the Old World. Among them are some that are unusually interesting in that they perhaps throw some light on the problem of the origin of fall blooming in witch-hazel. On the Agricultural Grounds in Washington there is a specimen of *Cornus Mas* with a peculiar blooming habit. Every fall this tree blooms more or less abundantly and in many cases sets good fruit. An interesting feature is that not all the buds in an umbel covered by the same set of bud scales will necessarily develop into fall flowers. Many umbels hold some of the buds until spring, so that we have fall fruit and spring flowers existing in the same umbel (fig. 1). Apparently the tree is in a satisfactory transsition condition between spring and fall blooming from which the development of a fall blooming form could be easily accomplished by gradual changes in future generations. This perhaps sheds some light on the development of the fall flowering of witch-hazel without the necessity of a sudden mutation or without the necessity of moving its blooming period gradually through the winter months.

BOTANY.—*Tribroma, a new genus of tropical trees related to Theobroma.* O. F. Cook, Bureau of Plant Industry.

In connection with a study of the branching habits of *Theobroma cacao*, attention has been given to a related tree known in Guatemala as patashte, which affords a still more striking example of the phenomenon of dimorphism of branches.[1] The patashte tree has been placed with the cacao hitherto as another species of Theobroma, under the name *Theobroma bicolor*, but after a somewhat detailed comparison of the two trees in eastern Guatemala in 1907 it did not appear reasonable to assign them to the same genus. This opinion was strengthened during another visit to Guatemala in the spring of 1914, and it is now proposed to treat the patashte tree as the type of a new genus. The distinctive characters are stated in the following description:

[1] Cook, O. F., Dimorphic Branches of Tropical Plants: Cotton, Coffee, Cacao, the Central American Rubber Tree, and the Banana. U. S. Department of Agriculture, Bureau of Plant Industry, Bulletin 198. Pp. 39. 1911.

Tribroma Cook, gen. nov.

Slender, erect trees, with strong upright shoots, each ending in a whorled cluster of 3 lateral branches; leaves of upright shoots with long petioles and broadly ovate-cordate blades, palmately veined, naked above, clothed underneath with a very fine dense appressed stellate pubescence, like the surfaces of the branches and petioles; leaves of lateral branches broadly ovate-oblong, subsessile, the petioles very short, representing only the confluent pulvini; inflorescences with pseudodichotomous branching, with bracts at the articulations, forming a broad, loose panicle or dichasium, produced near the ends of the lateral branches, above the axillary buds of the young leaves, entirely confined to the new growth; flowers small, inconspicuous, dark-colored, dull reddish purple, the petals minute and the sepals only partly opened; sepals broadly triangular, inflexed; petals much shorter than the sepals, the basal hood with a single median rib, the limb rudimentary, represented by a minute oval, reflexed, nearly sessile appendage; staminodes robust, clavate, clothed above with short pubescence, naked below; ovary 5-angled, finely pubescent like the pedicels, sepals, petals and staminodes, but none of the pubescence glandular; fruits ellipsoid, with a very hard woody shell, the surface broken by deep irregular lacunae.

Type, **Tribroma bicolor** (*Theobroma bicolor* Humb. & Bonpl., Pl. Equinox. **1**: 94, *pls. 30a, 30b.*).

The generic name Tribroma alludes to the fact that the lateral branches are always produced in whorls of three. In Bernouilli's monograph of Theobroma the name Rhytidocarpus was used for the section that included *T. bicolor;* but to advance this name to generic rank seems inadvisable, in view of the previous applications of closely similar names, such as Rhytidocarpaea and Rhyticarpus, in other groups of plants.

The patashte tree is probably of South American origin, though the original habitat has not been determined. In Central America it is widely but rather sparingly cultivated by the Indians. The seeds are used for the same purpose as those of the cacao tree, though generally considered inferior in quality. The comparison of cacao and patashte was made at a locality called Cacao or Secacao, on the Trece Aguas Estate of Don Ricardo Fickert-Forst, in the Senahú District of the Department of Alta Verapaz, eastern Guatemala. Specimens collected at Cacao in May, 1914, are in the U. S. National Herbarium, the sheets bearing numbers 862202–5.

The contrasting characters of the genus Theobroma, as represented by its type species, *T. cacao*, may be stated as follows:

Low, shade-tolerant trees of tropical undergrowth, the lateral branches formed in terminal clusters of 5, rarely 4 or 6; leaves elliptic-obovate, narrowed toward the base, pinnately veined, naked on both surfaces, the petioles and young shoots hirsute with stiff erect bristles; leaves of lateral branches of the same form as those of the upright shoots, the petioles somewhat shorter, but the pulvini distinct at each end; inflorescences reduced to minute fleshy twigs, only the terminal joints distinct and these shorter than the pedicels of the flowers, produced from adventitious buds on old wood of the main trunk or the larger branches, long after the leaves; flowers larger than in Tribroma, the sepals and petals both conspicuous, light colored, widely expanded; sepals narrow, tapering and reflexed; petals longer than the sepals, strongly curved or folded in the bud, the basal hood with two strong parallel ribs, the limb longer than the hood and with a slender base folded down around the end of the hood; staminodes slender, naked and tapering above, laterally compressed below, with bands of long hairs on the lateral faces; ovary rounded, covered with glandular pubescence like the sepals and the pedicel; fruits obovate or fusiform, with a thick fleshy rind, longitudinally ridged and furrowed, the surface smooth or tuberculate.

A more detailed account of the differences between the two trees, with special reference to their habits of branching and their floral biology, illustrated by photographs, is being offered for publication in the Contributions from the United States National Herbarium.