

REVIEW

Phytogeographical Problems of Eastern Canada. By FRÈRE MARIE-VICTORIN. Contributions du Laboratoire de Botanique de l'Université de Montreal, Number 30. American Midland Naturalist. Volume XIX, Number 3. Pp. 498-558. The University Press, Notre Dame, Indiana. 1938.

This study has arisen from the keen observations of a veteran field botanist, who has spent many years exploring the flora of one of the more interesting regions of North America. As its title implies, the contribution aims chiefly to state certain important ecological and phytogeographical problems, solutions of which are either not offered or are suggested only as tentative hypotheses. The first problem is that of the occurrence in nature of variations which appear similar to the geneticist's mutations, and of the existence in such genera as *Crataegus* and *Oenothera* of many closely interrelated microspecies. The author concludes that many of these microspecies must have originated since the advent of civilization, but does not discuss the cytogenetic basis for their existence. He considers them important as "traces of discontinuous evolution." The principal problem discussed by the author, however, is that of the allogenous elements in the flora of eastern Quebec; those species, either endemic or isolated outliers of characteristically Arctic or Cordilleran species, which persist as relics on the higher mountains, the river gravels, and the exposed shores of the Gaspé Peninsula, the Mingan Islands, and the Island of Anticosti. The author gives careful lists and descriptions of many of these species and their habitats, accompanied by a fine series of illustrations and maps, which speak eloquently for the thoroughness with which he has studied this flora during a period of more than twenty-five years.

As a result of his extensive studies, Victorin has concluded that neither of the two principal hypotheses which have been put forward to account for the presence of these allogenous elements is wholly adequate. He gives careful consideration to the hypothesis of Fernald, that they are relics which have persisted in their present localities throughout the Wisconsin glaciation. This hypothesis seems clearly applicable to many of the Gaspé species, but in Mingania and Anticosti Island, the presence of a lobate ice front must be postulated, with the relic species occurring in an ice-free area between the lobes. This view is supported by the localization of the allogenous elements in areas of the south shore of Anticosti that correspond in a certain degree to the portions of the Mingan Islands also occupied by such species. No geological evidence in favor of this supporting postulate is presented. Another difficulty with Fernald's hypothesis is that many of the river gravels of the south side of the Gaspé Peninsula, which is unquestionably glaciated, contain as many allogenous species endemic to these lowlands as do the unglaci-

ated highlands of the Gaspé. Finally, there is "a number of bi-centric species rather general or frequent on the lower St. Lawrence area whose Cordilleran or Asiatic affinity or identity must be accounted for." To account for these discrepancies the hypothesis of post-glacial migration, recently revived by Wynne-Edwards, is brought up by Victorin. He does not, however, feel that this hypothesis can account for all of the allogenuous species, and mentions the interesting fact that many of them, when cultivated in Montreal, show great vegetative vigor and "aggressiveness." The thoughtful reader cannot finish this most interesting discussion without agreeing that "the situation seems much too complex for one good simple, schematic and dogmatic explanation." One can only hope that the author will continue these studies and will eventually reach a solution satisfactory for the explanation of at least the main features of this fascinating problem.—G. LEDYARD STEBBINS, JR.

NOTES AND NEWS

NEW RECORDS OF ALIEN PLANTS IN SAN DIEGO COUNTY, CALIFORNIA. Most of the species listed below are here reported from southern California for the first time. I am indebted to Dr. I. M. Johnston, Dr. P. A. Munz, and Mr. J. R. Swallen for some of the determinations. Stations given are in San Diego County, and specimens cited are in the herbarium of the San Diego Natural History Museum.

CENCHRUS ECHINATUS L. La Mesa, October 20, 1937, *Gander 4637*. Not previously reported from California.

PENNISETUM RUPPELII Steud. An occasional escape in waste areas: San Diego, March, 1931, *Fidella G. Woodcock*; May 10, 1936, *Gander 1852*.

PHYTOLACCA AMERICANA L. Chula Vista, July 25, 1936, *D. F. Howe*. Reported by S. B. Parish from Santa Monica, Los Angeles County (*Zoe 2: 27*. 1891).

SISYMBRIUM ORIENTALE L. Widely established in the vicinity of San Diego: Balboa Park, April 16, 1929, *Miss F. G. Woodcock*, March 31, 1937, *Gander 3067*; Chollas Heights, April 27, 1937, *Gander 3883*; San Luis Rey, *Gander 3333*, Oceanside, April 15, 1937, *Gander 3271*. Reported once previously from the United States (*Leaf. West. Bot. 1: 174*. 1935).

RESEDA LUTEOLA L. Poway, May 26, 1936, *Gander 2415*. Not previously reported from southern California.

KALLSTROEMIA PARVIFLORA Norton. Well established in a small area near Warner Hot Springs, October 22, 1936, *Gander 2944*. Not previously reported from California.

CHRYSANTHEMUM CARINATUM L. Silver Strand near Tent City, April 25, 1936, *Gander 1603*.—FRANK F. GANDER, Natural History Museum, San Diego, California.



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