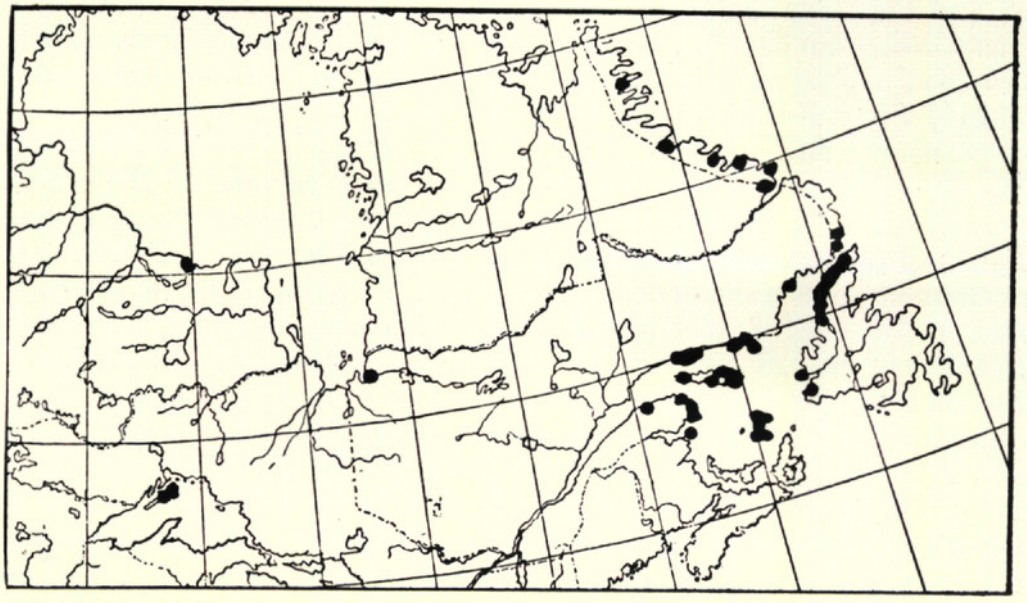
DRABA IN TEMPERATE NORTHEASTERN AMERICA

M. L. FERNALD

(*Continued from page 305*)

10. D. INCANA L. *Biennial* (rarely slightly perennial by the brief persistence of basal offshoots), with a simple or more or less multicipital ascending to decumbent caudex: *lower leaves* of the rosettes *shriveling soon after anthesis, the rosette-leaves not strongly contrasting with the lower cauline; the subspherical rosettes of the 1st year loosening and elongating to form the usually leafy* (up to 50, rarely to 95 leaves) *flowering stem: rosette-leaves* lanceolate or oblanceolate, 0.5–3 cm. long, 2–5 mm. broad, mostly *ciliate with long simple or bifurcate trichomes* and glabrous to hirtellous on the surfaces; *cauline leaves* few to very many, the lower narrow, the upper gradually broader and oblong to ovate, usually remotely dentate, *hirsute* with variously mixed simple, bifurcate and stellate trichomes: *flowering stem* 0.15–5 dm. high, simple to much branched, *usually densely leafy, pilose-hirsute to tomentulose or villous, especially above, and on the axis of the raceme with long* simple and variously forked *and implicated trichomes:* raceme at first dense, elongating in fruit, becoming 1–15 cm. long, few–100 (or more)-flowered; *the lower* 1–6 *flowers of the primary raceme usually leafy-bracted: pedicels densely pilose to villous,* the lowest becoming 1–5 mm. long: sepals oblong to elliptic, 1.5–2.5 mm. long, pilose on the back, white-margined: petals white, narrowly cuneate-obovate, emarginate or obtuse, 2.5–5 mm. long: anthers 0.3–0.5 mm. long: pistil glabrous, with 16–40 ovules and with a very short style: *siliques oblong or elliptical to lanceolate,* 4–14 mm. long, 1.5–3 mm. broad; *style obsolete or thick and up to* 0.3 *mm. long:* seeds 0.7–1 mm. long.—Sp. Pl. ii. 643 (1753); Torr. & Gray, Fl. N. Am. i. 107 (1838), in part; Hook. Fl. Bor.-Am. i. 54 (1830); Fern. & Knowlt. RHODORA, vii. 63, t. 60, figs. 1 and 2 (1905); Elis. Ekm. Kungl. Svenska Vet.-Akad. Handl. ser. 3, ii. no. 7: 36 (1926); O. E. Schulz in Engler, Pflanzenr. iv^{105}. 282 (1927). *D. contorta* Ehrh. Beitr. vii. 155 (1792); DC. Syst. ii. 348 (1821) and Prodr. i. 170 (1824). *D. incana,* β. *contorta* (Ehrh.) Liljebl. Nov. Act. Reg. Soc. Sci. Ups. vi. 57 (1799).—Greenland; Labrador, Newfoundland and Saguenay and Gaspé Cos., Quebec; shores of James Bay; islands of Lake Superior, Michigan; boreal Eurasia. The following are characteristic. LABRADOR: Titterasuk, *C. S. Sewell,* no. 40; Nain, *Sewall,* no. 79; shore, Rigoulette, *Sornborger,* no. 70, *Bowdoin College Exped.* 1891, no. 269, *R. H. Wetmore,* no. 102,959; wet rocky hillsides, Indian Harbor, *Harlow Bishop,* no. 327. NEWFOUNDLAND: gravelly limestone shore, Cape Norman, *Wiegand, Griscom & Hotchkiss,* no. 28,348; calcareous rocks and talus, entrance to Port Saunders Harbor, *Fernald, Wiegand & Kittredge,* no. 3452; headlands of Cape St. George, *Mackenzie & Griscom,* no. 11,089[a]. QUEBEC: grassy gully, Île Kécarpoui, Archipel

de Kécarpoui, Saguenay Co., *St. John*, no. 90,477; Anticosti, June 23, 1861, *Hyatt, Shaler & Verrill;* sur le talus du rivage, Pointe de l'Est, Anticosti, *Victorin & Rolland*, no. 21,032; aux alentours au phare sur le cailloutis calcaire, Pointe de l'Est, Anticosti, *Victorin, Rolland & Louis-Marie*, no. 21,479; sur les graviers calcaires, Baie du Renard, Anticosti, *Victorin, Rolland & Louis-Marie*, no. 21,467; gravier du barachois, R. au Saumon, Anticosti, *Victorin et al.*, nos. 21,468, 21,473; sur les graviers du barachois, R. Dauphine, Anticosti, *Victorin & Rolland*, no. 27,310; graviers, Lac à la Croix, Anticosti, *Victorin & Rolland*, no. 27,311; bord de la lagune, Lac Salé, Anticosti, *Victorin & Rolland*, nos. 24,864, 27,192; Baie Ste.-Claire, Anticosti, *Victorin*, no.



MAP 10. American Range of DRABA INCANA.

4139; sur les cailloutis calcaire du sommet, Cap Gaspé, *Victorin, Rolland, Brunel & Rousseau*, no. 17,381; turfy crest of sea-cliffs, Cape Gaspé, *Pease*, no. 20,219; Anse-a-l'Indien, près du Cap Gaspé, *Victorin et al.*, no. 17,384; conglomerate (calcareous) sea-cliffs, Bonaventure Island, *Fernald & Collins*, no. 1082, *Victorin et al.*, no. 17,386; crests of calcareous sea-cliffs, Cap Blanc, Percé, August 17, 1904, *Collins, Fernald & Pease;* July 26, 1905, *Collins & Fernald*, no. 88; schistes, Chloridorme, *Rousseau*, nos. 31,214, 31,222; turfy roadside bank, Cap Chat, *Fernald & Pease*, no. 25,089. MAGDALEN ISLANDS: dry crevices or talus of East Cape, Coffin Island, *Fernald, Long & St. John*, no. 7505, in part (mixed with var. *confusa*). ONTARIO: Fort Severn, Hudson Bay, August 8, 1887, *J. M. Macoun*. MICHIGAN: Gull Islands, Lake Superior, *W. S. Cooper*, no. 112 (as *D. arabisans*, var. *orthocarpa*); rock crevices, Passage Island, near Isle Royale, *Povah, Brown & McFarlin*, no. 3671B (Univ. Mich.). MAP 10 (including vars.).

Var. CONFUSA (Ehrh.) Liljebl. *Siliques pubescent.*—Nov. Act. Soc.

Sci. Ups. vi. 57 (1799); Poir. Encycl. Suppl. ii. 524 (1811); Fern. & Knowlt. RHODORA, vii. 64 (1905): O. E. Schulz, l. c. 285 (1927). *D. confusa* Ehrh. Beitr. vii. 155 (1792); DC. Syst. ii. 348 (1821) and Prodr. i. 170 (1824), mostly. *D. incana* β. *hebecarpa* Lindbl. Linnaea, xiii. 331 (1839). *D. incana*, subsp. *confusa* (Ehrh.) Elis. Ekm. l. c. 36 (1926).—Greenland and Labrador to Newfoundland, Magdalen Islands, northeastern New Brunswick and James Bay, generally more common than the glabrous-fruited plant. LABRADOR: Okkak, *Moravian Bros.;* Nain, *C. S. Sewall*, no. 77, in part; Hopedale, *Sewall*, no. 169; edge of "The Park," Hopedale, *Abbe, Hogg & Forbes*, no. 370; on a roof, Fox Harbor, *J. A. Allen*, no. 76; West Point at mouth of Red Bay, September 6, 1923, *A. G. Huntsman*. NEWFOUNDLAND: turfy limestone barrens, Burnt Cape, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, no. 28,350; springy swales and turfy shores, Boat Harbor, *Fernald, Wiegand & Long*, no. 28,351; turfy slope near mouth of Big Brook, *Fernald & Long*, no. 28,349; turfy limestone barrens, Sandy (or Poverty) Cove, Straits of Belle Isle, *Fernald, Long & Gilbert*, no. 28,352; turfy limestone barrens, Capstan Point, Flower Cove, *Fernald, Long & Dunbar*, no. 26,715; peaty pockets in limestone ledges, Brig Bay, *Fernald, Long & Dunbar*, nos. 26,706–26,708; turfy shore, Bard Harbor, *Wiegand, Gilbert & Hotchkiss*, no. 28,353; turfy limestone barrens, St. John Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 28,354; turf overlying limestone, Grassy Island, St. John Bay, *Fernald, Long & Fogg*, no. 1729; dry gravelly limestone barrens, Pointe Riche, *Fernald, Long & Fogg*, no. 1730; turfy limestone shore, Sandy Cove, Ingornachoix Bay, *Fernald, Long & Dunbar*, no. 26,709; calcareous rocks and talus, entrance to Port Saunders Harbor, *Fernald, Wiegand & Kittredge*, no. 3454; turfy crests of calcareous cliffs and ledges, Cow Head, *Fernald & Wiegand*, no. 3453; abundant on roof of shanty, mouth of Barachois Brook (near Robinson Head, Bay St. George), *R. B. Kennedy*, nos. 1–3. QUEBEC: grassy shore, Îles Boisées de Cap Blanc, Washtawouka, Goynish, *St. John*, no. 90,481; grassy places, Archipel de Kécarpoui, *St. John*, nos. 90,478–90,480; turfy ledges, Île Triple, Archipel Washicouti, *St. John*, no. 90,482; sur un îlôt de gneiss laurentien, Îlets de la Baie à Jean, *Victorin & Rolland*, no. 18,249; sur le gneiss laurentien, Îlôts à Charles, Natashquan, *Victorin & Rolland*, no. 18,250; vielle prairie au bord de la mer, Pointe-aux-Esquimaux, *Victorin & Rolland*, no. 18,247; sur le cailloutis calcaires au bord de la mer, Île à la Vache Marine, Mingan, *Victorin & Rolland*, no. 18,248; sur le gravier calcaire, Île Ste.-Génévière, Mingan, *Victorin & Rolland*, nos. 21,465, 21,475; shore of Salt Lake, Anticosti, *J. Macoun*, no. 19; limestone detritus, crest of Cap Barré, Percé, August 16, 1904, *Collins, Fernald & Pease*, July 23, 1905, *Collins & Fernald*, no. 89, August 1, 1907, *Fernald & Collins*, no. 1080; calcareous sea-cliffs, Bonaventure Island, *Fernald & Collins*, no. 1081; clay soil, river-bank, Rupert House, James Bay, *David Potter*, no. 548. MAG-

DALEN ISLANDS: dry sandy summit of Great Bird Rock, *St. John*, no. 1893; dry sandy headland, Brion Island, *St. John*, no. 1890; dry crevices or talus of East Cape, Coffin Island, *Fernald, Long & St. John*, no. 7505, in part; sur le sommet du Cap-de-l'Est, *Victorin & Rolland*, no. 9485; Entry Island, June 23, 1861, *Hyatt, Verrill & Shaler;* Pointe-aux-Vaches-Marines, Île de la Grand-Entrée, *Victorin & Rolland*, no. 9486; turfy crests of headlands and dry gravelly beach, Grindstone, *Fernald, Bartram, Long & St. John*, nos. 7503, 7504; sur les alluvions près de l'eglise, Île du Havre-aux-Maisons, *Victorin & Rolland*, no. 9584; Amherst, *Frits Johansen*, no. 93,671. NEW BRUNSWICK: grass plain, Grande Plaine, Miscou Island, *S. F. Blake*, no. 5590. PLATE 299.

Draba incana, in the regions where it abounds, is often weed-like, taking possession or recently exposed gravels, humus of rotting roofs, litter from the sea and the fisheries and other quite modern habitats. It is equally at home on the driest of gravels, ledges and sands and in the manure pile. *D. incana*, consequently, behaves in western Newfoundland and eastern Quebec just as it does in Greenland: "**Draba incana** L., the commonest species in the southern section [of western Greenland], is nitrophilous and often found on manured spots."[1] In such spots, of course, it is what O. E. Schulz calls "var." *luxurians* or "var." *robusta*. *D. incana*, therefore, as a quick-growing species, usually a biennial or winter-annual, varies extremely in size and habit. On the most xerophytic spots it may come to complete maturity with a stature of only 1.5–2 cm;[2] in rich humus, decaying litter or fertilized spots it may be 3–5 dm. high, either simple or freely branched, and with the almost innumerable leaves (the many leaves of the large 1st-year rosettes carried up by elongation of the axis) crowded or loosely imbricated. In single colonies individuals from a single sowing of seeds may be quite simple or may form loosely to densely cespitose mats with multicipital caudices, obviously dependent on food-supply and moisture; and single individuals of the latter habit may have either very densely leafy flowering stems (derived from vigorous primary rosettes) or almost leafless ones (derived from weaker secondary offshoots) springing from the identical base.

In some individuals in arid habitats the subspherical cabbage-like rosettes of the 1st year, deprived of moisture, scarcely lengthen to flower and fruit, producing low conical fruiting plants with closely crowded leaves and capitate racemes. Upon selected individuals

[1] Porsild, Meddel. om Grønl. xcii. No. 1: 30 (1932).
[2] Fernald, RHODORA, XXXV. 127, t. 239, fig. 5 (1933).

(FIG. 2) such as these (from Cap Barré, Percé) is based var. *conica* O. E. Schulz, l. c. 285 (1926); but other individuals (FIG. 5) from the same spot, especially those collected in a succeeding and wet, instead of dry, summer, with stems up to 3 dm. high, with leaves 1–2 cm. apart and with racemes elongate to 8 cm. or more (the tips still in anthesis), clearly demonstrate that var. *conica* is of absolutely no taxonomic value and would better have been suppressed.

Similarly, the other "varieties" and "subspecies," based merely on height, degree of branching, leafiness and other every-day responses to poverty or to richness of soil, seem too artificial for serious consideration; it would be as illogical to treat as varieties and subspecies the short or tall, simple or branched, small-leaved or large-leaved individuals of *Chenopodium album* or any other annual or biennial weed of neglected fields and disturbed soils. The minor edaphic responses of this nature proposed in *Draba incana* include the following (and several others, not accredited to North America), which make a most unnecessary and unwelcome load which must be carried along eternally in synonymy.

Var. *nana* Lindbl. Linnaea, xiii. 332 (1839); O. E. Schulz, l. c. 284 (1927). "Planta pusilla. Caules 1, 5–10 cm longi, simplices vel ramosi, paucifolii, rarissime aphylli." [FIG. 4 and 2 stems of FIG. 1].

Var. *stricta* Hartm. Handb. Skand. Fl. ed. 2: 178 (1832); O. E. Schulz, l. c. 285 (1927). "Caulis strictus, simplex vel apice tantum ramosus, foliis numerosis (usque ad 50 vel etiam ad 95 . . .) valde approximatis imbricatis apicem versus sensim minoribus (igitur planta in adspectu conica!) obsessus. Flores paulo minores." [FIG. 6].

Var. *conica* "O. E. Schulz (n. var.)—*D. incana* Fernald et Knowlton! in Rhodora VII. 76. (1905) 63, t. 60, Fig. 1 et 2, non L.—Habitu varietatis *strictae*, sed humilior, 2–14 cm. alta. Racemus fructifer ± capitato-confertus. Siliculae minutae, 5–8 mm longae [in typical *D. incana* "6–12 mm longae"], pedicellis 3–1 mm longis [in typical *D. incana* "4–2 mm longis"] insidentes." [Selected starved individuals (FIG. 2) from Cap Barré, above discussed. Other individuals (FIG. 5) from the same lot of seed are "var. *stricta*." All of them, however, having copiously stellate-pilose siliques, are the earlier-published var. *confusa* (Ehrh.) Liljebl. (1799).]

Var. *luxurians* Aug. Berlin, Öfvers. Kgl. Vet.-Akad. Förhandl. Stockh. (1884), no. 7: 25 (1884); O. E. Schulz, l. c. 285 (1927). "Planta elata, 35 cm alta, viridula. Caulis densifolius, superne ramosus. Racemus terminalis basi bracteatus [typical *incana* "0,10–0,35 m alta . . . plerumque foliis multis (usque ad 55!) dense foliosi, . . . Racemus . . . floribus imis (1–6) saepe in axillis foliorum supremorum"]. Siliculae infimae pedicellis elongatis usque ad 4 cm. longis flexuosis insidentes (quasi corymbi racemorum lateralium ad siliculam unicam reducti!)" [Aberrant individuals such as are likely to occur in almost any species!]

Var. *robusta* "O. E. Schulz (n. var.)— . . . *Draba incana* Smith and Sowerby, Engl. Bot. VI. (1797) t. 388, non L. Planta robusta, usque ad 50 cm alta, viridula. Folia caulina numerosa, obovato-cuneata, acuta, utrinque dentibus acutissimis inaequalibus utrinque 2–5 inciso-dentata, inferiora 3,5 cm longa [typical *D. incana* with "Folia basalia . . . 1–2,5 cm longa; folia caulina . . . oblongo-ovata, acutiuscula, utrinque dentibus manifestis 1–3-dentata"].

An besonders fetten Stellen und in Kultur."

The statement of habitat shows that Schulz's last variety is merely luxuriant plants of cultivation or of unusually rich soil. Smith, whose plant of the English Botany is cited, had sufficient understanding not to call his plant different, simply because it was in the garden: "The root is biennial, flowering early in the second summer. The specimen here represented was sent from Scotland young, . . . and being planted in a garden, flowered more luxuriantly than is usual on rocks or walls; but the plant often grows in rich moist spots even on its native mountains. The specimen in Flora Danica is a starved one."[1]

The publication or the maintaining of such individual responses as true varieties in this day and generation (more pardonable a century ago), when a systematist, in order to qualify as competent, should be required to show at least elementary understanding of the simplest and most common edaphic responses of plants, is not worthy taxonomy; it is merely a mechanically artificial imitation of it. When one witnesses such matter put out as ostensibly serious and scholarly publication on page after page of elaborate books, he cannot help regretting that the obligation to maintain in our greater botanical libraries complete series of taxonomic works has made it necessary to pay for this single 396-page part of a volume $11.75 (gold), precious money which ought to have been available for a higher type of science. Such cases, as we say in America, "hit the pocket-nerve"; and they make one seriously doubt the economic wisdom of the priority-principle in nomenclature, the principle which, unfortunately, has established a paying market for any so-called taxonomic publications which, regardless of how padded they may actually be, can display an occasional "n. sp.," "n. var." or "n. comb." in their pages. The "new deal," the world over, calls for scrupulous inspection and editing before publication.

11. D. **Sornborgeri**, sp. nov. (TAB. 300, FIGS. 1–3), planta perennans denique pluricaulis fructifera 1.5–2.5 dm. alta; caudiculorum

[1] Smith, Engl. Bot. vi. t. 388 (1797).

ramis lucidis albescentibus foliis emortuis persistentibus tectis; caulibus simplicibus vel imo ramosis glaberrimis lucidis; foliis caulinis rhomboideo-lanceolatis vel oblongo-oblanceolatis membranaceis glaberrimis 1–2.3 cm. longis integris vel sparse dentatis pilis simplicibus vel furcatis remote ciliatis; racemis floriferis corymbiformibus fructiferis elongatis (rhachi 2–12 cm. longo) 2–24-floris; pedicellis 4–10 mm. longis glabris erecto-patentibus; sepalis oblongis obtusis sparse pilosis 2.5–3 mm. longis 1.2–1.7 mm. latis; petalis lacteis obovatis emarginatis valde unguiculatis 3.5–4 mm. longis 2–2.5 mm. latis; antheris 0.3 mm. longis; ovariis glabris 28–40-ovulatis; siliculis glabris oblongis subacutis 6–10 mm. longis 2–2.5 mm. latis stylo brevissimo (0.1–0.2 mm. longo) coronatis, valvis reticulato-nervosis; seminibus a funiculis 0.3–0.5 mm. longis pendulis ovoideis 0.8 mm. longis.—LABRADOR: slope of moist slaty detritus immediately below a field of snow, at about 500 m. alt., Ramah, August 20–24, 1897, *J. D. Sornberger*, nos. 61 (TYPE in Gray Herb.), 175 in part; originally distributed as *D. stenoloba* Ledeb. MAP 11.

MAP 11. Range of DRABA SORNBORGERI.

Draba Sornbergeri, erroneously reported as *D. stenoloba* by Fernald & Sornberger, Ott. Nat. xiii. 100 (1899), is unique among our leafy perennial species in its almost wholly glabrous character. From *D. stenoloba* it differs at once in its leafy and usually more branching stems, *D. stenoloba* having them simple and naked or with 1–3 remote leaves; by its glabrous character, the leaves and at least the bases of the stems in *D. stenoloba* being obviously hispid with simple and forking hairs; by the shorter racemes (the longest barely half the height of the plant) with shorter ascending pedicels and shorter and broader siliques, the northwestern *D. stenoloba* having the mature racemes one-half to two-thirds the entire height of the plant, the divergent to reflexed fruiting pedicels 7–15 mm. long and the linear siliques 1.2–2 cm. long.

Schulz treats *Draba Sornborgeri* as *D. crassifolia*, var. *Parryi* (Rydb.) O. E. Schulz, the latter based nomenclaturally on *D. Parryi* Rydb. Bull. Torr. Bot. Cl. xxix. 241 (1902); but in describing the variety Schulz was more influenced by the plant of Labrador than by true *D. Parryi* (PLATE 300, FIGS. 4 and 5) of Colorado and Wyom-

ing. *D. Parryi* or *D. crassifolia*, var. *Parryi*, briefly considered in this paper under *D. crassifolia*, is an extreme of *D. crassifolia* with linear-oblanceolate, acute rosette-leaves and nakes scapes, the fully mature plants rarely up to 1.6 dm. high and with racemes up to 25-flowered. Rydberg's original description of it was clear:

Annual, perfectly glabrous, except a few cilia on the petioles: stems several, usually less than 1 dm. high, scapiform or rarely with a stem leaf: basal leaves numerous, linear or narrowly linear-oblanceolate, 1.5–2.5 cm. long; pedicels spreading, in fruit 5–8 mm. long: flowers small; petals scarcely 2 mm. long, white or light yellow: pods erect, oblong, 5–8 mm. long, 1.5–2 mm. wide, glabrous: style obsolete.

Flowering and fruiting plants from the type-locality (Gray's Peak, Colorado) of *Draba crassifolia*, var. *Parryi* (*Patterson*, no. 6) are shown in PLATE 300, FIGS. 4 and 5. How different are they from the characterization of Schulz of var. *Parryi:*

Planta altior et ramosior, fructifera usqe ad 20 cm longa. Caules interdum 3–4-phylli. Etc.

a characterization based not on *D. Parryi* but on *D. Sornborgeri!*

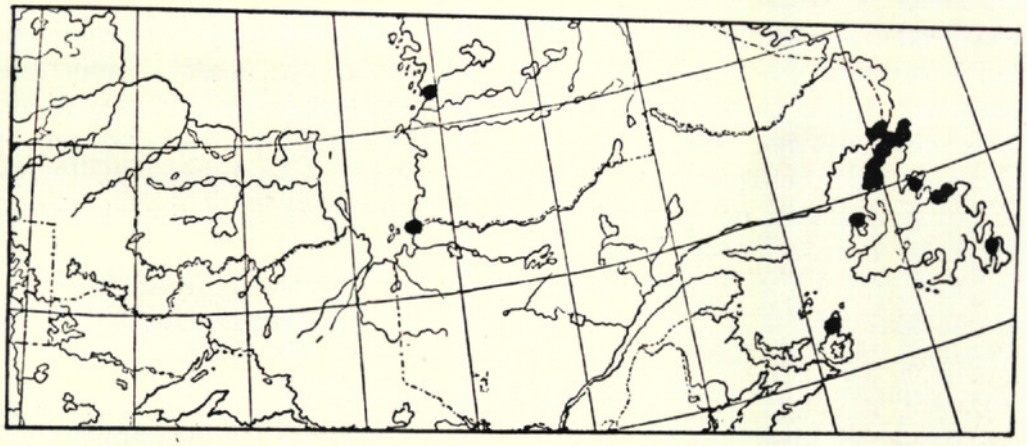
From *Draba crassifolia* (PLATE 294), which, of course, *D. Sornborgeri* suggests in its glabrous character, it is at once separated by its tall and usually branching and leafy stems; its broader leaves; its larger flowers, with sepals 2.5–3 mm. long (in *D. crassifolia* 1.5–2.3 mm. long); its petals 3.5–4 mm. long and 2–2.5 mm. wide (in *D. crassifolia* 2–3 mm. long, 0.7–1.2 mm. wide) and its more numerous (28–40) ovules and seeds (in *D. crassifolia* 16–20).

Although I have seen *Draba Sornborgeri* only from the slopes near Ramah, it is probably of more general occurrence in northern Labrador and is presumably on Baffin Island. This extention of range is suggested by Schulz's citation under *D. crassifolia*, var. *Parryi:* "L a b r a d o r: Cumberland Inlet (comm. W. H a n s [Cumberland Inlet or Cumberland Sound is in Baffin Island], Ramah (J. D. S o r n b o r g e r 1897, n. 61—20–24 August fruchtend, besonders luxuriös mit beblätterten Ästen, als *D. stenoloba*), Hebron (W e n c k 1851)."

12. D. NORVEGICA Gunner. *Cespitose* perennial, forming mats 0.3–1.5(–2) dm. broad, with slightly to freely branching caudex: *rosettes* few to very numerous, 1.5–3 cm. across; *their leaves* narrowly oblanceolate, oblong-lanceolate or narrowly obovate, 2–6 mm. broad, subacute or obtuse, entire or with 1–3 teeth on each margin, *hispid with numerous simple, bifurcate and stellate trichomes:* mature fruiting *stems* 0.1–2 dm. high, simple or forking, *hirsute especially below*, with

divergent simple and variously forked trichomes, with 1 (rarely 0)–5 *ovate hispid leaves* 3–10 *mm. broad,* with margins entire or 1–3-dentate: *racemes* in anthesis with the lower flowers often remote; *the primary ones in fruit* elongated to $^1/_3$–$^6/_7$ *the full height of the plant,* 5–25-flowered; *pedicels* short, often stellate-hirtellous, *the lowest in maturity* 1–5 *mm. long: sepals* oblong, obtuse, 1.8–2.6 *mm. long,* 1–1.5 *mm. broad: petals* white, 3–4.2 mm. long, 2–3 *mm. broad:* ovaries glabrous, with 14–28 ovules and very short style: *siliques oblong or oblong-lanceolate,* 5–9 mm. long, 2–3.8 *mm. broad,* acutish to obtuse, *with style* 0.2–0.5 *mm. long;* the *valves veiny* and glabrous or promptly glabrate: seeds 0.9–1.2 mm. long.—Fl. Norveg. ii. 106 (1772); O. E. Schulz in Engler, Pflanzenr. iv^{105}. 220 (1927). "An? *D.* pyrenaica" Oeder, Fl. Dan. i. fasc. iii. 6, t. cxliii. (1764), not L. (1753). *D. hirta,* var. *norvegica* (Gunner) Liljebl. Nov. Act. Reg. Soc. Sci. Ups. (1799) 56; DC. Syst. ii. 343 (1821) and Prodr. i. 169 (1824). *D. hirta,* β. *alpicola* Wahlenb. Fl. Lapp. 175, t. xi. fig. 1 (1812). *D. scandinavica* α. *legitima* Lindbl. Linnaea, xiii. 322 (1839). *D. laxa,* α. *legitima* Lindbl. l. c. 326 (1839). *D. rupestris,* β. *stricta* a. *lejocarpa* Lindbl. Bot. Notis. (1841) 221. *D. rupestris* Liebm. Fl. Dan. xiv. fasc. xli. 7, t. mmccccxxi. (1845) and many subsequent authors, not R. Br. (1812). *D. hirta,* δ. *incisa* Lange, Meddel. Grønl. iii^1. 43 (1880) and Fl. Dan. xvii. fasc. li. 9, t. mmmxxxiii. (1883). (For further citations see Schulz).—Northern Europe; Newfoundland, Cape Breton, Nova Scotia, southeastern Quebec and shores of Hudson Bay, Ungava and Quebec. NEWFOUNDLAND: St. Anthony Harbor, September 10, 1923, *A. G. Huntsman;* near seaward edge of Fishing Head, St. Anthony, *Abbe & Brooks,* nos. 366, 368; exposed rocks, crests of Castle Rock, Tilt Cove, *Fernald, Wiegand & Darlington,* no. 5460; turfy and rocky crests, Twillingate, *Fernald, Wiegand & Bartram,* no. 5459; cliffs, Exploits, Notre Dame Bay, *Waghorne,* no. 27; Red Rocks, Brigus, July 31, 1931, *A. M. Ayre;* damp pocket, rocky crests, Cape Dégrat, Quirpon Island, *Fernald & Long,* no. 28,402; dry slaty crests of hills, Little Quirpon, *Fernald & Long,* no. 28,401; crevices of trap cliffs, Sacred Island, *Fernald & Long,* no. 28,404; dry trap cliffs south of Ship Cove, Sacred Bay, *Fernald, Wiegand & Long,* no. 28,406 (mixed with *D. glabella*); crevices of trap cliffs, Anse aux Sauvages, Pistolet Bay, *Fernald, Wiegand & Long,* no. 28,405; shelves, crests and talus of diorite cliffs, Ha-Ha Point, *Fernald & Long,* no. 28,396; shelves, crests and talus of diorite cliffs, Ha-Ha Mountain, *Fernald & Long,* no. 28,400 in part; trap ledges, Piton Point, Ha-Ha Bay, *Wiegand, Gilbert & Hotchkiss,* no. 28,395; limestone ledges and barrens, Burnt Cape, Pistolet Bay, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss,* nos. 28,382, 28,384, 28,386, 28,388; limestone ledges, Schooner (or Brandy) Island, Pistolet Bay, *Pease & Long,* no. 28,390; dry limestone rock-barrens, Boat Harbor, Straits of Belle Isle, *Fernald, Wiegand & Long,* no. 28,391; turfy seashore east of Big Brook, Straits of Belle Isle, *Pease & Griscom,* no. 28,377; dry

limestone ledges, Sandy (or Poverty) Cove, Straits of Belle Isle, *Fernald, Long & Dunbar,* no. 26,703; dry gravelly limestone barren, Savage Point, *Fernald, Wiegand, Pease, Long, Gilbert & Hotchkiss,* no. 28,374; turfy and shingly limestone shore, Capstan Point, Flower Cove and peaty pockets in limestone ledges, Nameless Point, Flower Cove, *Fernald, Long & Dunbar,* nos. 26,710, 26,711; turfy limestone shores and headlands, Flower Cove, *Fernald, Griscom & Gilbert,* no. 28,372, *Pease, Long & Gilbert,* no. 28,373; turfy limestone barrens, Deadman Cove, Straits of Belle Isle, *Wiegand, Gilbert & Hotchkiss,* no. 28,376; limestone barrens near Ice Point, St. Barbe Bay, *Wiegand, Gilbert & Hotchkiss,* no. 28,375; peaty or turfy pockets in limestone barrens, Brig Bay, *Fernald, Long & Dunbar,* no. 26,704; crests of dry limestone, Dog Peninsula, St. Margaret Bay, *Fernald, Wiegand, Long, Gilbert & Hotchkiss,* no. 28,411; limestone cliffs and ledges on western



MAP 12. American Range of DRABA NORVEGICA.

face of Bard Harbor Hill, *Wiegand, Gilbert & Hotchkiss,* no. 28,389; exsiccated spots in quartzite barren near summit, Bard Harbor Hill, *Fernald, Wiegand, Long, Gilbert & Hotchkiss,* no. 28,392; wet escarpments on calcareous sandstone, western face, Bard Harbor Hill, *Fernald & Long,* nos. 28,409, 28,410; dry limestone cliffs and talus, western face, Doctor Hill, *Fernald & Long,* no. 28,408; dry gravelly limestone barrens, St. John Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss,* no. 28,393; shaded shelves of limestone cliff, Crow's Head, St. John Bay, *Fernald, Long & Fogg,* no. 1743; turfy and gravelly upper border of limestone sea-beach, Eastern Point, St. John Bay, *Fernald, Long & Fogg,* no. 1745; turfy borders of limestone beach, Gargamelle Cove, *Fernald, Long & Fogg,* no. 1741; shaly sea cliff, north side, Keppel Island, *Abbe & Pease,* no. 363; turfy crevices and talus of trap sea-cliffs, French (or Tweed) Island, Bay of Islands, *Fernald, Long & Fogg,* no. 281. QUEBEC: calcareous cliffs, Blanc Sablon ("Labrador"), *Fernald, Wiegand & Long,* no. 28,413 (as *D. arabisans*); bare hillside about 3 miles north of Long Point, Brest, *E. C. Abbe,* no. 1262, as *D. megasperma.* UNGAVA: Richmond Gulf,

A. P. Low, no. 63,140; stony beach, 10 miles south of East Main, James Bay, *David Potter*, no. 549. NOVA SCOTIA: crevices of rocks, Big Intervale, Margaree, Cape Breton Island, *J. Macoun*, no. 18,987. All the preceding nos., unless otherwise noted, were distributed as *D. hirta* or as *D. rupestris*. PLATE 301; MAP 12.

Var. HEBECARPA (Lindbl.) O. E. Schulz. Flowering stems hispid to the summit: siliques permanently hispid with simple, bifurcate and sometimes stelliform trichomes.—O. E. Schulz in Engler, Pflanzenr. iv[105]. 222 (1927). *D. trichella* Fries, Novit. Fl. Suec. Mant. Alt. 40 (1839) and Summa Veg. Scand. i. 149 (1846) acc. to Schulz. *D. scandinavica*, β. *hebecarpa* Lindbl. Linnaea, xiii. 322 (1839). *D. rupestris* β. *stricta* b. *hebecarpa* Lindbl. Bot. Notiser (1841) 222 (1841). *D. rupestris*, * *trichella* (Fries) Nyman, Consp. i[1]. 53 (1878). *D. hirta*, * *trichella* (Fries) Hartm. Handb. Skand. Fl. ed. 11: 206 (1879). *D. hirta*, β. *hebecarpa* (Lindbl.) Strömfelt, Öfvers. Kgl. Vet.-Akad. Forhandl. 1884, no. 8: 110 (1885).—Northern Europe; Greenland; northwestern Newfoundland. NEWFOUNDLAND: turfy limestone barrens, Burnt Cape, Pistolet Bay, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, nos. 28,385, 28,387; upper border of limestone gravel-beach and shaded limestone escarpments, Burnt Cape, *Fernald & Long*, nos. 28,397, 28,398; turfy limestone barrens, Capstan Point, Flower Cove, *Fernald, Long & Dunbar*, no. 26,712, in part (mixed with glabrous-fruited plant); gravelly talus of limestone sea-cliffs and dry gravelly limestone barrens, Pointe Riche, *Fernald, Long & Fogg*, nos. 1742, 1744; all distributed as *D. hirta* L. (see discussion under *D. glabella*) or as *D. rupestris* R. Br.

Var. **pleiophylla**, var. nov. (TAB. 302), caulibus fructiferis 0.5–2.7 dm. altis; foliis caulinis 6–18; siliquis glabris.—Northwestern Newfoundland and adjacent Quebec Labrador. NEWFOUNDLAND: shelves, crests and talus of diorite cliffs, Ha-Ha Mountain, *Fernald & Long*, nos. 28,399, 28,400 (in part; mixed with typical *D. norvegica*); turfy limestone barrens, Burnt Cape, July 17, 1925, *Fernald, Wiegand, Pease, Long, Griscom, Gilbert & Hotchkiss*, nos. 28,380 (TYPE in Gray Herb., some specimens misnumbered 20,380), 28,383; turfy limestone slopes near the sea, east of Big Brook, Straits of Belle Isle, *Fernald & Long*, no. 28,407; limestone escarpments on the Highlands northeast of Big Brook, *Pease & Griscom*, no. 28,378; peaty and turfy pockets in limestone barrens, Brig Bay, *Fernald, Long & Dunbar*, no. 26,705; dry gravelly limestone barrens, St. John Island, *Fernald, Wiegand, Long, Gilbert & Hotchkiss*, no. 28,394; dry limestone cliffs and talus, western face of Doctor Hill, *Fernald &*

MAP 13. Range of DRABA NORVEGICA, var. PLEIOPHYLLA.

Long, no. 28,408[a]; gravelly limestone barrens near the sea, Eddy's (or Old Man's) Cove, St. John Bay, *Fernald, Long & Fogg*, no. 1748; turfy and gravelly shore, Back (or Bustard) Cove, *Fernald, Long & Fogg*, no. 1747; limestone ledges in dry clearing, Port au Choix, *Fernald, Long & Fogg*, no. 1746; turfy talus of limestone sea-cliffs at base of Pointe Riche, *Fernald, Long & Fogg*, no. 1750. QUEBEC ("LABRADOR"): limestone and calcareous sandstone terraces and crests, Blanc Sablon, *Fernald & Wiegand*, nos. 3460, 3461 (as *D. arabisans*, var. *orthocarpa*), 3462, 3463, *Fernald, Wiegand & Long*, no. 28,412 (transitional). All (unless otherwise noted) distributed as *D. hirta* L. (see discussion under *D. glabella*) or as *D. rupestris* R. Br. MAP 13.

Although European (PLATE 301, FIG. 1) and Greenland material of *Draba norvegica* has few (and sometimes no) cauline leaves, the plant of Newfoundland and adjacent Quebec varies from individuals (PLATE 301, FIGS. 2–5) inseparable from authentic European specimens and from the beautiful plate in Flora Danica (t. mmmxxxiii.) to a more leafy extreme (PLATE 302), such as seems to be unknown in Europe, var. *pleiophylla*. In this leafy extreme *D. norvegica* approaches a number of species of the Gulf of St. Lawrence area. The plant of the Shichshock Mountains (PLATE 303), however, is separable by its narrower cauline leaves, smaller flowers, narrow siliques and longer pedicels. The stout *D. laurentiana* (PLATES 304, 305), occurring in much the same area as *D. norvegica* and its var. *pleiophylla*, is coarser throughout, with the foliage essentially lacking the simple trichomes which characterize the leaves of *D. norvegica*, usually more numerous leaves, larger flowers in relatively shorter racemes and more numerous seeds. In some of its forms *D. norvegica* approaches *D. glabella*, one of the commonest and most variable species about the Gulf of St. Lawrence; but *D. glabella* (PLATE 307) mostly lacks the simple pubescence on leaves and stems, being stellate-pannose.

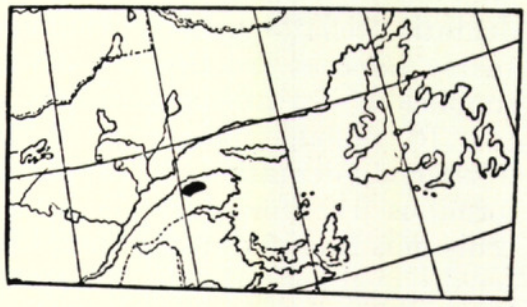
As already noted, the distinctions between the larger plants (PLATE 293) of *Draba rupestris* R. Br. (1812) and the smaller plants of *D. norvegica* Gunner (1772) with 1 cauline leaf (or with this lacking) are not wholly satisfactory. *D. rupestris* is more delicate or slender; but I anticipate the merging of the two when the latter extreme has been more collected and studied on our northern barrens and shores. We should then have a species characterized by very narrow and hispid rosette-leaves, hispid stems, and hispid, ovate cauline leaves varying from 0 to 18, awkward for key-making, to be sure, but rather typical of the vagaries of *Draba*. If, furthermore, we were to abandon the characters of pubescence now relied upon, *D. norvegica*, as the oldest

name, would be applicable likewise to a large series of stellate-pannose plants of the boreal regions now maintained as distinct species.

Schulz, who recognized no true *Draba norvegica* nor its pubescent-fruited var. *hebecarpa* from North America, cited a single collection (PLATE 303, FIG. 1) from the Shickshock Mts. of Gaspé (*Dodge, Griscom & Pease*, no. 25,773) as belonging to his *D. norvegica*, var. *laxa* (Lindbl.) O. E. Schulz, of the Dovre Alps of Norway. Lindblom's *D. laxa* α. *legitima*, upon which Schulz's variety was based, was, apparently, not essentially different from *D. norvegica* Gunn. and described "scapis 1–2-phyllis." Lindblom explicitly cited *D. norvegica* "(descr. vitiosa)" and also cited the identical plate upon which Gunner had based *D. norvegica:* "*Fig.* Dr. an pyrenaica *Fl. Dan. t.* 143 (mala)." This illustration, although properly characterized by Lindblom as "mala," shows no cauline leaves and the Flora Danica plate of it cited by Schulz for *D. norvegica*, var. *laxa* has 0–4 cauline leaves. The sheet of the Gaspé plant (no. 25,773) preserved in the Gray Herbarium has more numerous (8–13) and narrower cauline leaves, much smaller flowers and more slender siliques on longer pedicels than in *D. norvegica* and, consequently, than in *D. laxa*, which was based in part on *D. norvegica*. It seems to represent an endemic species, which I am calling *D. clivicola*.

13. D. **clivicola**, sp. nov. (TAB. 303), planta humifusa stragula 3–15 cm. diametro formans; caudiculorum ramis ramulisque pallidis inferne foliis emortuis plus minusve fibrillosis squamatis, superne foliis rosulatis cespitem laxum 1.3–3 cm. diametro formantibus; foliis rosulatis lineari-oblanceolatis acutis 0.4–1.5 cm. longis 1–5 mm. latis integris vel marginibus utrinque 1–3-incisis plus minusve hirtellis pilis simplicibus furcatis stellatisque; caulibus floriferis filiformibus flexuosis simplicibus vel ramosis, fructiferis 0.3–3 dm. altis basi hirtellis; foliis caulinis 3–13 (av. 7), lanceolatis vel anguste ovatis 0.5–1.7 cm. longis 1.5–6 mm. latis hispidulis inciso-serratis vel integris; racemis floriferis confertis fructiferis elongatis laxis 2–13 cm. longis 5–19-floris; pedicellis imis fructiferis 4–10 mm. longis, saepe bracteatis; sepalis oblongis 1.6–2 mm. longis 0.4–0.9 mm. latis glabris vel sparse hirtellis; petalis lacteis anguste obovatis 2.8–4 mm. longis 1–1.5 mm. latis; antheris 0.3 mm. longis; ovariis glabris 16–26-ovulatis; siliculis glabris linearibus vel lineari-lanceolatis stigmato capitato coronatis 7–12 mm. longis 2–2.5 mm. latis, valvis obsolete reticulato-venosis; seminibus a funiculis 0.2 mm. longis pendulis ellipticis 1–1.3 mm. longis.—Shickshock Mts., Matane Co., QUEBEC: wet hornblende-schist at base of Big Chimney, altitude 400–600 m., Mt. Mattaouisse, July 22, 1922, *Fernald & Pease*, no. 25,096 (distributed as from "Mt. Logan"); schistose talus and wet shelves at base

of Big Chimney, July 10, 1923, *Dodge, Griscom & Pease,* no. 25,773 (TYPE in Gray Herb.); cold schistose walls at head (alt. 1070 m.) of Big Chimney, July 14, 1923, *Fernald, Griscom, Pease & Smith,* no. 25,789; cold chimneys in the schist at about 900–1000 m. alt., south of Fernald Pass, Mt. Mattaouisse, August 20, 1923, *Fernald & Smith,* no. 25,777; talus of mica-schist, chimney east of Razorback Ridge (alt. 850–1000 m.), Mt. Logan, July 13, 1923, *Pease & Smith,* no. 25,774; schistose talus at about 800–950 m. alt., Pease Basin, between Mts. Logan and Pembroke, July 13, 1923, *Pease & Smith,* no. 25,771 (exceptionally broad-leaved, cauline leaves to 6 mm. broad); cliffs and chimneys at about 800–1050 m. alt., east of Big Cascade, Pease Basin, between Mts. Logan and Pembroke, July 16, 1923, *Dodge & Pease,* no. 26,130; dry talus and ledges of green schists, at about 900–1125 m., Hanging Valley, Mt. Pembroke, July 16, 1923, *Griscom & Pease,* no. 25,775, 25,776, August 24, 1923, *Fernald & Smith,* no. 25,778. All distributed as *D. rupestris.* MAP 14.



MAP 14. Range of DRABA CLIVICOLA.

Draba clivicola, which was distributed as *D. rupestris* R. Br., differs quite obviously from that species in its very leafy stems, *D. rupestris* being typically scapose. Its reference to *D. norvegica* by Schulz has been noted in the discussion of the latter species; but it is sufficiently clear from that in its narrower cauline leaves, smaller flowers, more slender fruit and longer lower pedicels. So far as yet known, it is confined to the somewhat calcareous schistose upper slopes of the Mt. Logan region in Gaspé, a peculiarly notable area, where *D. clivicola* is associated with other endemic or near-endemic species: *Festuca prolifera* (Piper) Fern.,[1] *Draba Allenii* (see above), *Saxifraga gaspensis* Fern.[2] and *Vaccinium nubigenum* Fern.;[3] and such species, separated by hundreds or thousands of miles from their specific allies, as *Draba nivalis* Liljebl., *Potentilla emarginata* Pursh,[4] *Euphrasia Williamsii* Robinson, *Campanula uniflora* L.,[5] *Arnica Louiseana* Farr[6] and *Senecio resedifolius* Less.[7]

[1] RHODORA, XXXV. 133, map 14 (1933).

[2] RHODORA, xix. 141 (1917).

[3] See RHODORA, XXXV. 279, map 23 (1933).

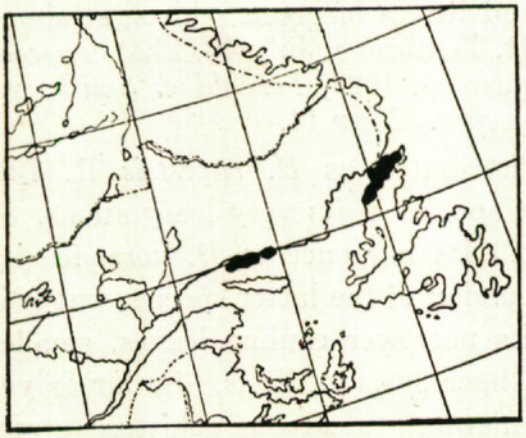
[4] The plant identified and reported as *P. fragiformis* Willd. in Mem. Amer. Acad. XV. 280 (1925) is, according to the late Dr. Malte, *P. emarginata.*

[5] See Mem. Amer. Acad. XV. 338 (1925).

[6] See RHODORA, XXXV. 369, map 30 (1933).

[7] See RHODORA, XXVI. 113 (1924); also Mem. Amer. Acad. XV. 260, and map 29, p. 259 (1925).

14. D. **laurentiana**, sp. nov. (TABS. 304, 305), planta humifusa stragula 3–15 cm. diametro formans; caudiculorum ramis ramulisque albescentibus nitidis inferne foliis emortuis fibrillosis squamatis, superne foliis rosulatis cespitem 1.5–7 cm. diametro formantibus; foliis rosulatis cuneato-oblanceolatis 0.7–3.8 cm. longis 4–9 mm. latis crassis firmis acutis vel subacutis vel marginibus utrinque 1–3-dentatis stellato-pannosis; caulibus floriferis crassis simplicibus vel sparse ramosis, fructiferis 1–3.5 dm. altis imis piloso-hirsutis pilis simplicibus furcatis stellatisque admixtis; foliis caulinis (3) 6–25 (av. 10) oblongis plerumque 1–3 cm. longis 3–11 mm. latis argute 2–4-serrato-dentatis stellato-pannosis; racemis floriferis corymbiformibus fructiferis laxe elongatis 3–15 cm. longis 6–30-floris; pedicellis imis fructiferis 1.5–6 mm. longis ebracteatis vel rare bracteatis; sepalis ovalibus vel late oblongis late albido-marginatis 2.3–3 mm. longis 1.3–2.3 mm. latis; petalis lacteis late obovatis emarginatis 4.5–5 mm. longis 2.5–4 mm. latis; antheris 0.4 mm. longis; ovariis glabris 20–40-ovulatis; siliculis glabris oblongis ellipticis vel oblongo-lanceolatis planis vel tortis stylo brevissimo (0.1–0.4 mm. longo) coronatis 5–14 mm. longis 2–4 mm. latis, valvis valde reticulato-venosis vel rugulosis; seminibus a funiculis 0.3 mm. longis pendulis ellipticis 1–1.3 mm. longis.—Shores of the Gulf of St. Lawrence and Straits of Belle Isle, Newfoundland and eastern Quebec. NEWFOUNDLAND: limestone ledges, Schooner (or Brandy) Island, Pistolet Bay, July 18, 1925, *Pease & Long*, no. 28,359; dry rocky and gravelly limestone barrens, Cape Norman, July 18, 1925, *Wiegand, Griscom & Hotchkiss*, no. 28,360; turfy seashore east of Big Brook, July 15, 1925, *Pease & Griscom*, no. 28,357; Green Island, Straits of Belle Isle, July 24, 1925, *Griscom*, no. 28,364; fields and meadows, Flower Cove, July 12, 1920, *M. E. Priest*, no. E1; turfy limestone shore, Capstan Point, Flower Cove, July 10, 1925, *Fernald, Griscom & Gilbert*, no. 28,355; limestone ledges and gravel near the sea, St. Barbe, August 4, 1924, *Fernald, Long & Dunbar*, no. 26,713; turfy upper margin of limy gravel beach, Brig Bay, August 6, 1924, *Fernald, Long & Dunbar*, no. 26,714; turf overlying limestone, Grassy Island, St. John Bay, August 5, 1929, *Fernald, Long & Fogg*, no. 1731 (TYPE in Gray Herb.). QUEBEC: "Labrador," *Martin;* sur un îlôt de calcaire, riche en guano, Îslets de la Baie à Jean, 25 juillet, 1924, *Victorin & Rolland*, no. 18,256 (as *D. arabisans*); sur les rochers calcaires, Île Ste. Génévière, Mingan, 17 juilliet, 1924, *Victorin & Rolland*, no.



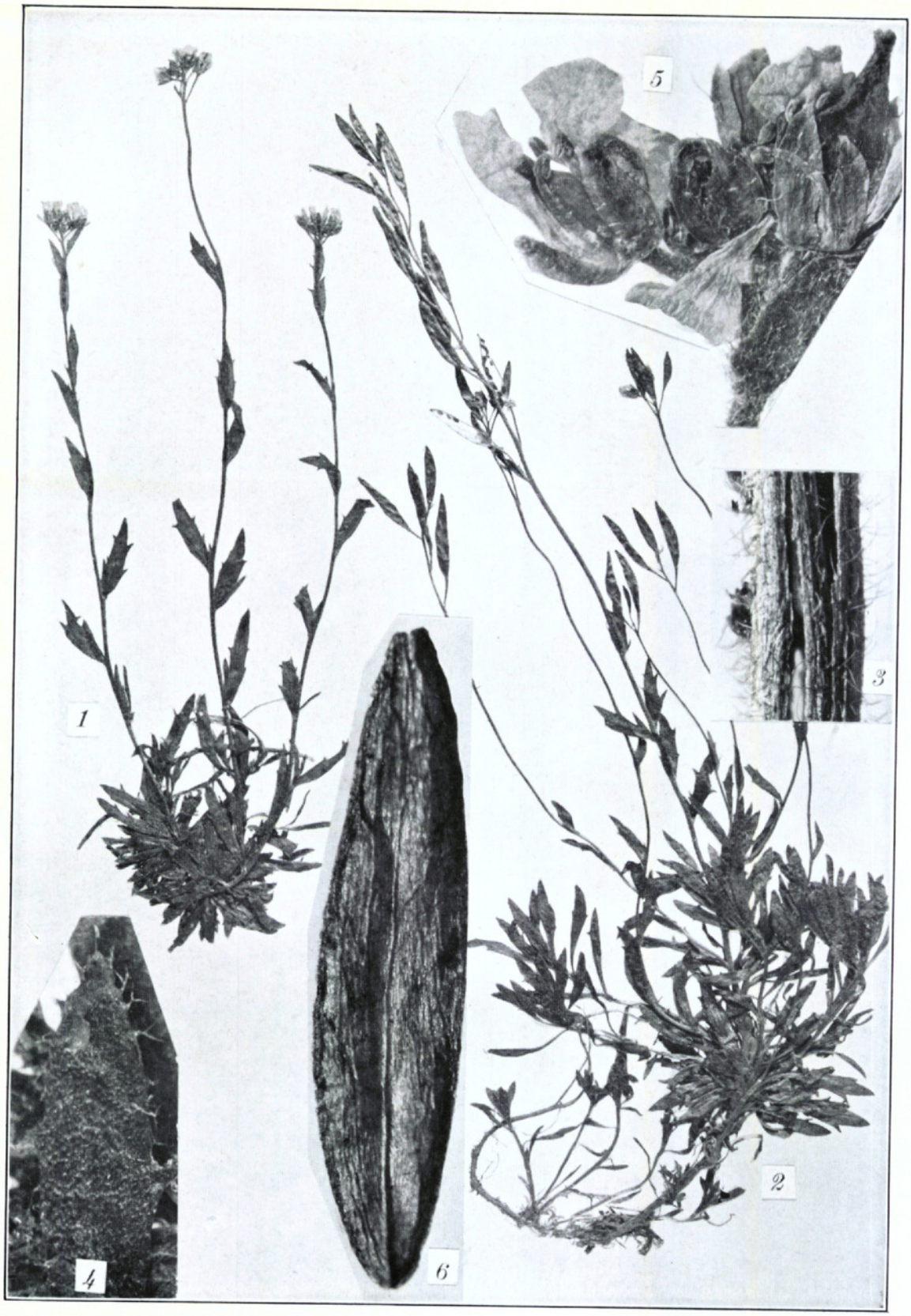
MAP 15. Range of DRABA LAURENTIANA.

DRABA INCANA (var. CONFUSA): FIG. 1, small fruiting plant, from Archipel de Kécarpoui, Quebec; FIG. 2, dwarf plant, from Percé, Quebec (isotype of var. *conica*); FIG. 3, flowering plant, from Cow Head, Newfoundland; FIG. 4, small fruiting plant, from Newfoundland; FIG. 5, slender plant, from same station as fig. 2; FIG. 6, leafy plant, from Baie à Jean, Quebec; all × 1.

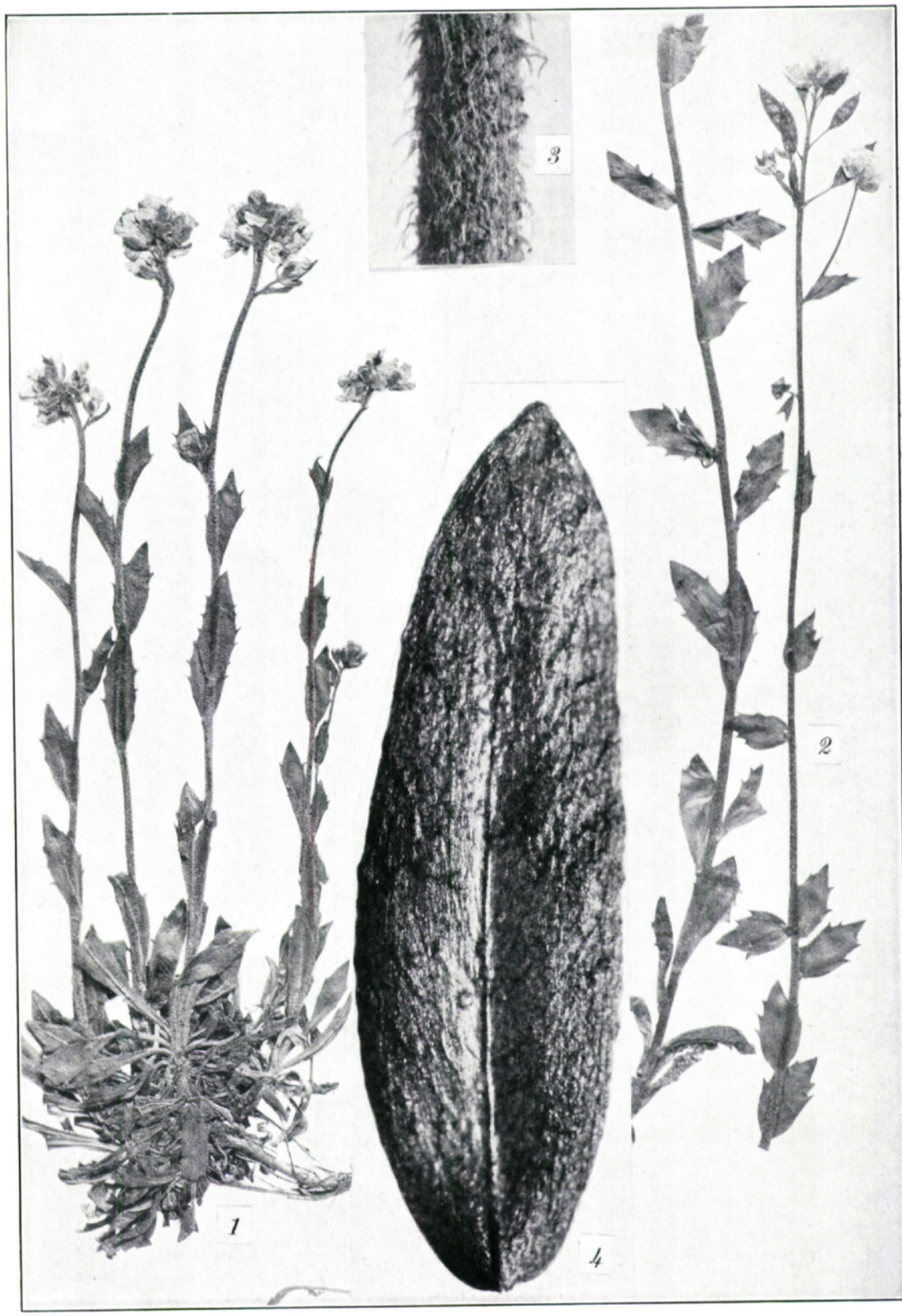
DRABA SORNBORGERI, n. sp.: FIG. 1, portion of fruiting plant, × 1, from Ramah, Labrador (TYPE); FIG. 2, flower, × 10, from Ramah; FIG. 3, valve, × 10, from the TYPE. D. CRASSIFOLIA, var. PARRYI: FIGS. 4 and 5, flowering and fruiting plants, × 1, from Gray's Peak, Colorado.

DRABA NORVEGICA: FIG. 1, small fruiting plant, × 1, from Norway; FIG. 2, dwarf flowering plant, × 1, from Newfoundland; FIG. 3, small flowering plant, × 1, from Newfoundland; FIG. 4, fragment of flowering plant, × 1, from Newfoundland; FIG. 5, fragment of fruiting plant, × 1, from Newfoundland; FIG. 6, tips of rosette-leaves, × 10, from Newfoundland.

DRABA NORVEGICA, var. PLEIOPHYLLA, n. var.: FIG. 1, portion of fruiting plant, × 1; FIG. 2, flowering plant, × 1 (TYPE); FIG. 3, rosette-leaves and lowest internode, × 10; FIG. 4, silique, × 10; all from Newfoundland.

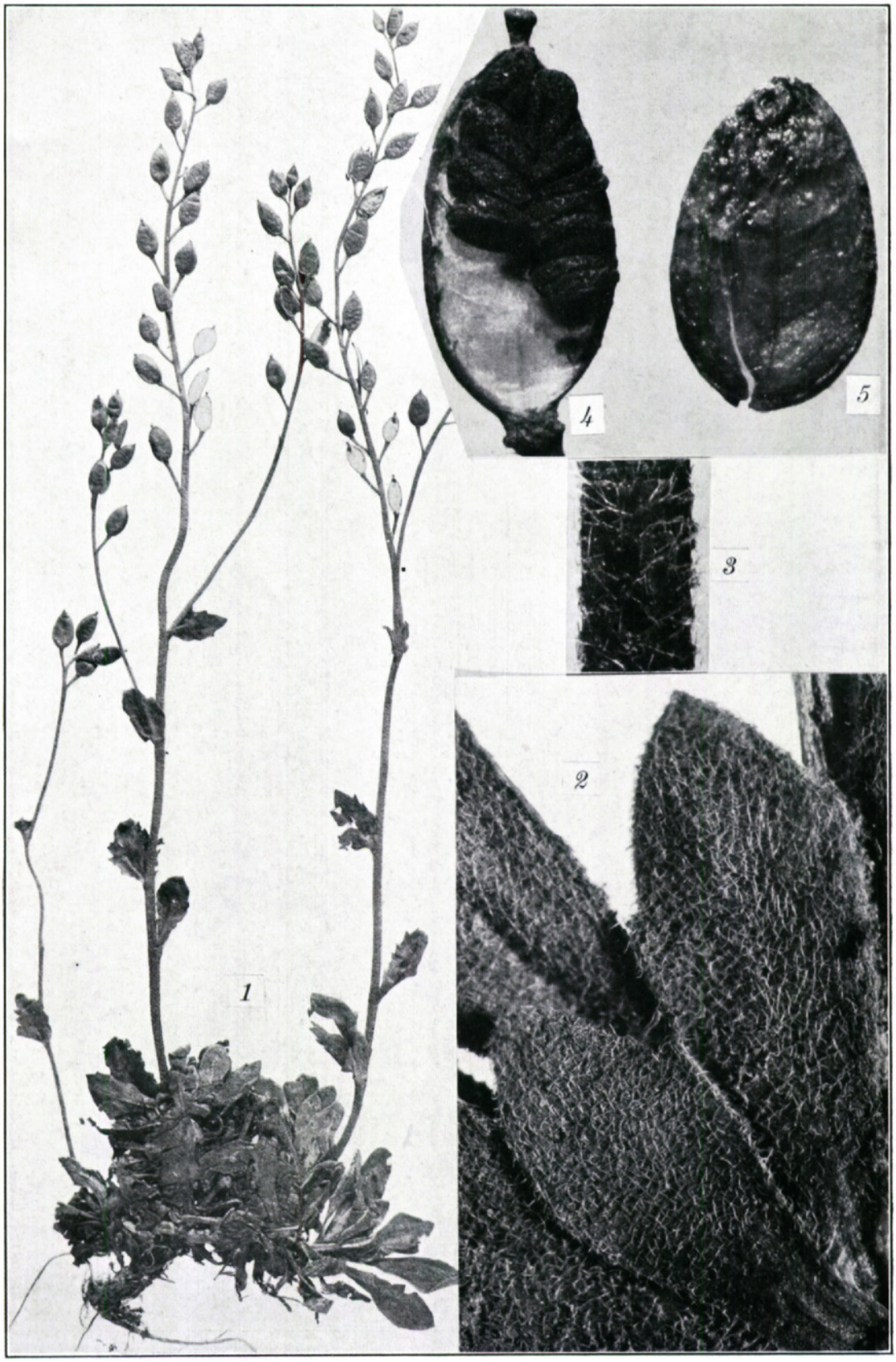


DRABA CLIVICOLA, n. sp.: FIGS. 1 and 2, flowering and fruiting plants, × 1 (TYPE); FIG. 3, portion of internode, × 10; FIG. 4, tip of rosette-leaf, × 10; 5, flowers, × 10; FIG. 6, valve of ripe silique, × 10; all from Shickshock Mts., Quebec.



DRABA LAURENTIANA, n. sp.: FIG. 1, small flowering plant, × 1, from Newfoundland; FIG. 2, portion of tall flowering plant (divided), × 1, from Archipel de Mingan, Quebec; FIG. 3, portion of internode, × 10, from Newfoundland (TYPE); FIG. 4, valve of ripe silique, × 10, from the TYPE.

DRABA LAURENTIANA, n. sp.: FIG. 1, portion of fruiting plant, × 1, from the TYPE; FIG. 2, portion of basal rosette, × 10, from the TYPE; FIG. 3, flower, × 10, from Newfoundland.



DRABA PYCNOSPERMA: FIG. 1, small fruiting plant from Île Bonaventure, Quebec; FIG. 2, rosette-leaves, × 10, from same station; FIG. 3, portion of internode, × 10, from Percé, Quebec; FIG. 4, septum and seeds, × 10, from Percé; FIG. 5, valve, × 10, from Percé.

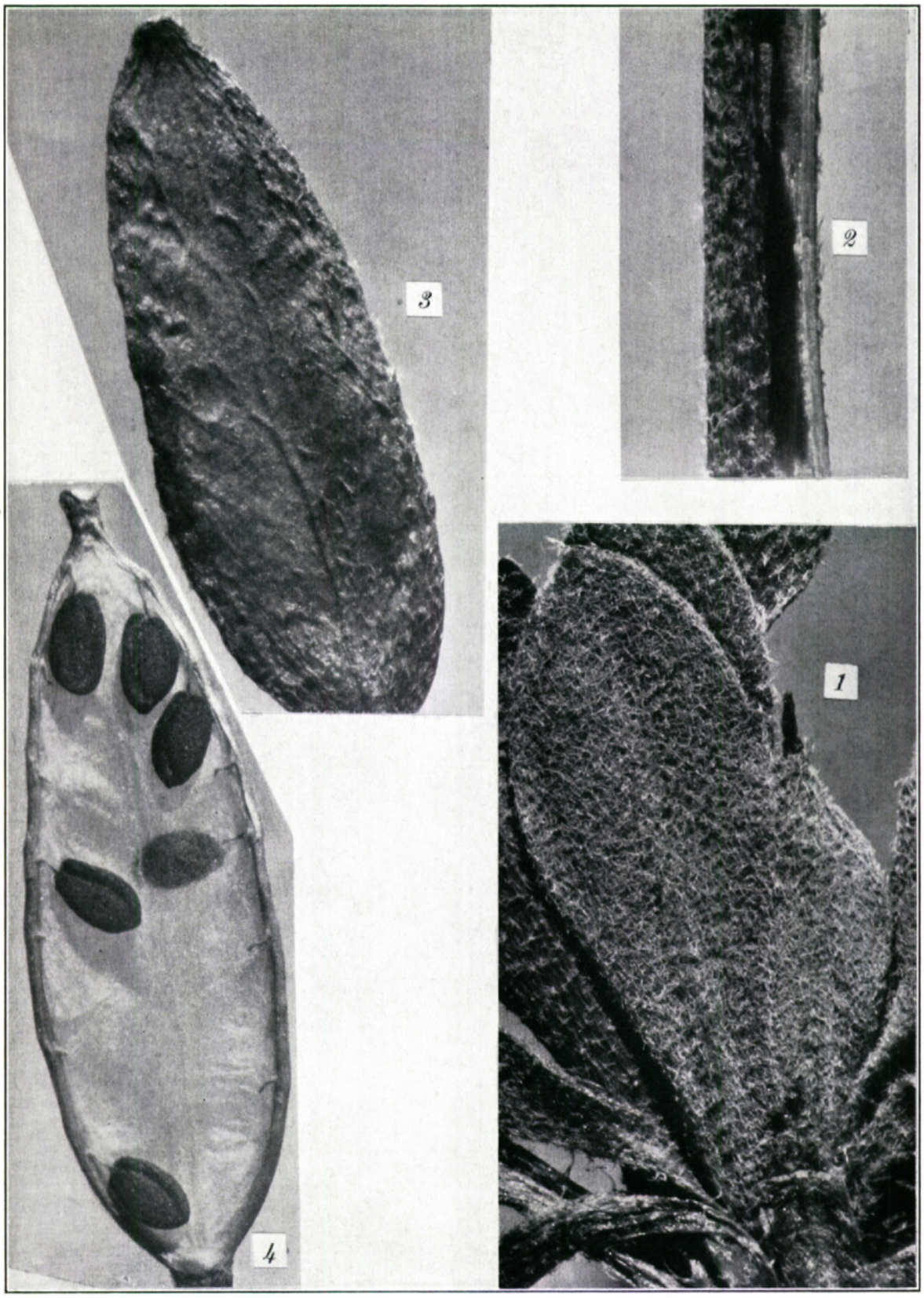
DRABA GLABELLA: FIG. 1, flowering plant, × 1, from Newfoundland; FIG. 2, flowering plant, × 1, from Labrador; FIG. 3, fruiting stems, × 1, from near Nain, Labrador (type region of *D. Henneana*); FIG. 4, portion of basal rosette, × 10, from Newfoundland; FIG. 5, portion of internode, × 10, from Labrador; FIG. 6, tip of silique, × 10, from Newfoundland.

DRABA GLABELLA: FIG. 1, TYPE, × 1, in Herb. Brit. Mus. (photograph from the Keeper, Mr. J. RAMSBOTTOM); FIG. 2, type of *D. Henneana*, × 1, in Herb. Bot. Mus. Berlin-Dahlem (photograph by *L. B. Smith*, from original specimen loaned by the Curator, Professor JOHANNES MILBRAED); FIG. 3, type of *D. daurica*, × 1, in Herb. De Candolle, Genève (photograph presented by Dr. ALFRED BECHERER and Mr. J. F. MACBRIDE).

DRABA GLABELLA, var. ORTHOCARPA: FIG. 1, TYPE, × 1, from Bic, Quebec; FIGS. 2 and 3, septum with seeds, and valve, × 10, from TYPE.

DRABA GLABELLA, var. BRACHYCARPA: FIG. 1, fruiting stems, × 1, from Greenland; FIG. 2, flowering plant, × 1, from Greenland; FIGS. 3 and 4, silique and septum with seeds, × 10, from fig. 2.

DRABA GLABELLA, var. MEGASPERMA: FIG. 1, portion of flowering plant, from Archipel Ouapitagone, Quebec; FIG. 2, portion of fruiting plant, × 1, from Archipel de Mingan, Quebec; FIG. 3, portion of fruiting plant, × 1, from Forteau, Labrador; all × 1.



DRABA GLABELLA, var. MEGASPERMA, details from the TYPE, × 10, from Paspébiac, Quebec: FIG. 1, rosette-leaves; FIG. 2, portion (fractured, overripe) of lowest internode; FIGS. 3 and 4, valve, and septum with seeds.

DRABA MCCALLAE: FIG. 1, flowering plant (TYPE), × ½, from Alberta; FIG. 2, fruiting stem, × ½, from Alberta; FIG. 3, rosette-leaves, × 10, from Alberta; FIG. 4, lower internode, × 10, from Alberta; FIG. 5, flower, × 10, from TYPE; FIG. 6, silique, × 10, from fig. 2.

18,253; sur le cailloutis calcaire, Côté du Large, Île Ste. Génévière, 9 août, 1925, *Victorin & Rolland,* 21,477; rivages calcaires, Île Nue, Mingan, 29 juillet, 1926, *Victorin & Rolland,* no. 24,863; sur le cailloutis calcaire, Île à la Vache Marine, Mingan, 16 juillet, 1924, *Victorin & Rolland,* no. 18,251, as *D. arabisans;* sur les corniches calcaires, Île Quin, Mingan, 28 juillet, 1924, *Victorin & Rolland,* no. 18,244, as *D. arabisans,* var. *canadensis* (small bushy-branched and small-fruited extreme); sur les corniches calcaires, Île du Fantome, Mingan, 28 juillet, 1924, *Victorin & Rolland,* no. 18,246; sur le calcaire couvert de guano, Îlets Perroquets, Mingan, 5 août, 1924, *Victorin & Rolland,* no. 18,252, as *D. arabisans;* without statement of locality, Anticosti, June 26, 1861, *Hyatt, Shaler & Verrill.* Unless otherwise stated, distributed as *D. megasperma.* MAP 15.

Draba laurentiana is one of the coarser species of eastern America. Although confused in the herbarium with *D. glabella* Pursh, var. *megasperma* (Fern. & Knowlton) Fern. (PLATES 311, 312) and sometimes with *D. arabisans* Michx. (PLATES 314, 315), it stands apart from them both in the abundant spreading and simple pubescence of the lower internodes of the coarse flowering stems; *D. megasperma,* which is better treated as a large extreme of *D. glabella* Pursh, having the stems coarsely stellate-pannose, *D. arabisans* having them more finely stellate. The cauline leaves of *D. laurentiana* are commonly very numerous, usually 6–25 (average 10), those of *D. glabella* and its varieties few, 0–8, very rarely to 13 (average 4), and in *D. arabisans* they are much more narrowed at base and only 3–12 in number. The flowers of *D. laurentiana* are very large and the siliques distinctly rugose-veiny, with almost no style, while the silique of *D. arabisans* is veinless and long-styled. *D. glabella,* var. *megasperma,* in its largest development, is very similar to the less leafy plants of *D. laurentiana* and the two probably cross. In view of the marked difference in the pubescence of their lower internodes they are here treated as different species. It may later seem wiser to unite them as varieties of one variable species.

In northwestern Newfoundland and on the Mingan Islands *Draba laurentiana* has its greatest development, the material thought to be from Anticosti possibly having been actually collected elsewhere. In sharing the Gulf coast of Newfoundland and the Mingan Islands and, though only locally or doubtfully, Anticosti, it becomes one of a large series of species of similar occurrence: *Listera borealis* Morong, *Lesquerella Purshii* (Wats). Fern., *Arctostaphylos rubra* (Rehder & Wilson) Fern., *Arnica chionopappa* Fern., *Taraxacum laurentianum*