

July 4, 1899, *A. & E. Nelson*, no. 5663. COLORADO: moist ground near river, Fort Collins, May 15, 1894, *Crandall*, no. 22; Aboles, June, 1899, *C. F. Baker*, no. 328. NEW MEXICO: near Espanola, May 17, 1897, *Heller*, no. 3544; Kingston, May 19, 1905, *Metcalf*, no. 1601; Mangas Springs, June 11, 1903, *Metcalf*, no. 128. IDAHO: wet banks, Payette, *Macbride*, no. 869; loamy slopes, Boulder Creek, July 31, 1910, *Macbride*, no. 503; moist banks, New Plymouth, June 15, 1910, *Macbride*, no. 246. UTAH: Wahsatch Mts., May, 1869, *Watson*, no. 20; Modena, June 2, 1902, *Goodding*, no. 1011; Salt Lake City, June, 1904, *A. O. Garrett*. NEVADA: Carson City, *A. Gray*; Soda Lake, August, 1867, *Watson*, no. 20. ARIZONA: river bottom, Boyles, *Goodding*, no. 516. COAHUILA: Saltillo, May, 1898, *Palmer*, no. 178. SAN LUIS POTOSI: region of San Luis Potosi, 1878, *Parry & Palmer*, no. 3. DURANGO: Durango, 1896, *Palmer*, no. 96. MEXICO: near Mexico, May 15, 1865–66, *Bourgeau*, no. 2. CALIFORNIA: Bear Valley, San Bernardino Mts., June, 1886, *Parish*, no. 1788; Silver Canyon east of Laws, May 9, 1906, *Heller*, no. 8213. OREGON: near Mitchell, May 15, 1885, *Howell*, no. 322. WASHINGTON: near Sprague, Lincoln Co., June 3, 1893, *Sandberg & Leiberg*, no. 135; Rattlesnake Mts., June 15, 1901, *Cotton*, no. 414.

GRAY HERBARIUM.

NEW ENGLAND DISTRIBUTION OF *ILEX OPACA* AND *ILEX GLABRA*.

CLARENCE H. KNOWLTON.

IN travelling over southeastern Massachusetts by winter and summer, I have been much interested in the detailed distribution of the two evergreen *Ilexes*, *Ilex opaca* and *I. glabra*, which somehow seem quite exotic among our other New England plants. These two species, along with *Chamaedaphne*, the *Kalmias*, and the isolated *Rhododendron maximum*, are our only conspicuous broad-leaved evergreens.

According to Robinson's Flora of Essex County there were a few scattered trees of *Ilex opaca* on Cape Ann at Rockport, but these have been extinct since 1880, according to J. H. Sears, RHODORA x. 43. This is an isolated station, however, for the general range of the species is from Quincy, Holbrook, Hingham and Cohasset south to

Buzzard's Bay, Naushon Island, Dartmouth and Westport with Bridgewater, Taunton, Somerset and Swansea for inland limits. In some of the towns in this area it is abundant and fruits heavily; in others there are only scattering, badly-hacked trees with sterile flowers. The best trees I have seen are in Marion and Mattapoisett, the largest about 2.5 dm. in diameter.

On Cape Cod it is known at Bourne (Cataumet), Sandwich and Barnstable. I came across the last station, near Centreville, last summer, and it contains about forty trees of various sizes, in rather dry woods. Below this place it is not recorded, and on the lower Cape, according to Messrs. F. S. Collins and W. P. Rich, it is not to be found. In this connection it is interesting to know that according to Mourt's Relation the Pilgrims found the holly growing in the open woods at Provincetown when they first landed, Nov. 11, 1620, and later on Dec. 18 at Plymouth, where it is still known. It is also found as a rare plant on Nantucket. Removal of the woods and frequent fires, as well as the desire for Christmas greens have doubtless contributed to its disappearance.

In Rhode Island the holly is abundant at Tiverton, and occurs also at Little Compton, Prudence and Conanicut Islands, South Scituate, Coventry, and North and South Kingston, all in the southern third of the State.

In Connecticut the species is decidedly rare, according to the State Flora, (1910) occurring only in Waterford, Milford and Wolcott. The authors say: "Escaped from cultivation or possibly native."

The range of *Ilex glabra* is very similar. At Magnolia swamp in Gloucester, there is a very vigorous colony of it, growing with *Smilacina trifolia* and covering a considerable area. It is also reported from Wenham and Rockport. Its next appearances are at the Blue Hills, Hingham and Cohasset, thence southward to Buzzard's Bay and Nantucket in the same area as *Ilex opaca*, but much more abundant. It is decidedly abundant on Cape Cod, where it has escaped fires because of its swampy habitat, and it flourishes even in Provincetown. In Middleboro and Marion I have seen bushes 1.5 m. in height, but it is usually much smaller.

In Rhode Island it is reported from Tiverton and from four stations in Washington county. In Connecticut there are four stations in New London county, and one at Guilford, some thirty miles to the west,

I have found no records from Martha's Vineyard for either species, and they are not known on Block Island.

For *Ilex opaca* this area forms the extreme northeastern limit of the species, which follows the coastal plain south to Florida, and extends inland to Missouri. It prefers moist soil in woods, but is also frequent southward on dry mountain slopes.

Ilex glabra finds its extreme northeastern limit in southwestern Nova Scotia growing in the southern counties as far east as Halifax,¹ but there is a gap of 275 miles between there and Cape Ann, with no intervening stations. It follows the coast southward in swamps, moist sand, and low woods, to Florida and Louisiana.

It is very interesting that these two allied species, with somewhat different soil-preferences, should be so evenly distributed over the same area in southeastern New England. Along with them here and there are over a hundred other coastal-plain plants, many of which find their northeastern limits here. The waterwashed glacial debris found in these New England sand-plains and kames is sufficiently like the recent coastal-plain further south, to furnish similar soil conditions, while further north on the New England coast these conditions disappear, and the plants with them.

For information in regard to these ranges I am indebted to Dr. E. W. Sinnott, Messrs. A. C. Bent, S. N. F. Sanford and Professors J. F. Collins and M. L. Fernald.

HINGHAM, MASSACHUSETTS.

THE WEST VIRGINIAN VARIETY OF *POLYGONUM CILINODE*.—*Polygonum cilinode* Michx., one of the commonest plants of the Canadian Zone, ranges from Newfoundland to Athabasca and south into the Great Lake states, the mountains of Pennsylvania, and the cooler districts of New England. South of the Pennsylvania mountains it is very rare, but it has been reported as far south as North Carolina. The only material seen by the writer, however, from south of Pennsylvania is Greenman's No. 346 from Spruce Knob, West Virginia, where the plant is localized, as indicated by the citation in Mills-paugh's *Living Flora of West Virginia* (1913) of no other station in the state. But besides its isolation on Spruce Knob, the West Virginian

¹ Macoun, Cat. Can. Pl. pt. 3, 503; Proc. & Trans. N. S. Inst. Sci. viii. 107.



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