

**HENRY ALLAN GLEASON**  
**EMINENT ECOLOGIST**  
**1959**

Dr. Henry Allan Gleason was born in Dalton City, Illinois, on the second of January, 1882, and is now a vigorous seventy-seven. He graduated from the University of Illinois with the B.S. in 1901 and the M.S. in 1904. In 1906 he received the Ph.D. from Columbia University.

His long career as a professional botanist has been mostly with three institutions: the University of Illinois from 1900 to 1910, the University of Michigan from 1910 to 1919, and the New York Botanical Garden from 1919 until his retirement in 1950, when he became Emeritus Curator. At Illinois he became Curator of the herbarium while still an undergraduate and rose to the rank of Associate Professor. At Michigan, besides being Associate Professor, he was director of the Biological Station from 1913 to 1915 and then Director of the Botanical Garden and Arboretum until he left in 1919. During his 31 years at the New York Botanical Garden, Dr. Gleason advanced from Curator to Head Curator and for some years was Chief Research Associate. At various periods he was Assistant Director, Deputy Director, and Acting Director, but always his heart has been in research rather than administration.

Dr. Gleason has belonged to many societies related to his wide interests and served several of them well as editor or treasurer. Some

honored him for his service and his eminence. For example, he was Vice-President and later President of the Botanical Society of America, Vice-President of the Torrey Botanical Club and of the 1940 Pan-American Scientific Congress, President of the Society of Plant Taxonomists, and Honorary Member of the Botanical Society of Czechoslovakia.

He has published many significant papers in ecology and in the taxonomy of vascular plants, specializing in the flora of South America and the beautiful Melastomataceae. He is generally known, of course, for **The Illustrated Flora of the Northeastern United States**, a complete re-doing of the familiar Britton and Brown.

But these are the bones of a man, the skeletal data one digs from such graveyards as **American Men of Science**. Let me give you something of the man himself whom I have been proud to know for a quarter of a century and whom the Ecological Society of America now is proud to designate as Eminent Ecologist.

Dr. Gleason was never one to fit into pigeon holes the facts which fell under his acute sight, and I have no interest in trying to classify him other than as an "individualistic ecologist" who has bothered a lot of other ecologists with his "individualistic association" concept. He has always been a man of ideas. But these are the ideas arising from what he has observed in nature and not ones he has tried to fit nature to. He has neither been impressed nor fooled by the philosophic creations of other ecologists, for he has always tested their ideas concerning the association, succession, the climax, environmental controls, and biogeography against what he knew in nature. I must be specific to make more clear just what I mean.

A good place to start is early. In 1907 the Illinois State Laboratory of Natural History published the Bulletin "On the Biology of the Sand Areas of Illinois" for which Dr. Gleason wrote the botanical part, and in 1910 a second Bulletin entitled "Vegetation of the Inland Sand Deposits of Illinois." The American style of dynamic, physiographic ecology was growing rapidly after its "allelo-paternity" by Henry Chandler Cowles of the University of Chicago and Frederick E. Clements of the University of Nebraska. It was natural that Dr. Gleason became interested in the Illinois sand vegetation, lying between Cowles' Lake Michigan dunes and Clements' Nebraska sand-hills.

Dr. Gleason was interested in the forest-prairie relations in his sand-plains region, in the origin of the prairie flora found there, in the relations of the plants and communities to physiographic activity, and in their structural and behavioral adaptations. He was interested in migration, competition and the structure of communities. He saw form and pattern in the occurrence of species within communities and clearly recognized some of the forces causing non-random, clumped patterns. He tested his observations by data from quadrats and dealt with abundance in eight unequal-sized density classes. He was alert to certain phenomena of tension zones and recognized the absence of an ecotone between the prairie and the **Quercus**-savanna.

In 1905 when Dr. Gleason's first study was completed, the

scope of which I have just suggested, it mattered not that Professor Clements already was one of the "assured great" of American ecology; Gleason disagreed with his dictum that succession is always progressive, for in his Illinois sand hills he had seen that autogenic changes in microhabitats could turn succession back toward the hydrophytic and away from the climax.

I will mention next Dr. Gleason's "Vegetational History of the Middle West," published in the *Annals of the Association of American Geographers* in 1923. This distinguished study, although with a strong Gleasonian imprint, was a lineal descendant of Charles C. Adam's 1902 studies on post-glacial origins and migrations of biota and communities in Eastern North America, Adolph Engler's 1879 "Versuch einer Entwicklungsgeschichte der Pflanzenwelt," and Asa Gray's "Flora of Japan" (1859), "Sequoia and its History" (1872), and "Forest Geography and Archeology" (1878). Dr. Gleason's work helped bring dynamic biogeography back to North America where it had started half a century before. In this great study he worked with present materials under his own observation: the present areas of species and major communities, their relations to present climate, terrain and the evidences of glaciation, and above all, the significant relic stands of vegetation, different ones of which were related to the mass occurrences of vegetation to the north, east, south or west. He read the vegetational history of the Middle West from the present, coming out with an understanding which subsequent palynology still is in the process of confirming.

I would like to go on at length about Dr. Gleason's ecological work before he forsook us for that hussy, taxonomy, but I must not occupy the entire evening. Let me approach the end of this citation by quoting some of his own wise words.

Concerning succession he wrote in 1927, "Successional phenomena of vegetation include all types of change in time, whether they are merely fluctuating or produce a fundamental change in the association. Vegetational change is constant and universal but varies greatly in its rate. . . The actual direction of succession may be likened to a resultant of forces. . . Retrogressive succession represents the re-appearing of an earlier time phase caused by the recurrence of an earlier environmental complex. . . Climax associations represent time-phases of great stability, in which we can not observe the action of successional causes and for which we cannot predict the future. . . The sere is not a genetic series in vegetation, and does not necessarily follow an orderly sequence in its development. . . Areal zonation of vegetation does not constitute a sere. . . The association may be regarded as the intersection of the space-series and the time-series of vegetation. . . The individualistic concept of succession is directly related to the individualistic concept of the association."

Let us see what he said the year before about the association. "The behavior of the plant offers in itself no reason at all for the segregation of definite communities. Plant associations, the most conspicuous illustrations of the space relation of plants, depend solely on the coincidence of environmental selection and migration over an area of recognizable extent and usually for a time of considerable

duration. A rigid definition of the scope or extent of the association is impossible, and a logical classification of associations into larger groups, or into successional series, has not yet been achieved. Under the individualistic concept, the fundamental idea is neither extent, unit character, permanence, nor definiteness of structure. It is rather the visible expression, through the juxtaposition of individuals, of the same or different species and either with or without mutual influence, of the result of causes in continuous operation. The primary causes, migration and environmental selection, operate independently on each area, no matter how small, and have no relation to the process on any other area. Nor are they related to the vegetation of any other area, except as the later may serve as a source of migrants or control the environment of the former. The effect of these primary causes is therefore not to produce large areas of similar vegetation, but to determine the plant life on every minimum area."

One more brief example of this "individualistic ecologist." Commenting on the unistratal association hypothesis of the Estonian Theodor Lippmaa, who would have elevated synusiae to associational rank and thus have the several synusiae of a phytocoenosis (for you non-ecological botanists, the layers of a complex community) occupy the same site simultaneously, Dr. Gleason pointed out that community organizing forces operate essentially vertically, not horizontally, and that these important life-form groups, the synusiae (which Gleason had recognized in 1905), are structural parts of complex communities, not independent superimposed associations. "Lippmaa's theory," he concluded, "is rejected." It is clear that Gleason's judgments go to the case, not the advocate.

So I present to you a man, a man whom we hold in affectionate admiration, our choice in 1959 for the honor of Eminent Ecologist — Dr. Henry Allan Gleason.

August, 1959      Stanley A. Cain, Chairman of Nominating Committee

#### ECOLOGICAL PUBLICATIONS OF HENRY ALLAN GLEASON

Of 278 separate published articles, 1897-1959, 37 pertain to ecology. The number placed before each title indicates the position of the article in his total bibliography.

19. (With C. A. Hart) On the biology of the sand areas of Illinois. *Bull. Ill. State Lab. Nat. Hist.* 7:137—272. Pls. 8—23. 1907.
27. Some unsolved problems of the prairies. *Bull. Torrey Club* 36: 265-271. 1909.
28. The vegetational history of a river dune. *Trans. Ill. Acad. Sci.* 2: 19-26. 1909.
29. The ecological relations of the invertebrate fauna of Isle Royale, Michigan. *Rep. Mich. Geol. Surv.* 1908: 57-78. 1909.
30. The vegetation of the inland sand deposits of Illinois. *Bull. Ill. State Lab. Nat. Hist.* 9: 21-174. Pls. 1-20. 1910.

32. An isolated prairie grove and its ecological significance. *Bot. Gaz.* 53: 38-49. 1912.
33. (With F. C. Gates) A comparison of the rates of evaporation in certain associations of central Illinois. *Bot. Gaz.* 53: 478-491. Figs. 1-6. 1912.
36. The relation of forest distribution and prairie fires in the Middle West. *Torreya* 13: 173-181. 1913.
38. (With F. T. McFarland) The introduced vegetation in the vicinity of Douglas Lake, Mich. *Bull. Torrey Club* 41: 511-521. 1914.
39. Botanical sketches from the Asiatic tropics. *Torreya* 15: 93-101, 117-133, 139-153, 161-175, 187-202, 233-244. 1915; 16: 1-17. 33-45. 1916. Figs. 1-37.
40. A prairie near Ann Arbor, Michigan. *Rhodora* 19: 163-165. 1917.
41. The structure and development of the plant association. *Bull. Torrey Club* 44: 463-481. 1917.
42. Some effects of excessive heat in northern Michigan. *Torreya* 17: 176-178. 1917.
44. On the development of two plant associations of northern Michigan. *Plant World* 21: 151-158. 1918.
45. Local distribution of introduced species near Douglas Lake, Michigan. *Torreya* 18: 81-89. 1918.
50. What is ecology? *Torreya* 19: 89-91. 1919.
56. Some applications of the quadrat method. *Bull. Torrey Club* 47: 21-33. 1920.
72. On the relation between species and area. *Ecology* 3: 158-162. 1922.
82. The vegetational history of the Middle West. *Ann. Assoc. Amer. Geogr.* 12: 39-85. 1923.
91. Botanical observations in northern Michigan. *Jour. N. Y. Bot. Gard.* 24: 273-283. 1924.
95. (With Barrington Moore, Herbert M. Richards, and A. B. Stout) Hemlock and its environment. *Bull. N. Y. Bot. Gard.* 12: 325-350. 1924.
97. Age and area from the viewpoint of phytogeography. *Amer. Jour. Bot.* 11: 541-546. 1924.
101. Ecological investigations in the hemlock forest. *Jour. N. Y. Bot. Gard.* 25: 313-316. 1925.
103. Species and area. *Ecology* 6: 66-74. 1925.
105. The structure of the maple-beech association in northern Michigan. *Papers of the Mich. Acad. Sci. Arts & Letters* 4: 285-296. 1925.

116. The individualistic concept of the plant association. *Bull. Torrey Club* 53: 1-20. 1926.
122. (With Mel. T. Cook) Plant Ecology of Porto Rico. *Sci. Survey Porto Rico and the Virgin Islands* 7 (1,2): 1-173. Pl. 1-50, fig. 1-25. 1927.
126. Further views on the succession-concept. *Ecology* 8: 299-326. 1927.
134. (With Mel. T. Cook) Ecological survey of the flora of Porto Rico. *Jour. Dept. Agr. Porto Rico* 12: 3-139. Fig. 1-75. 1928.
137. Plant associations and their classification: a reply to Dr. Nichols. *Proc. Intern. Congr. Plant Sci.* 1: 643-646. 1929.
143. The Significance of Raunkiaer's law of frequency. *Ecology* 10: 406-408. 1929.
161. The fundamental principles in the classification of vegetation. *Proc. Fifth Intern. Congr. Cambridge, 1930*: 77,78 (Abstract). 1931.
178. *Heliamphora*. *Pflanzenareale* 4: 6, 7. 1933.
181. On concepts in phytosociology. *Science N.S.* 78: 238, 239. 1933.
205. Twenty-five years of plant ecology. *Mem. Brooklyn Bot. Gard.* 4: 41-49. 1936.
206. Is the synusia an association? *Ecology* 17: 444-451. 1936.
216. The individualistic concept of the plant association. *Amer. Midl. Nat.* 21: 92-110. 1939.