

## New Garden Plants.

POLYSTICHUM TRIPTERUM, *Presl, Epim. Bot.* 55.  
 ASPIDIUM TRIPTERON, *Kunze, Bot. Zeit.* vi. 569; *Meltenius, Aspid.* 51; *Hooker, Second Century of Ferns*, t. 57 (not 56); *Id. Sp. Fil.* iv. 15; *Hooker and Baker, Syn. Fil.* 254; *Franchet et Savatier, Enum. Plant. Japon.* ii. 254. ASPIDIUM TRIPTERIS, *Eaton, in Gray's Pl. Japon.* 330.

Fronds subcoriaceous, triangular-ovate or hastate-lanceolate, ternately pinnate; pinnæ pinnate, the lateral ones shortly stalked, sub-opposite, curved upwards, obliquely oblong acuminate, the terminal one twice as long or more, lanceolate acuminate; pinnules sessile spreading approximate, entire and cuneate at the base, acutely auricled above, thus trapezio-oblong-lanceolate subfalcate attenuate at the point, inciso-serrate or deeply toothed, the teeth mucronate; veins pinnate or forked, the venules free; sori forming a line on each side about midway between the costa and margin; indusium membranous, peltate, repand; caudex short, erect; stipes slender, rather long, stramineous, clothed towards the base with large ovate dark brown scales.—Hab. Japan: Nippon, Yohoska, Hacone, Yeso; island of Tsus-Sima; and Northern China.

This most distinct and well-marked Fern is noted by Sir W. J. Hooker as "one of great elegance," and not likely to be confounded with any other. It is found in rocky places on the shady hills of Japan, and has been imported from that country by Messrs. Veitch & Sons, of Chelsea, who have already received the award of a First-class Certificate for its production at the meeting of the Royal Horticultural Society in March last; and of a corresponding Certificate from the Royal Botanic Society in April.

The caudex of this novel and elegant Fern is short, stoutish, and erect, clothed with dark brown ovate scales, the base of the slender stipes being also scaly below, and, as well as the rachides, of a pale brownish colour. The fronds are from 1 foot to 1½ foot long, with a lanceolate terminal portion, and two shorter lateral branches standing right and left at the base; it may, therefore, be said to consist of three branches, which give a hastate outline to the frond, described by Presl as ternately-bipinnate. The lower branches (or pinnæ) are nearly opposite, 4 to 6 inches long, shortly stalked, acuminate, and pinnate, the pinnules being subsessile, falcate, acuminate, auriculate, and inciso-lobate or strongly toothed, those on the posterior side being considerably larger than those on the anterior. The longer central branch or pinnæ consists of numerous closely-set dimidiately-oblong falcate, attenuated, auriculate subsessile pinnæ, 2 inches in length at the widest part, the basal ones shorter, and the terminal ones confluent into an attenuated inciso-serrate apex. The base of the pinnules (pinnæ of the branches) is entire and wedge-shaped, the attachment being, as it were, by the thin apex of the wedge. The margins, especially on the anterior side, are deeply incised towards the base, with sharply-toothed lobes, which become smaller near the apex, and the teeth are everywhere mucronate or bristle-pointed. The veins running into the basal lobes are pinnate, with forked venules, those of the smaller lobes once or twice forked, with the veinlets free. The sori form a line on each side the costa, and indications of a second line are seen across the auricle and a few of the larger basal lobes; they appear to be small, and to be covered by a somewhat fragile peltate orbicular indusium.

As a garden Fern this plant must become a favourite from its refined habit and evergreen character. As a native of Japan it may be expected to be hardy, at least in all favourable situations. We understand it has stood uninjured beside our native *Polystichums* in Messrs. Veitch's glass-covered hardy fernery. *T. Moore.*

## THE COMPASS PLANT.

[We take the following interesting notice of *Silphium laciniatum* (the Compass Plant of the Prairies) from the last number of the *Botanical Magazine*, in which this fine hardy composite is figured:—]

This noble plant was introduced into Europe in 1781 by M. Thouin, and flowered for the first time in the Botanic Garden of Upsala, in Sweden. It has been in cultivation in Europe ever since, though its name and fame as the Compass Plant of the Prairies are of comparatively modern date, it having before that borne the popular names of Turpentine Plant and Rosin-weed, except amongst the hunters and settlers in the Western States. With regard to the history of its reputed properties as an indicator of the meridian by the position of its leaves, I am fortunate in having recourse to my friend Professor Asa Gray, now in England, who has most kindly furnished me with the following very interesting account of this matter:—

"The first announcement of the tendency of the

leaves of the Compass Plant to direct their edges to the north and south was made by General (then Lieutenant) Alvord, of the U.S. Army, in the year 1842, and again in 1844, in communications to the American Association for the Advancement of Science. But the fact appears to have long been familiar to the hunters who traversed the prairies in which this plant abounds. The account was somewhat discredited at the time, by the observation that the plants cultivated in the Botanic Garden at Cambridge, U.S., did not distinctly exhibit this tendency. But repeated observation upon the prairies, with measurements by the compass of the directions assumed by hundreds of leaves, especially of the radical ones, have shown that, as to prevalent position, the popular belief has a certain foundation in fact. The lines in *Evangeline*\* were inspired by a personal communication made by General Alvord to the poet Longfellow.

"Since the leaves tend to assume a position in which the two faces are about equally illuminated by the sun, it might be suspected that their anatomical structure was conformed to this position. This has been confirmed, first by Mr. Edward Burgess, who, when a pupil of mine, observed that the stomata were about equally abundant on the two faces of the leaf; and next by Mr. Arthur, of Iowa, who has recently published in Prof. Bersey's *Introduction to Botany*, a figure of a section of a leaf, showing that the arrangement of the 'palisade cells' of the upper and lower strata is nearly the same. The leaves always maintain a vertical position, except when overborne by their weight. As to their orientation, not only is this rather vague in the cultivated plant, but subject to one singular anomaly, which may be commended to Mr. Darwin's attention. I have several times met with a leaf abruptly and permanently twisted to a right angle in the middle; so that, while the lobes of the basal half pointed say east and west, those of the apical half pointed north and south."

To the above I have little to add. I have not been able to detect any orientation of the leaves in the Kew cultivated specimens, but these not being planted in a good exposure all round, are out of court as witnesses. On the other hand, when traversing the prairies with Dr. Gray in 1877, I watched the position of the leaves of many hundred plants from the window of the railway car, and after some time persuaded myself that the younger, more erect leaves especially, had their faces parallel approximately to the meridian line. I may mention that I, on the same occasion, convinced myself that the flower-heads of various of the great Helianthoid Compositæ that grew in hosts on the prairie did follow the sun's motion in the heavens to a very appreciable degree—their morning and evening positions being reversed. This observation did not, however, extend to the Compass Plant, the rigid stout peduncles of whose flower-heads would not be expected to favour such a motion. *J. D. Hooker.*

## THE KEW ARBORETUM.

### THE MAPLES.—III.

A. TEGMENTOSUM, *Maxim., Bull. de l'Acad. de Petersb.*, xv. 125, 1859; *Flora Amurensis*, p. 66; Koch, *Dendrologie*, theil i., p. 520.—Native of the Amoor River.

This distinct and very desirable Maple (fig. 13) I have not yet seen in this country, but it is grown by M. Lavallée and others on the Continent, and before long will doubtless find its way to our gardens. As it comes from a district which has furnished us with so many perfectly hardy plants, there can be no reason to doubt the hardiness of the species now mentioned. It is a small tree, with cordate, generally 3-lobed, irregularly, acutely and doubly serrated, quite glabrous leaves, about 3 inches long by 2½ inches broad; sometimes, however, the lateral lobes are almost suppressed, and the leaves attain a length of 4 inches, and measure only half that much across. A singular charm is imparted to the foliage by the network of red veins on the under surface. It is

\* Though, no doubt, familiar to many of my readers, these lines will bear repetition here:—

"Look at this delicate plant that lifts its head from the meadow,

See how its leaves are turned north, as true as the magnet;  
 This is the Compass Flower, that the finger of God has planted

Here in the houseless wild, to direct the traveller's journey  
 Over the sea-like, pathless, limitless waste of the desert.  
 Such in the soul of man is faith."

I cannot congratulate the poet on the fidelity of the description of the plant as a "delicate" one.

recognised instantly from *A. Ginnala* and *A. tataricum* by its prominent stalked buds. The flowers, which open in May, are borne in pendulous racemes; the samaræ have horizontally spreading wings.

ACÉR TATARICUM, *L.*; Loudon, *Encyclop. of Trees and Shrubs*, p. 80, fig. 123; Koch, *Dendrologie*, theil i., p. 518; Watson, *Dendrologia Britannica*, tab. 160. *A. cordifolium*, Hort.; *A. tataricum rubrum*, Hort.—Native of Central and Southern Russia, the Caucasus, Austria, European Turkey, Japan, &c.

A small tree, from 15 to 30 feet high. Introduced in 1759. The doubly serrate leaves of this species vary considerably in size and form; in young or vigorous trees they are as much as 4 inches long by 3 inches broad (the petioles being about 2 inches long), and are very decidedly 3-lobed. Usually, however, they are more or less heart-shaped, acuminate; in colour they are dark shining green above, paler beneath. The small pale greenish-yellow flowers are borne in short erect racemes; the red samaræ are very attractive in September and October, and the abundance in which they are generally produced renders the trees or bushes very conspicuous. In spring this is one of the first of the Maples to expand its leaves, and on that account alone is valuable for ornamental purposes. In autumn the leaves change to yellow and brown tints. The colour of the young wood is a reddish-brown.

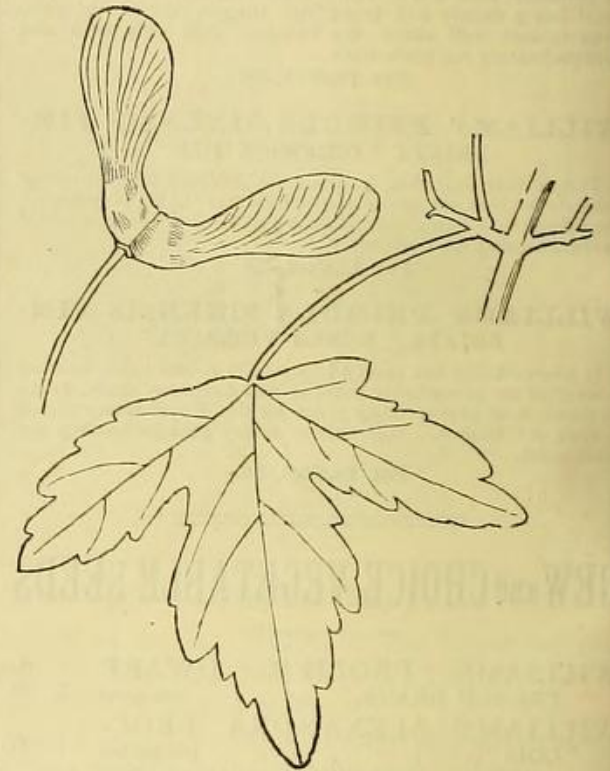


FIG. 12.—ACER SEMENOWII.

Var. AIDZUENSIS, *Franchet*, in *Bulletin de la Société Botanique de France*, tome xxvi., p. 84.—A native of woods in the subalpine tracts of Aizu, Nippon.

I have not yet seen this variety in cultivation. It differs from *A. tataricum* in its thinner more membranaceous leaves, which turn black in drying, and by its samaræ with parallel wings which overlap on their inner edges. In *A. Ginnala* the wings are more or less divaricate, and the fruits are considerably less.

Var. SEMENOWII, *Regel et Herder*, *Enumer. Plant. in region Cis et Transil. a cl. Semenevio*, anno 1857 collect, p. 24, tab. xii.—A native of the valleys of Alatau in Russian Turkestan, at elevations of from 3000 to 4000 feet.

A slender, graceful bush, with reddish twigs and petioles, and leaves (fig. 12), somewhat like those of *A. Ginnala*, but smaller, glabrous, shining green above, somewhat lighter below.

Var. GINNALA; *A. Ginnala*, *Maxim., Bull. de l'Acad. de Petersb.* xv., p. 126; Koch, *Dendrologie*, theil i., p. 519; *A. tataricum*, *L.*, var. *laciniata*.—Native of the Amoor River.

In this form the leaves are prettily cut and lobed, the leafstalks and midrib are red and the slender twigs are more deeply coloured than those of the type; taken altogether the plant is more graceful in habit than *A. tataricum*. In autumn the decaying foliage assumes a splendid glowing ruby-red colour. It was introduced to cultivation by the Russian traveller and botanist, Maximowicz. *G. Nicholson.*