

PROCEEDINGS
OF THE
WASHINGTON ACADEMY OF SCIENCES

VOL. III, PP. 569-576. [TEXT FIGURES 62-66.] DECEMBER 11, 1901.

PAPERS FROM THE HARRIMAN ALASKA
EXPEDITION.

XXVI.

HARRIMANELLA, A NEW GENUS OF HEATHERS.

BY FREDERICK V. COVILLE.

THE German naturalist Pallas, for more than forty years the leader of Russian researches in natural history, published in 1788 a description of a new heather from eastern Siberia under the name *Andromeda stelleriana*. Willdenow, in 1799, transferred the species to the genus *Erica*. In the year 1834 David Don, a Scotch botanist, placed it in the genus *Bryanthus*, while Sir W. J. Hooker, studying the same plant independently, referred it back to *Andromeda*, citing the opinion of another botanist who considered it a *Menziesia*. In 1839 the plant was referred by De Candolle to *Cassiope*, and under the name *Cassiope stelleriana* it has since passed.

The genus *Cassiope* was founded by David Don, in 1834,¹ the plants originally included in it consisting of five species taken out of the older genus *Andromeda*. Two of these, *tetragona* and *hypnoides*, were species described by Linnæus and occurring in northern Europe; two others, *lycopodioides* and *ericoides* had been described by Pallas from eastern Siberia, and one, *fastigiata*, by Wallich from the Himalayas. *Cassiope tetragona* (*Andromeda tetragona* L.) was named by Don as the type of his new genus. To *Cassiope* belong, therefore, the species *tetragona* and such others as are congeneric with it. A

¹D. Don, Edinb. New Phil. Journ. 17: 157. 1834.
Proc. Wash. Acad. Sci., December 1901.

careful examination of the so-called *Cassiope stelleriana* makes it clear that this species is not a true *Cassiope* but should be made the type of a hitherto undescribed genus, which is characterized as follows:

Harrimanella gen. nov.

Plant belonging to the tribe Andromedeae, of the family Ericaceae; leaves empetriform, many-ranked, decurrent; flowers pentamerous, nodding, singly terminal on ordinary leafy branches; calyx ebracteolate, the sepals distinct, imbricated in the bud, not becoming fleshy

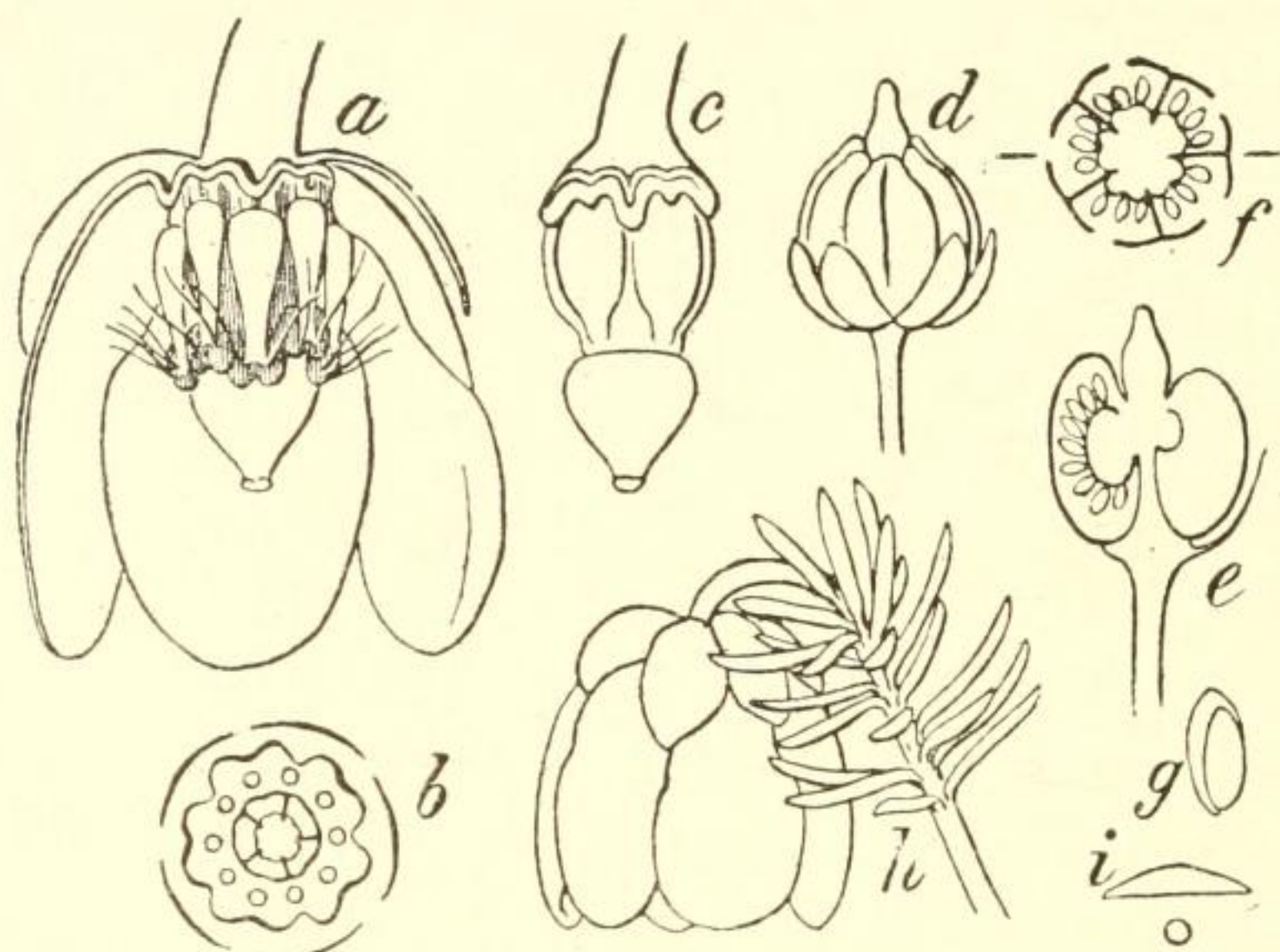


FIG. 62. *Harrimanella stelleriana*. *a*, flower, with part of calyx and corolla cut away ($\times 5$); *b*, diagram of flower; *c*, ovary and style ($\times 5$); *d*, fruit ($\times 2$); *e*, longitudinal section of fruit ($\times 2$); *f*, transverse section of fruit ($\times 2$); *g*, seed ($\times 10$); *h*, end of branch, showing leaves and position of flower ($\times 3$); *i*, outline of transverse section of leaf ($\times 10$).

and not exceeding the capsule in fruit; corolla campanulate, vertically plaited at the base, the lobes pendent and overlapping; filaments tumid below, the broad anthers situated in two planes of five each, biaristate below the apex, opening by large pores; style short, stout, ovoid, persistent on the fruit; capsule globose, many-seeded; seed oblong, slightly or not at all winged.

The genus is named for Mr. E. H. Harriman, of New York, through whose courtesy the opportunities and pleasures of his voyage to Alaska, in 1899, were shared by a party of scientific investigators. It is hoped that the Alaska heather, *Harrimanella stelleriana*, one of the most charming and beautiful little plants of the whole Alaskan flora, will serve as a happy reminder of the expedition to all its members.

The genus *Cassiope*, from which *Harrimanella* is now segregated, has opposite, cupressiform, closely sessile leaves, conspicuously swollen or spurred at the base and closely appressed to the stem, the branches

thus becoming quadrangular. The flowers of *Cassiope* occur singly in the axils of the leaves, the pedicels bearing at the base four membranaceous bracts; each sepal has a transverse fold at the base as if the organ had first been bent sharply backward, then at a slightly higher point bent sharply forward again, a character best brought out by a longitudinal median section of a sepal; the corolla is not plaited at the base and the usually short lobes are recurved and not overlapping in anthesis; the anthers lie in a single plane; and the style is elongated, slender, and nearly cylindrical. The seeds may furnish a generic character, as suggested by the conspicuous apical appendage in *Cassiope mertensiana* and the absence of any such appendage in *Harrimanella stelleriana*.

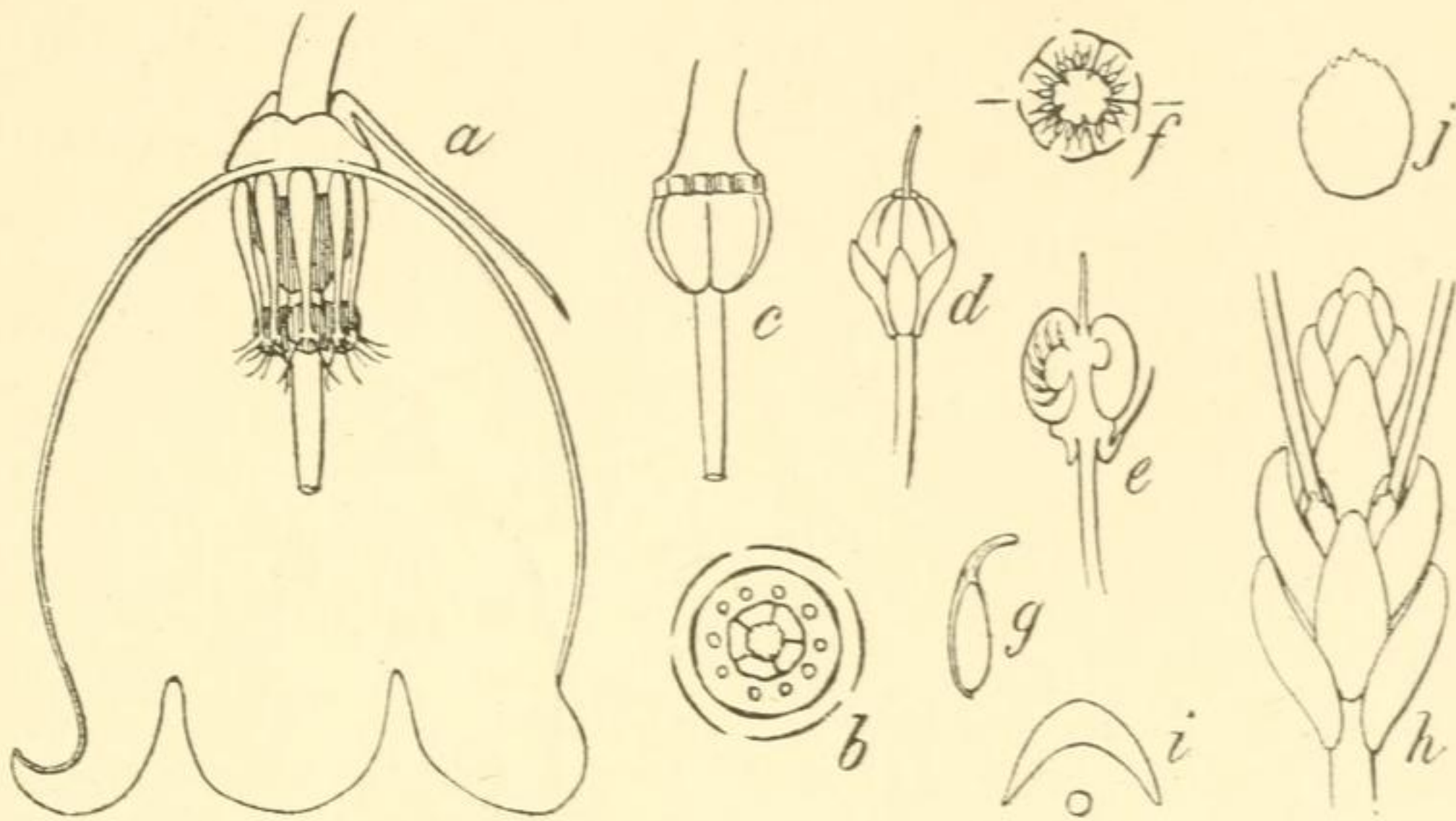


FIG. 63. *Cassiope mertensiana*. *a*, flower, with part of calyx and corolla cut away ($\times 5$); *b*, diagram of flower; *c*, ovary and style ($\times 5$); *d*, fruit ($\times 2$); *e*, longitudinal section of fruit ($\times 2$); *f*, transverse section of fruit ($\times 2$); *g*, seed ($\times 10$); *h*, end of branch, showing leaves and position of flowers ($\times 3$); *i*, outline of transverse section of leaf ($\times 10$); *j*, bract from base of pedicel ($\times 5$).

Of the ten species that have been referred to *Cassiope*, seven are still referable to the genus as here restricted, two are referable to *Harrimanella*, and one must be excluded from both. The species of true *Cassiope* are distinguishable by their vegetative characters alone, as indicated in the following key:

KEY TO THE SPECIES OF CASSIOPE, BASED ON LEAF CHARACTERS.

Leaves with a deep channel on the back.

Leaf margins with a few coarse bristles.

C. ericoides (Pall.) D. Don.

Leaf margins pubescent or fimbriate, but without bristles.

Leaves with scattered pubescence on the back and margins, but without membranaceous or fimbriate margins or a terminal bristle..... *C. tetragona* (L.) D. Don.

Leaves without hairs or fimbriæ except on the margins or in the furrow.

Leaves with persistent white membranaceous fimbriate margins connecting with a terminal acumination.

C. fastigiata (Wall.) D. Don.

Leaves with the marginal fimbriæ early deciduous, a slender terminal bristle persistent.

C. selaginoides Hook. f. & Thom.

Leaves not channeled on the back.

Leaves not ciliate..... *C. mertensiana* (Bong.) D. Don.

Leaves more or less ciliate on the margins or at the apex when young.

Leaves shining, armor-like, without white margins.

C. redowskii (Ch. & Schl.) G. Don.

Leaves dull, with white margins.

C. lycopodioides (Pall.) D. Don.

Of these species one, *tetragona*, is circumpolar, two, *fastigiata*

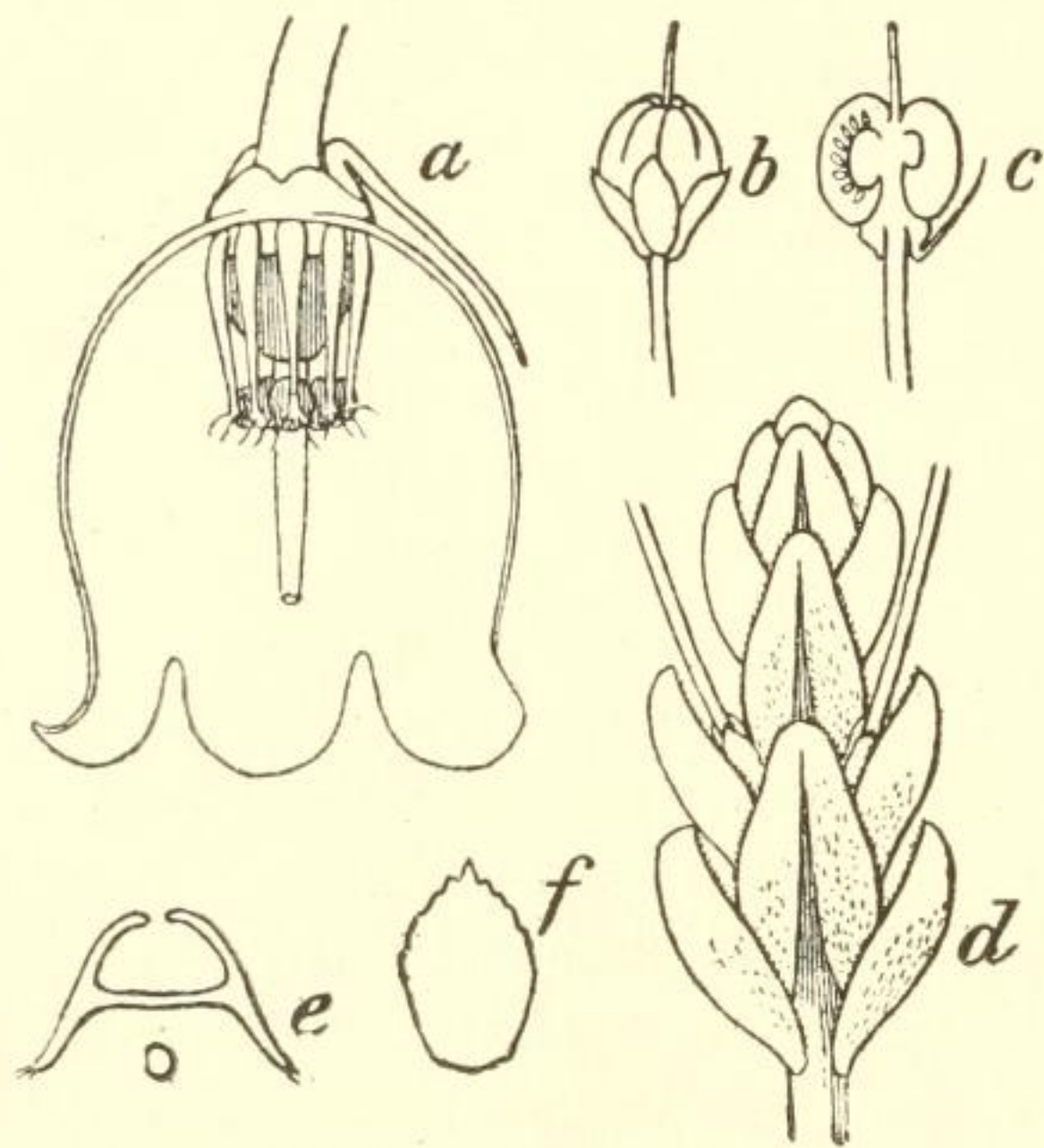


FIG. 64. *Cassiope tetragona*. *a*, flower, with part of calyx and corolla cut away ($\times 5$); *b*, fruit ($\times 2$); *c*, longitudinal section of fruit ($\times 2$); *d*, end of branch, showing leaves and position of flowers ($\times 3$); *e*, outline of transverse section of leaf ($\times 10$); *f*, bract from base of pedicel ($\times 5$).

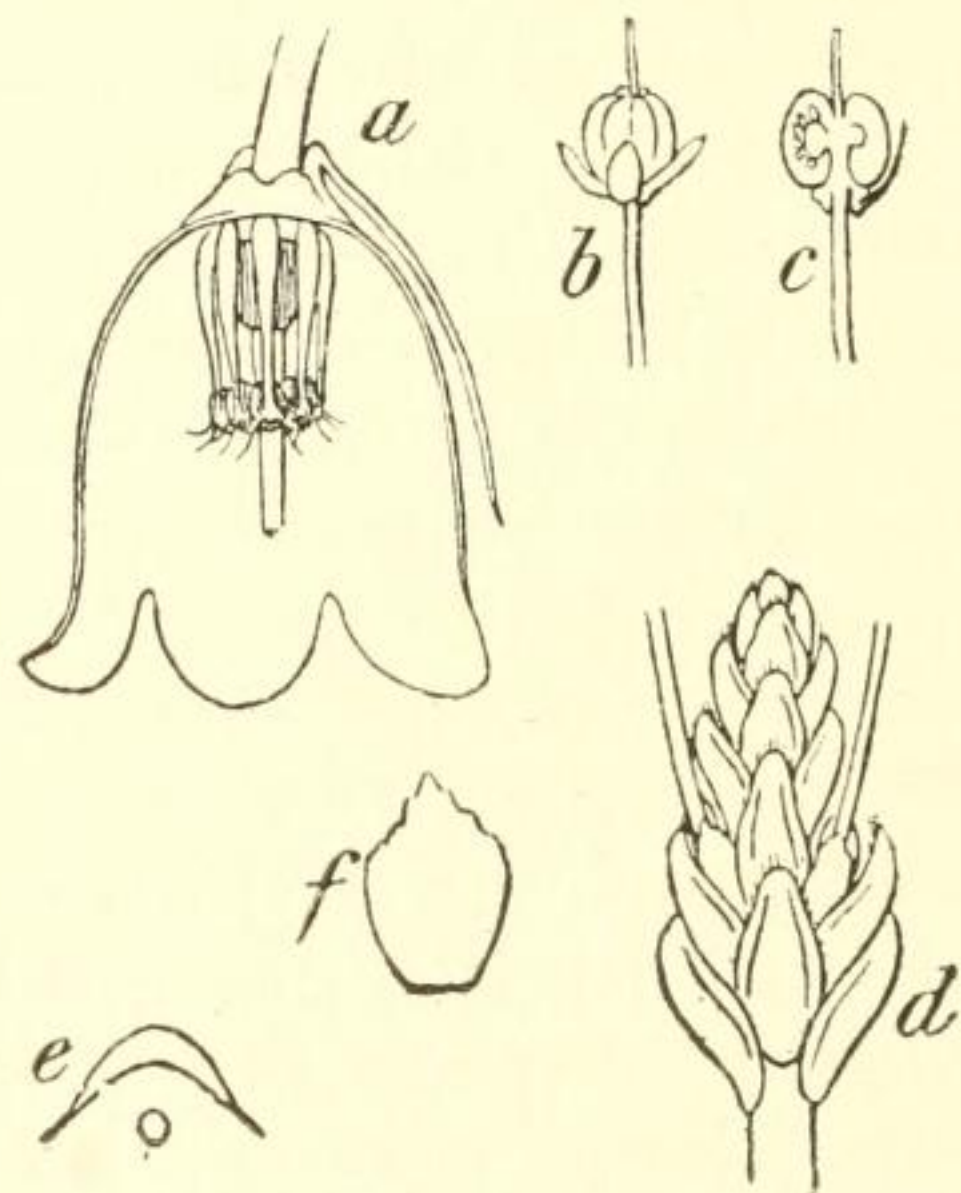


FIG. 65. *Cassiope lycopodioides*. *a*, flower, with part of calyx and corolla cut away ($\times 5$); *b*, fruit ($\times 2$); *c*, longitudinal section of fruit ($\times 2$); *d*, end of branch, showing leaves and position of flowers ($\times 3$); *e*, outline of transverse section of leaf ($\times 10$); *f*, bract from base of pedicel ($\times 5$).

and *selaginoides*, are Himalayan; two, *ericoides* and *redowskii*, belong to eastern Siberia; one, *lycopodioides*, extends from Alaska to

Japan; and one, *mertensiana*, is confined to northwestern North America. Three species of *Cassiope*, therefore, are found on the American continent, *tetragona*, *lycopodioides*, and *mertensiana*.

The species which must be excluded from both *Cassiope* and *Harrimanella* is *C. oxycoccoides* Gray.¹ Our whole knowledge of this plant is based on a single flowering twig 43 mm. long, collected by Dr. Leonhard Stejneger August 22, 1882, on the northern shore of Bering Island, off the east coast of Siberia, on "a rounded hill, about 300 feet high, just behind the fishing settlement of Saranna." An examination of the specimen, which is in the Harvard University Herbarium, shows that it differs in various ways from both *Cassiope* and *Harrimanella*. Its leaves are situated in whorls of three and very closely resemble broad leaves of *Chamaecistus procumbens*. They are, however, smooth on the back between the midrib and margin and they have an apical gland similar to that of *Vaccinium vitisidaea*. The three pentamerous flowers are borne on short bibracteolate pedicels in a tribacteate umbel on a short terminal peduncle. The calyx does not differ from that of *Harrimanella*, while the corolla is of the urceolate short-lobed form found in *Cassiope*. The style is cylindrical as in *Cassiope*, but the stamens differ from those of both *Cassiope* and *Harrimanella*. In both these genera the pollen pore, the two awns, and the point of attachment of the filament are close to the apex of the anther, but in the plant under consideration the filament is attached to the base of the anther, only the two awns and the pollen pores being apical. Although the fruit is unknown, the whorled character of the leaves and the structure of the stamens give reason for a surmise that the plant belongs to the *Ericaceae* instead of the *Andromedaceae*. Apparently, however, it is not congeneric with any known species of the *Ericaceae*. Its corolla is not chartaceous; it is a depressed plant barely projecting above the mosses and lichens among which it grows; its leaves have peculiar apical glands; and it is geographically isolated from the rest of the *Ericaceae*, none of which are known from either northeastern Asia or northwestern America. I venture to propose for it the generic name **ArctERICA**, the whole name being **ArctERICA oxycoccoides** (Gray). It is greatly to be desired that future travelers visiting Bering Island procure a good series of both flowering and fruiting specimens of this rarest of plants.

The two *Cassiope*s which are now referred to *Harrimanella* may be distinguished as follows:

¹Gray, Proc. Am. Acad. 20: 300. 1885 (Jan. 26); Gray in Stejneger, Proc. U. S. Nat. Mus. 7: 534. 1885 (Jan. 27).

KEY TO THE SPECIES OF HARRIMANELLA.

- Leaves divergent, linear to linear oblong, obtuse or broadly acute at the apex, the margins somewhat erose but not serrulate; peduncles in flower barely or not at all exceeding the leaves, in fruit about twice as long; corolla about 6 mm. long; capsule commonly about 4, sometimes 5, mm. in diameter *H. stelleriana*.
- Leaves loosely appressed, lanceolate-subulate, acute, minutely serrulate on the margins; peduncles few to several times as long as the leaves in both flower and fruit; corolla commonly 4 to 5 mm. long; capsule about 3 mm. in diameter..... *H. hypnoides*.

Harrimanella stelleriana (Pall.).

SYNONYMY.

Andromeda stelleriana Pall. Fl. Ross. 12: 58. 1788.

Erica stelleriana Willd. Sp. Pl. 2: 387. 1799.

Andromeda empetrifolia Mertens; Bong. Mem. Acad. Petersb. vi. Math. & Nat. 2: 153. 1831.

Bryanthus stelleri D. Don, Edinb. New Phil. Journ. 17: 160. 1834.

Menziesia stelleriana Fisch.; Hook. Fl. Bor. Am. 2: 37. 1834.

Cassiope stelleriana DC. Prod. 7: 611. 1839.

EARLIER ILLUSTRATIONS.

PALLAS, Fl. Ross. t. 74. f. 2. 1788, as *Andromeda stelleriana*.

HOOKEER, Fl. Bor. Am. t. 131. 1833-40, as *Andromeda stelleriana*.

HARRIMAN ALASKA EXPED. 1: 32. 1901, as *Cassiope stelleriana*.

DISTRIBUTION.

The original specimens of *Harrimanella stelleriana* were collected in eastern Siberia by Steller, probably on Bering Island. The species has since been collected from Kamchatka southward to the mountains of northern Japan, but apparently does not extend on the Asiatic continent far from the Pacific. In America it occurs from Unalaska eastward and southward along the whole coast of Alaska through British Columbia and as far as Mount Rainier in the Cascade Mountains of Washington. Toward the north, as in Prince William Sound, it sometimes descends to sea level but ordinarily it grows near timber line or in the upper elevations of the forest within a thousand feet of timber line. On Mount Rainier it has been collected at an elevation of 5,500 feet.

GENERAL REMARKS.

We first saw this plant, on the Harriman Expedition, at the summit of White Pass, Alaska, where it grew with the crowberry (*Empetrum nigrum*) and reindeer moss (*Cladonia rangiferina*) that carpeted the mountain slopes at timber line. On the east side of Muir Inlet, in Glacier Bay, at a point about six miles below the end of

Muir Glacier, we found it again, growing at an elevation of about 2,000 feet in the rather open forests of black hemlock (*Tsuga mertensiana*). At this time, June 12th, it was not quite in flower. The first flowering specimens were found June 16th on Mount Verstovia, near Sitka. The plant occurred in abundance from an elevation of 2,400 feet to the summit, and one patch was seen on an exposed ridge at about 1,500 feet. Near sea level on the west shore of Yakutat Bay on the glacial gravels half covered with vegetation was seen a single yellowed plant with pale whitened flowers, doubtless the product of a stray seed from the mountains above. At various points in Prince William Sound the plant grew in great profusion and was in full bloom at the time of our visit, June 24th to 29th, occurring on the mountain slope back of Orca among the dwarfed black hemlocks at 1,300 to 1,600 feet, in Port Wells, and in Columbia Fiord. This is the plant that led Mr. Gilbert to adopt the name Heather Island for the rocky, mossy, scantily timbered island that stands in Columbia Fiord immediately in front of the Columbia Glacier. On this spot, chilled by the cold current of air flowing down from the great glacier, grew this and other arctic-alpine plants in profusion all the way down to sea level. On a timbered nunatak rising from the glacier about eight miles from its front the plant occurred to an elevation of about 3,000 feet. On the mountains at the head of English Bay, Kadiak Island, it was flowering abundantly at 1,500 to 3,000 feet. It was found on the Alaska Peninsula at Kukak Bay by Mr. Kearney and at Chichagof Bay by Mr. Palache, at an elevation of about 1,000 feet, and sparingly on the Shumagin Islands by Mr. Kincaid and Mr. Saunders at the same altitude, flowering till the middle of July.

Harrimanella hypnoides (L.).

SYNONYMY.

Andromeda hypnoides L. Sp. Pl. 1: 393. 1753.

Cassiope hypnoides D. DON, Edinb. New Phil. Journ. 17: 158. 1834.

EARLIER ILLUSTRATIONS.

LINNÆUS, Fl. Lapp. t. 1. f. 3. 1737, as *Andromeda hypnoides*.

OEDER, Fl. Dan. t. 10. 1761, as *Andromeda hypnoides*.

PALLAS, Fl. Ross. t. 73. f. 2. 1788, as *Andromeda hypnoides*.

CURTIS, Bot. Mag. t. 2936. 1829, as *Andromeda hypnoides*.

ENGLER & PRANTL, Nat. Pfl. 4¹: f. 12. A. 1889, as *Cassiope hypnoides*.

DISTRIBUTION.

The plant on which Linnæus based his description came from the mountains of Lapland, but the species is now known to occur in arctic

or arctic-alpine situations from the Ural Mountains westward through northern Europe, Iceland, and Greenland to the American continent on

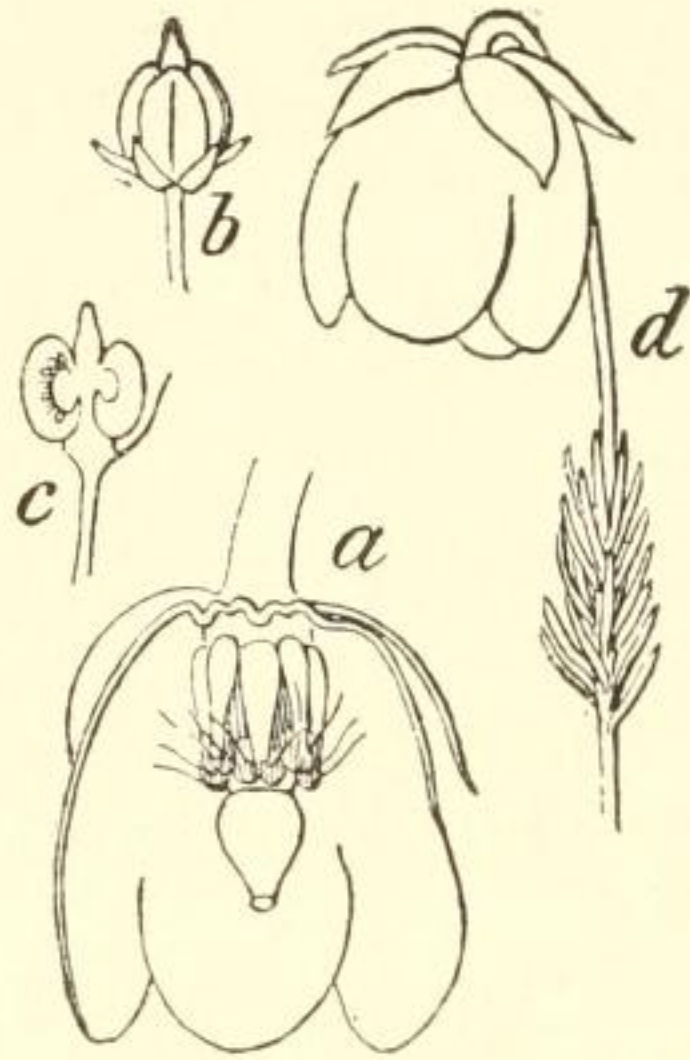


FIG. 66. *Harrimanella hypnoides*. *a*, flower, with part of calyx and corolla cut away ($\times 5$); *b*, fruit ($\times 2$); *c*, longitudinal section of fruit ($\times 2$); *d*, end of branch, showing leaves and position of flower ($\times 3$).

the western side of Baffins Bay, and thence southward through Labrador to the high mountains of Quebec, New England, and New York. The species is not known to occur in Siberia, Alaska, or central and western British America.