MODERATOR MARCH: "Observations on Some Plant Distributions in Japan" is our next topic, which will be given by Dr. John L. Creech.

OBSERVATIONS ON SOME PLANT DISTRIBUTIONS IN JAPAN

John L. Creech
United States Department of Agriculture
Agricultural Research Service
Crops Research Division
Bettsville, Maryland

The main objective of this discussion is to emphasize the significance of the origin of parental species material used in breeding programs for woody ornamental plants. We are inclined, frequently, to use a species as a parent without first-hand knowledge of the background of the material in relation to the extent of natural distribution of the plant or the variation that exists within the species. Some of these points are illustrated by the accompanying slides taken during an exploration for ornamental plants in Japan from April to July 1961. Rhododendron japonicum, R. obtusum var. kaempferi, and Camellia japonica particularly illustrate the great range of variation in habitat and plant habit of the woody plants of Japan.

Rhododendron japonicum inhabits the grass and scrub-wooded moorlands of Japan, including Kyushu, Shikoku, and Honshu. It does not occur naturally on Hokkaido although plants said to have escaped from cultivation are scattered in the hills around the city of Matsumae, near Hakodate.

Wilson (1) recorded the distribution of R. japonicum as restricted to the main island of Honshu as far north as Mt. Hayachine. This azalea has a considerably greater distribution than Wilson was able to realize under the circumstances of travel that existed when he visited Japan. On Kyushu, R. japonicum occurs on low rolling hills not far from Kurume and is scattered through pastures where most other plant species have been grazed off by cattle. Except for pine and chestnut trees, the azaleas dominate these hot, sunny plateaus.

At its northern limit of natural distribution, R. japonicum is abundant on Mt. Hakkoda, Honshu. Here the azaleas grow around the perimeter of moist sphagnum bogs at elevations up to about 3000 feet, under such swampy conditions that one sinks into several inches of water when invading these bogs. Occasionally, R. japonicum can be found in lightly wooded coastal areas along the Pacific coast of Honshu, but essentially it is an upland, sun-loving plant and grows to a height of 3 to 4 feet, producing stout, erect stems from a somewhat stoloniferous base. It flowers from late April to late June, according to latitude. The flowers, which appear with the leaves, vary from clear golden yellow to brilliant orange-red. These are borne in terminal clusters of 6 to 12 flowers, each bloom 2 to 3 inches across.

Despite the long history of R. japonicum as a cultivated plant, information as to its flowering habit is rather incomplete. It is

doubtful that there is material in cultivation that is representative of variation which can be seen in the wild in Japan. For example, the yellow-flowered plant was considered to be so rare that Wilson regarded it as a distinct form which he named R. japonicum f. aureum, based on material cultivated in the Tokyo Botanic Garden. Had he been fortunate enough to see R. japonicum in Kyushu, Wilson might not have considered the yellow character of such importance, for about a third of the plants on the hills around Kita-yamada have yellow flowers. The other colors range through various yellow-orange mixtures and pink to orange-red. It was reported to me that seed gathered from plants with yellow flowers produces populations that are almost exclusively yellow-flowered.

As one follows the distribution of R. japonicum northward through Honshu, it is true that the yellow-flowered type ceases to be common. At Hakkoda-san, all the plants are uniformly orange-red, so much so that one could regard this as a distinct biotype. It is interesting to note that the greatest range of flower color is confined to the warmer end of the distribution with more tendency toward yellow flowers. The only close relative of this azalea in the Orient is R. molle. That azalea comes from even warmer localities of south China and is exclusively yellow-flowered.

Rhododendron obtusum var. kaempferi has the broadest distribution of the evergreen azaleas native to Japan. It occurs from the coast of southern Kyushu to the mountains near Lake Shikotsu, Hokkaido. It probably has been used more often as a parent than any related azalea species. Despite this extensive use, R. obtusum var. kaempferi has never been evaluated with respect to the merits of local types which exist in this broad range of environments. In kyushu, it inhabits the highly volcanic soils of the cool, humid slopes of Sakurajima and is found on grassy upland plateaus on Mt. Takatoge, Mt. Kirishima, and Mt. Aso. Along the Pacific coast of Honshu, Kaempfer's azalea occurs around the edges of pine forests and ascends to the tops of the mountains where it may be found among deutzias, hollies, and deciduous azaleas. In Hokkaido, it flourishes around the sulphur beds and in the volcanic soils of Mt. Esan and in the cutover fields around Lake Shikotsu. Traveling from south to north, it was possible to see this azalea in bloom from April 20 to July 18 and collections were made at 24 distinct localities representing a wide variation in habitat.

Camellia japonica is a maritime plant and even in an island environment like Japan occurs extensively in only the coastal forests. Despite this general limitation, there is still leeway for future improvement of the Japanese camellia in relation to plant hardiness, for the garden varieties we grow are derived from parents from only a limited portion of the natural distribution of C. japonica.

The northern biotypes of C. japonica and also individuals growing at High elevations should be evaluated for hardiness. Camellia japonica grows along both coasts of the island of Honshu. On the Japan Sea side, it reaches Cape Kogane (40°40'N) with an additional isolated colony at Kominato (40°55'N). These are localities with considerable snow in winter. Along the Pacific coast, C. japonica

occurs as far north as Raga (39°55'N), but this region is characterized by bright, sunny winters and is influenced by the cold Oyashio current which flows down from the Kuriles to the 38th parallel bringing cold winds from the Pacific Ocean. In these northern areas, C. japonica flowers as late as mid-May. Until the current series of USDA-Longwood explorations were undertaken, none of the camellias from these localities had been introduced into cultivation. As a result of our efforts, more than 33 collections of cuttings and seeds have now been established in the United States.

A final observation on the woody plants of Japan concerns the general northward distribution of broadleaved evergreen species into environments seemingly beyond their scope of adaptation. Certain plants occur in Hokkaido and northern Honshu and survive only because they grow as decumbent plants covered by snow during most of the winter. The most striking of these are the dwarf or decumbent forms, such as:

Aucuba japonica var. borealis Miyabe
Daphniphyllum humile Maxim.
Ilex crenata var. radicans Tatewaki
Skimmia japonica var. repens Makino

Whether these varieties will maintain their habit under conditions of little or no winter snowfall can only be determined after we have observed them in less severe climates. Essentially, this will determine if these taxonomic entities are true genetic segregates or merely responses to local environmental conditions.

Literature Cited

1. Wilson, E. H. and A. Rehder. A Monograph of Azalea. Cambridge. 1921.

MODERATOR MARCH: The next topic is "Horticultural Paintings" by Mr. James S. Wells of Red Bank, New Jersey.

HORTICULTURAL PAINTINGS

James S. Wells
Red Bank, New Jersey

I don't know how far from propagation this association is going to allow its members to wander, but I think this is pretty far, and I hasten to add that I am not responsible for the paintings. I wish I were. The man who does them I had hoped would be here to explain the method by which he does the paintings.

The story very briefly is this: I go every summer to a little island off the coast of Maine for a holiday, called Monhegan Island. This last summer I met the man who does these paintings. He is a Dutchman with the unique name of Tecco Slagboom, a most charming and unassuming man, who lives for the most part of the year on the island