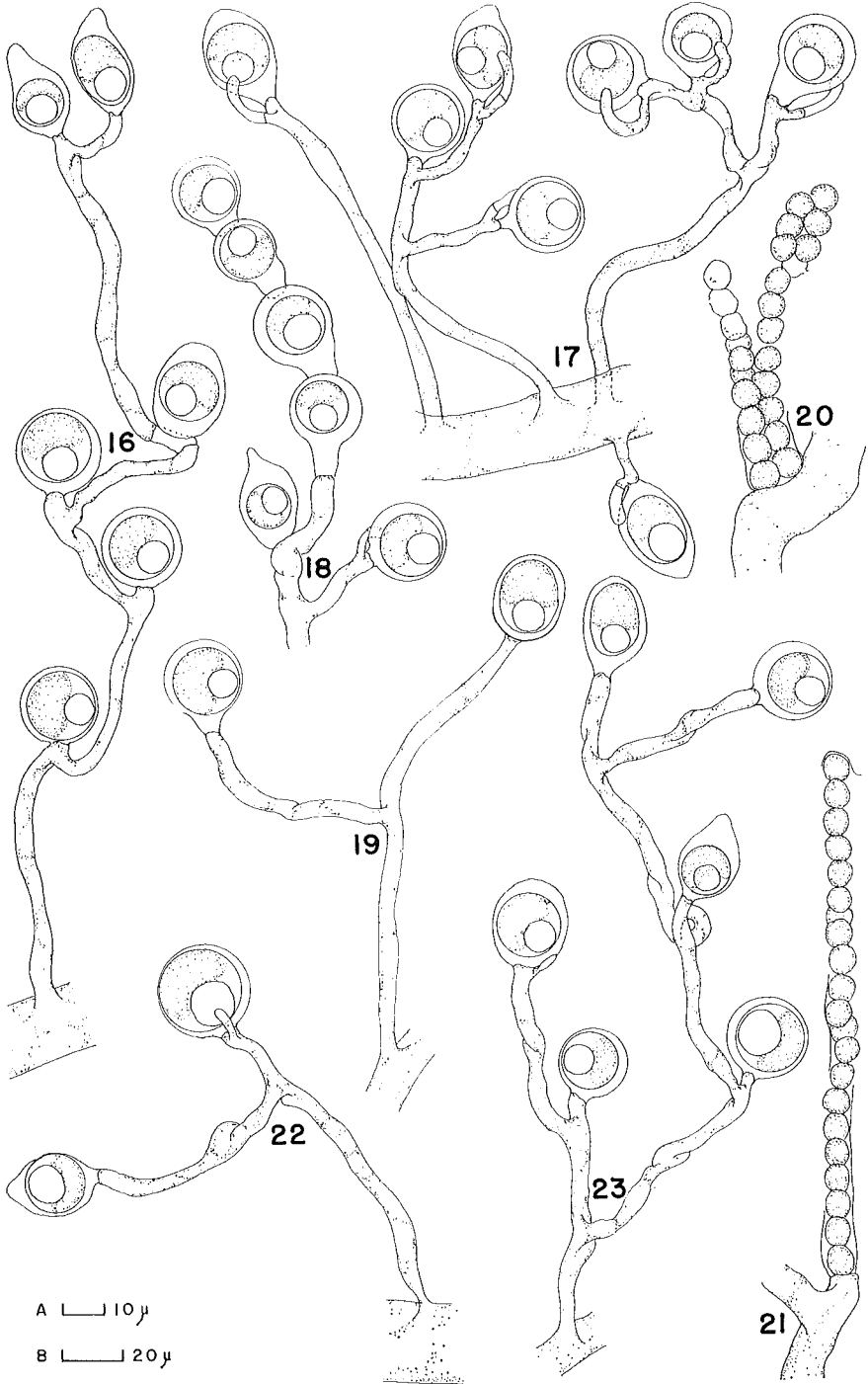
FIGURES 14, 15: *Brevilegnia unisperma* var. *montana* — Fig. 14. Lateral, long-stalked oögonia. Note young sympodial branch giving appearance of an antheridial branch. — Fig. 15. Characteristic clustering of oögonia from a large, primary hypha. Oögonia show glomerulate nature of the stalk and the sympodial renewal pattern. — Both figs. same scale.

angia sparse or abundant; fusiform, clavate, or cylindrical; 60—(185—270)—380 \times 13—(24—30)—34 μ ; renewed sympodially. Primary sporangia discharging spores in brevilegnoid manner exclusively, or in both brevilegnoid and achlyoid patterns; spore release from secondary ones brevilegnoid, occasionally dictyoid, rarely achlyoid; encysted spores 7—(9—11)—14 μ in diameter. Oögonia abundant; lateral or terminal, occasionally sessile or in short chains of 3—5; rarely intercalary; generally ovoid, broadly ellipsoidal or broadly oval to fusiform, occasionally spherical, pyriform, obpyriform, nearly cylindrical, or with a short, broad apiculus that is often prolonged into a conspicuous papilla; rarely irregular, lunate, or turbinate; spherical ones 10—(16—20)—24 μ in diameter, ovoid, ellipsoidal, oval, pyriform or obpyriform ones 20—35 \times 12—18 μ ; wall inconspicuously thickened, smooth, unpitted. Oögonial stalks short and simple or long and branched; generally bent, curved, coiled, or contorted, but occasionally straight; often branching sympodially; frequently forming extensive or compact glomeruli that together with oögonia on simple, sympodially renewed, or once-branched stalks, may arise in dense clusters from restricted portions of the primary hyphal branches. Antheridia absent. Oöspores eccentric; single; thick-walled; spherical or ovoid, or following the inner contour of the oögonium; 9—(12—18)—20 μ in diameter; germination not observed.

Distribution in Iceland — In soil: NORÐUR-ÞINGEYJARSÝSLA: pasture at Vikingavatn (6 September 1965, Herb. No. 466). — BORGARFJARÐARSÝSLA: northeast of Akranes, Kjalardalur (29 August 1966, Herb. No. 607, leg. K. L. Howard). — ÁRNESSÝSLA: marshy area north of Selfoss, edge of stream bank (9 September 1966, Herb. No. 722). South of Gullfoss, grassy knoll in pasture (27 June 1969, Herb. No. 2721). — VEST-MANNAEYJAR: barnyard at dairy farm on Heimacy (7 May 1972, Herb. No. 3346).

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FIGURES 16—21: *Brevilegnia minutandra* 3531. — Fig. 16. Sympodial branching of oögonial stalk. — Fig. 17. Lateral oögonia on simple or branched stalks; note short, cylindrical, androgynous antheridial branches and attendant cells. — Fig. 18. Catenulate oögonia. The branch at the base of the lowermost spherical oögonium is sympodial renewal of the stalk. — Fig. 19. Oögonia on a singly-branched stalk. Fig. 20. Sporangium with brevilegnoid spore release. — Fig. 21. *Brevilegnia*-like sporangium with encysted planonts in a single row. — FIGURES 22—23: *Brevilegnia minutandra* 2477. — Fig. 22. A once-branched, lateral oögonial stalk. Note very short, cylindrical androgynous antheridium at base of upper oögonium. — Fig. 23. A glomerulus of oögonia. — Figs. 20, 21, scale B; others, scale A.



Disposing taxonomically of the remaining four isolates of *Brevilegnia* is impossible to achieve convincingly from the evidence at hand. These isolates (Table I) allegedly represent a complex of taxa in which *B. minutandra* Höhnk [5], *B. parvispora* Höhnk [5], *B. unisperma* var. *delica* Coker and Alexander [1] and *B. unisperma* var. *montana* figure prominently.

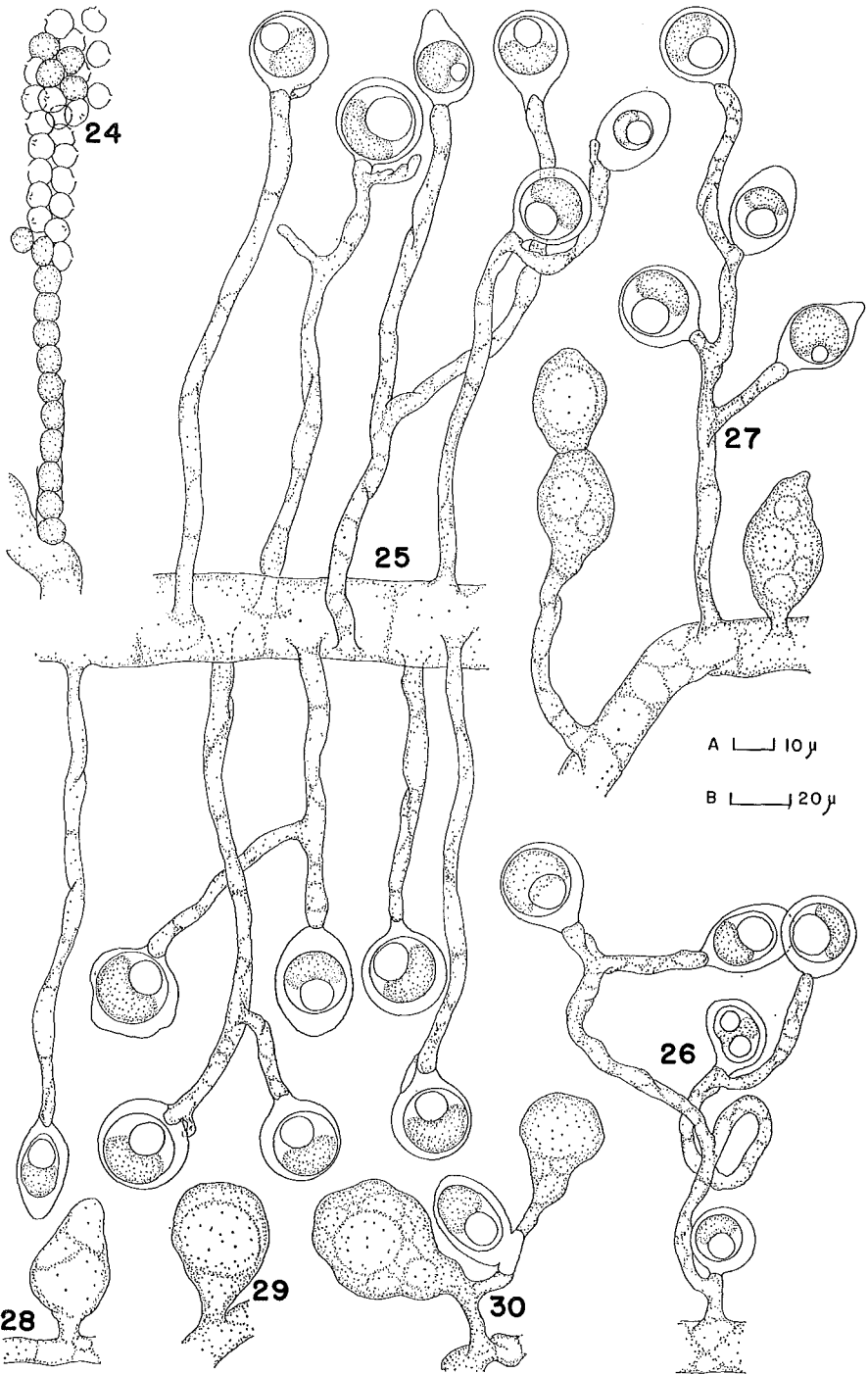
Two isolates have been assigned tentatively to *Brevilegnia minutandra* Höhnk; No. 2477 (from soil in a sheep trail in valley near Eyjafjallajökull, 26 August 1968), and No. 3531 (from mud in a stream draining a barnyard, near Árbær, 8 August 1972). The two isolates have the same basic characteristics of the oögonial apparatus, but differ with regard to the antheridia.

In both isolates of *Brevilegnia minutandra* (Table I), the oögonia are often borne on branched stalks (Fig. 23) or glomeruli, and each shows the sympodial renewal pattern (Fig. 16) characteristic of *B. unisperma* var. *montana* (Figs. 12, 13). This configuration of stalk renewal is well illustrated by HÖHNK [4, pl. 13, fig. 2]. Moreover, in both isolates, chains of oögonia (Fig. 18) are produced, much as we have found for the variety *montana*, and in both, singly-branched oögonial stalks (Figs. 19, 22) so characteristic of that variety (Fig. 14, in part) are also found occasionally. The apiculate and ovoid oögonia (Figs. 16, 17, 23) that mark the variety *montana* are present in our isolates of *B. minutandra*.

The only differences we detect between *Brevilegnia minutandra* 2477 and 3531 are in the antheridial apparatus, and the sporangia. The antheridial branches of *B. minutandra* 3531 are short and androgynous (Fig. 17), much as HÖHNK [4] illustrates them. The cylindrical antheridial cell is generally curved. In *B. minutandra* 2477 the antheridial branch together with its attendant cell (Figs. 23, 25, in part) is extremely short, and often appears merely as a hyaline protuberance at the oögonium base. While HÖHNK illustrates short antheridia for his species,

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FIGURES 24–26: *Brevilegnia minutandra* 2477. — Fig. 24. Clavate sporangium with brevilegnoid spore release. — Fig. 25. A cluster of lateral oögonia. Some show sympodial renewal pattern and the small, inconspicuous, androgynous antheridium. — Fig. 26. A glomerulus of oögonia with lateral branching and sympodial renewal. FIGURES 27–30: *Brevilegnia* 3519. — Fig. 27. Lateral oögonia on a branched stalk, and adjacent, vacuolate hyphal swellings. — Figs. 28–30. Variations in shape of the lateral hyphal swellings. — Fig. 24, scale B; others, scale A.



they appear not to be nearly as abbreviated as we find them in this fungus from Iceland. Neither isolate 3531 nor 2477 has, in culture, produced any prominently irregular oögonia recalling those which HÖHNK has illustrated [4, pl. 13, fig. 5]; such oögonia were evidently uncommon in his specimens. On the other hand, the spherical and broadly apiculate oögonia in our two isolates surely match those of HÖHNK's species.

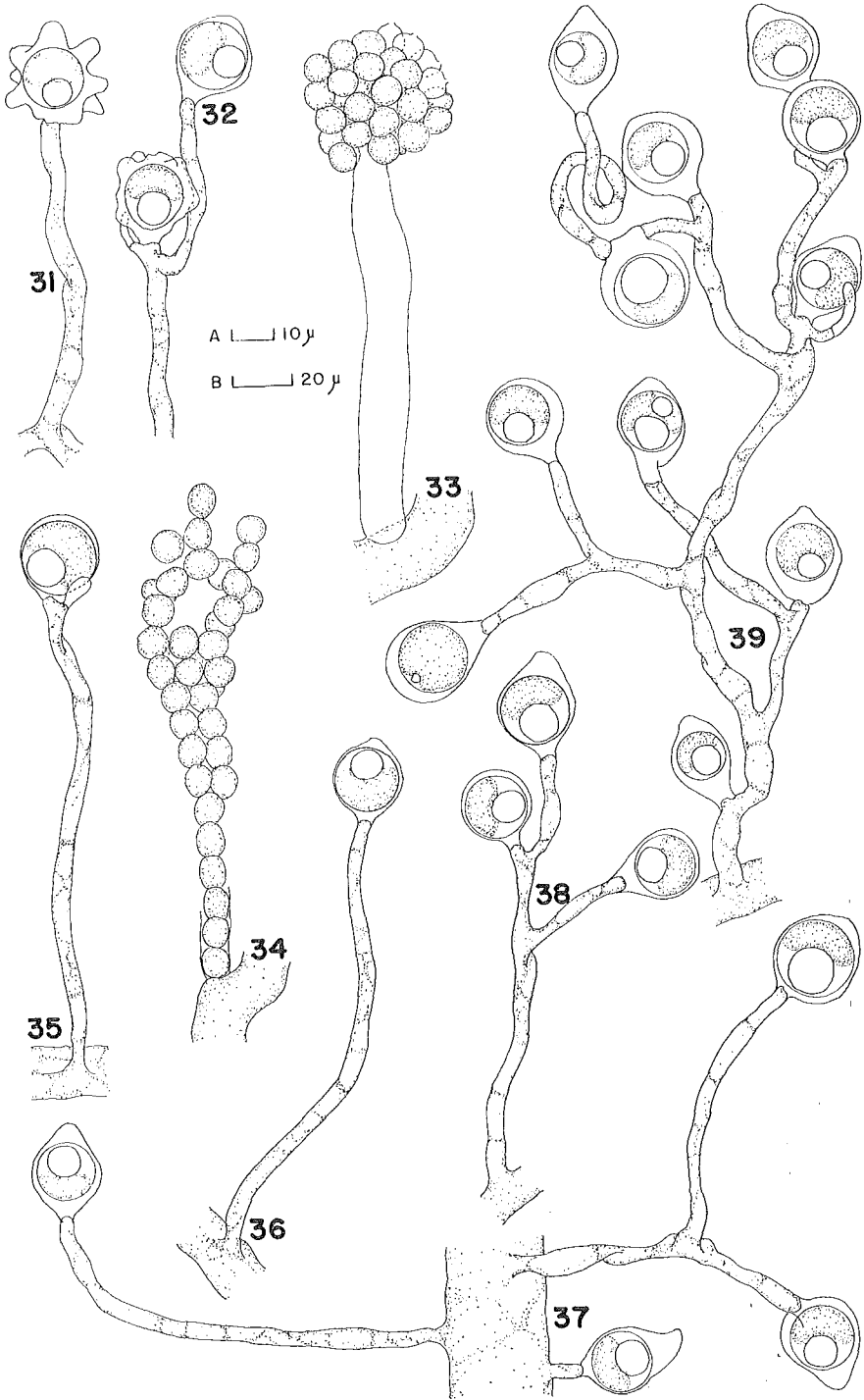
HÖHNK separated *Brevilegnia minutandra* from other species in the genus on a sporangial character: the encysted spores occurred in a sporangium in a single row. *Brevilegnia minutandra* 3531 produces sporangia with spores in one, two, or three rows (Figs. 20, 21), while *B. minutandra* 2477 forms long clavate ones (Fig. 24). If our isolates do represent HÖHNK's species, they are variants with respect to the disposition of spores within the sporangia, and *B. minutandra* therefore cannot be separated from other species on this feature alone. HÖHNK [4], of course, contrasted his fungus only with *B. linearis* Coker and Braxton [1].

The resemblance of isolates 3531 and 2477 to each other and to *B. unispërma* var. *montana* is undeniable. Oögonial configuration in HÖHNK's *B. minutandra* is too much like that of *B. unispërma* var. *delica* Coker and Alexander [compare 4, fig. 1 with 1, figs. 3 and 8, pl. 31] to be ignored. In both species, just as in the two specimens from Iceland, the oögonial stalks are simple, once-branched, or—and this seems to us particularly characteristic—are sympodially branched. *Brevilegnia unispërma* var. *delica* has sporangia with encysted spores in one or more rows, and if our interpretation is correct (isolate 3531), so does *B. minutandra*. Oögonium and oöspore sizes in all these fungi in question are in very close proximity, if not identical or overlapping in their ranges.

The only divergence between *Brevilegnia minutandra* and *B. unispërma* var. *delica*, in our view, is the presence (rarely or uncommonly) of antheridia in the former. In our isolates of *B. minutandra* a newly-

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FIGURES 31–39: *Brevilegnia parvispora* 2328. — Fig. 31. Papillate oögonium. — Fig. 32. An irregular and a broadly-apiculate oögonium. — Fig. 33. Sporangium with achlyoid discharge. — Fig. 34. Sporangium with brevilegnoid spore release. — Fig. 35. Lateral, long-stalked, spherical oögonium showing a short, inconspicuous, androgynous antheridial branch and attendant cell. — Fig. 36. Apiculate oögonium on a long, lateral stalk. — Fig. 37. Lateral oögonia. — Fig. 38. Oögonia on a laterally branched and sympodially renewed stalk. — Fig. 39. A characteristic glomerulus of oögonia; androgynous antheridial branch on one oögonium. — Figs. 33, 34, scale B; others, scale A.



formed, short sympodial branch (in oögonial stalk renewal) is very easy to mistake for an antheridial branch (Figs. 17 and 25, in part). This is also true of sympodial branching in *B. unispërma* var. *montana*. There are even points of resemblances in the glomerulate stalk pattern of *B. minutandra*, *B. bispora* Couch [3, pl. 38, fig. 9], *B. unispërma* var. *montana* and *B. subclavata* Couch [3, pl. 40, fig. 4]. These various similarities may be merely coincidental, or they may represent such a high incidence of morphological unity among fungi in some species groups that the validity of taxa may be in doubt.

HÖHNK described [5] and illustrated [4] a second species, *Brevilegnia parvispora*. Like *B. minutandra*, this fungus produced a short, tubular curved antheridial apparatus [4; compare fig. 3, pl. 13, and fig. 4, pl. 9]. It showed as well broadly apiculate (or obovoid), spherical, and irregular oögonia, and branched oögonial stalks. In both species, antheridial production was rare or uncommon (HÖHNK says seldom as high as 15% in *B. minutandra*). HÖHNK separated the two species fundamentally (if not exclusively) on one sporangial character: *B. parvispora* had achlyoid and brevilegnoid spore discharge patterns, *B. minutandra* sporangia released their contents in the brevilegnoid manner.

From a soil sample taken in a barnyard on a farm east of Víkingavatn, on 4 June 1968, we isolated a *Brevilegnia* that we are tentatively assigning to HÖHNK's *B. parvispora*. Our fungus (Herb. No. 2328) like HÖHNK's species rarely produced antheridial branches, but when they occurred (Fig. 35, 39 in part) they were androgynous, short, tubular, and often curved, and thus seemed not to differ at all from those produced by *B. minutandra* (our isolate 3531). In the characteristics of the oögonia and oögonial stalks our isolate (No. 2328) agrees well with the features described for *B. parvispora*, but these same characters describe *B. minutandra* as well. Commonly in cultures of *B. parvispora* 2328, we found glomeruli (Fig. 39) that could not be distinguished in general aspect from those in isolates that we have allied with *B. unispërma* var. *montana* (Fig. 13) and *B. minutandra* (Fig. 23). Also in our *B. parvispora*, there were singly-branched oögonial stalks (Fig. 37), unbranched ones (Figs. 35, 36), and sympodially renewed ones (Fig. 38) much as we have observed in our other isolates. We emphasize that the simple, once-branched, and sympodial oögonial stalks are characteristic also of *B. unispërma* var. *delica*. Thus, the variety *delica* is linked strongly, in our view, to both of HÖHNK's species.

Like *Brevilegnia parvispora*, our isolate (No. 2328) produced two

types of sporangia. This feature allies *B. parvispora* to *B. bispora* as HÖHNK [4] noted, but it also is strongly reminiscent of *B. unisperma* var. *montana*.

Two characters of dissimilarity seem to stand out when our *Brevilegnia parvispora* 2328 is compared with the description and illustrations given by HÖHNK. We find papillate oögonia (Fig. 31) in our specimens, but HÖHNK does not mention them in his account of his species. HÖHNK reported that some angular encysted planonts in *B. parvispora* measured $8-12 \times 15-21 \mu$, a size not far removed from that of the oögonia. We find no such large spores in our specimens.

A ninth isolate of a fungus (Herb. No. 3519) producing sporangia with brevilegnoid spore discharge defies any attempt at identification. This plant was obtained on hempseed bait in a soil sample from an abandoned fish pond at Kollafjörður (10 May 1972).

In common with other isolates described in this paper, *Brevilegnia* sp. 3519 (Figs. 27-30) has simple or branched (Fig. 27) oögonial stalks that may branch sympodially (Fig. 27). The oögonia are like those in the other *Brevilegnias* from Iceland, namely, spherical, broadly ovoid, apiculate, and broadly-ellipsoidal to fusiform. No antheridia appeared either in the gross culture or in pure cultures on hempseed. The rarity of such structures in, for example, *B. parvispora*, suggests that antheridia may be equally uncommon in *Brevilegnia* sp. 3519, and hence were overlooked.

The structure distinguishing *Brevilegnia* sp. 3519 from other species we have collected is the hyaline, irregular, lateral hyphal swelling (Figs. 27-30). These cells are like oögonia in position, but differ from them in size and shape. The lateral swellings are not aborted oögonia, although their position suggests that this might be the case; neither are these protuberances as densely cytoplasmic as gemmae. None was observed to disintegrate or to develop into any recognizable structure. Among the known species of *Brevilegnia*, only *B. irregularis* [9] forms such structures.

The fungus seems allied to the complex of species under discussion in this paper, but this needs to be confirmed by study of additional isolates. Nothing is known of its stability under repeated subculture since it failed to grow after the initial single-spore isolates were propagated on hempseed in water.

DISCUSSION

It is necessary only to compare illustrative and descriptive matter on our isolates with that for HÖHNK's species and the varieties *delica* and *montana* of *Brevilegnia unisperma* to note the many structural similarities. The common characteristics emerging on comparison are these: simple, branched, or glomerulate oögonial stalks, occasional production of catenulate oögonia, and sympodial renewal of some oögonial branches. The latter feature (Figs. 12, 16, 25 in part, 32, 38) in particular is frequent among the isolates at hand, and there is no question that COKER [1] and HÖHNK [4] saw a similar branching pattern in their specimens. It is also evident that all of our isolates form spherical to ovoid or oval-ellipsoidal oögonia on long, simple stalks (Figs. 14, 36, 25 in part) just as does *B. unisperma* var. *delica*.

Brevilegnia minutandra (*sensu* Höhnk) aligns well with *B. unisperma* var. *delica* and the variety *montana* (*sensu* Coker and Alexander and Coker and Braxton, respectively) in spore discharge pattern; all are alleged to have only brevilegnoid type of release. Some of our isolates — which we are convinced are the variety *montana* — show that discharge patterns are not constant within a taxon. *Brevilegnia parvispora*, of course, allies itself with *B. unisperma* var. *montana* in spore release pattern, at least as we interpret the variety.

Other structural parallels emerge from an analysis of our observations and published accounts. *Brevilegnia minutandra* and *B. unisperma* var. *delica* seem to differ in only one essential feature: antheridia in the former, but not in the latter. This may not be a particularly substantial character on which to base speciation in view of a somewhat parallel situation in the two other taxa. *Brevilegnia unisperma* var. *litoralis* Coker and Braxton [1] apparently does not produce antheridial branches [1; JOHNSON, unpublished observations] but is in all other respects a counterpart to *B. unisperma* var. *unisperma* Coker and Braxton [1]. HÖHNK [4], however, reports specimens of *B. unisperma* var. *litoralis* in which 3–5% of the oögonia bore attendant androgynous antheridial branches.

Except for achlyoid spore release in *Brevilegnia parvispora* and its absence in *B. minutandra*, these two species are in our view identical. If our identification of isolate 3531 as *B. minutandra* proves to be correct (see Figs. 20, 21), then this difference between the two species vanishes, and they can be considered one taxa.

Thus, there emerge strong motives for rearrangement of the systematics of the complex of taxa revolving about HÖHNK's species and

the varieties of *Brevilegnia unisperma*. Insufficient attention has been paid to variation in these fungi, and taxonomic changes made without such background information would very likely not persist. Our isolates, and in particular those we think represent *B. minutandra* and *B. parvispora*, may be aberrant forms. A study of the full range of variation among many isolates in this group of Brevilegnias must be done before taxonomic judgements of lasting impact can be made.

Because of our uncertainty over stability of structural features in our isolates of *Brevilegnia*, we have had to identify specimens on the basis of preponderance of oögonial types and presence or absence of antheridia. The oögonia of *B. unisperma* var. *montana* are predominantly ovoid to ellipsoidal-fusiform; in *B. minutandra*, spherical oögonia seem to prevail in the cultures, and in *B. parvispora*, there are more broadly apiculate oögonia than any other kind. Isolates without any antheridia are assigned to the first of these three taxa. This scheme, intuitive as well as observational, is at best a doubtfully dependable one, but a suitable replacement awaits formulation.

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ÚTDRÁTTUR

Níu íslenskum sýnum sveppa af ættkvíslinni *Brevilegnia* er hér lýst, og þau flokkuð í tegundir eins og sést af töflu I. Howard gat þessarar ættkvíslar fyrst héðan árið 1966 úr sýni, sem hann hafði safnað nálægt Akureyri. Vegna sérstæðra einkenna lýsti hann þá eintaki sínu sem nýrri tegund með nafninu *Brevilegnia parthenospora*.

Við rannsókn og ræktun fleiri sýna höfum við nú komizt að þeirri niðurstöðu, að Howard's *B. parthenospora* tilheyrir raunverulega *B. unisperma* var. *montana*, sem ef til vill beri að skoða sem sjálfstæða tegund, fremur en albrigði. Ný lýsing

er hér gefin á þessu afbrigði, og víkkar hún nokkuð fyrri skilgreiningu þess. Af þeim níu sýnum, sem rannsökuð voru, tilheyra fimm þessu afbrigði.

Tvö sýnanna voru til bráðabirgða flokkuð undir *B. minutandra* og eitt frá Víkingavatni til *B. parvispora*. Eitt sýnanna tókst ekki að greina, en það hafði viss einkenni sameiginleg með *B. irregularis*.

Eintök þessara sveppa eru varðveitt á Náttúrufræðistofnun Íslands, Reykjavík. Margt í niðurstöðum athugananna bendir til þess, að full þörf sé á að endurskoða tegundaskiptingu Höhnik's innan þessarar ættkvíslar, svo og flokkun afbrigða *B. unisperma*. Of lítill gaumur virðist til þessa hafa verið gefinn að breytileika innan hverrar tegundar.

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