NOTES ECONOMIC AND TAXONOMIC ON THE SAW BRIER, SMILAX GLAUCA.

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(Plate 4.)

In a recent trip through some of the southern counties of the State my attention was arrested by the enormous quantity of Smilax glauca—Glaucous-leaf Brier as given by Britton in the Illustrated Flora—but generally and appropriately called in these regions where so abundant, the Saw Brier. In the sandy soil of Hocking County, thence southward to the Ohio River this plant may be seen growing in field and pasture, by roadside and on hillside, and everywhere except in wet soils and dense woods. It climbs over fences and high bushes, displaying its bright foliage of lively green, more effective by contrast with the abundant white bloom on the under side. In the Autumn it presents showy wreaths of black but glaucous-coated berries and the most gorgeous coloration of foliage. The leaves remain for the most part late in Fall and Winter, and for brilliant and delicate shades of rose and red are not surpassed by any plant of our entire flora. The forbidding aspect of the long, wiry stems, with their bristly covering of long, saw-like or needle-shaped prickles, serves also to distinguish this plant even among the attractive associates of its kingdom.

A BAD WEED.—As a weed this species here stands at the head of the list. Its horrid prickles make it one of the most disagreeable plants with which to come in contact. It revels in the pastures and clambers over the fences; it flourishes in the meadows and fields, and no ordinary practice of crop-cultivation interferes with its

luxuriance. One can readily see that it is not carelessness on the part of the farmer that suffers half or still larger portions of his fields to be covered with this pestiferous vine. No other weed is seen in the area and therefore he has been diligent and careful in his tillage. The meadows even if twice or thrice mowed in a season will yet contain year to year the same quantity of Saw Brier. The stems spring up quickly, and grow "a foot in a night" the people say; surely the Saw Brier is the freshest plant in the field. In a case specially noticed a garden spot had been put in cultivation in 1873, and has been continually and thoroughly cultivated every year since, yet the Saw Brier is there to-day.

THE UNDERGROUND PARTS.—This tenacity of life and luxuriance of growth can be understood when the underground parts are examined. There are numerous irregular and often large tubers or enlargements which serve as the capacious storehouse of nourishment. They are often of fantastic shape. Various forms are shown in figure 1, plate 4. These occur at irregular intervals on the long and tortuous subterranean stems. It is said that they may be found several feet below the surface, though the eight specimens shown on the plate were found at a depth of six to twelve inches. If they all could be removed from the soil the weed would of course be practically annihilated. But when found at a depth of several feet—as seen sometimes in making excavations for foundations, walls, etc.—it is evident that the farmer will have to make extraordinary and long-continued efforts to destroy this pest. The less courageous may well be appalled in contemplating the herculean task. Fortunately swine are fond of the nutritious tubers, and voraciously devour them when they are given the freedom of the field and allowed to indulge in their natural propensities. Heavy coating of manure and winter plowing are also indicated.

VARIATIONS IN THE LEAVES.—This form is easily recognized among the several species of Smilax indigenous to Ohio, though the leaves vary in size and shape to a remarkable degree. A large number of the common forms are shown in figure 2, plate 4. They are sometimes very broadly cordate-oval, wider than long; often ovate-cordate, oval or ovate, lance-oval, oblong to oblong-ovate, broadly to narrowly lanceolate and even linear; they are mostly cuspidate at the apex, in some cases tapering to acute or sub-acuminate. The base is mostly cordate and subcordate, but occasionally tapering. It is seldom that forms approaching halberd-shape occur in our region. An inspection of plate 4 will illustrate these several forms. The twig with fruit marked 6, bears a very common form of the leaf as does also the one marked 1. The broad-leaf form is not uncommon, but the very broad-leaf as seen in specimens marked 3 and 5 is of much less frequent occurrence. The very narrow leaves are as a rule borne on short stems—such as have developed in fields and

meadows where the earlier stems have been destroyed or disturbed. But often on such stems (marked 1) the leaves are broad and have the natural shape.

SIZE OF LEAVES.—The size of the leaves is strikingly variable. The specimens shown on plate 4 being reproduced from photographs exhibit correctly this variability. Careful measurements also were made of leaves taken at random from hundreds selected to illustrate this point. These since they give both the length and width of the leaf demonstrate the shape as well as the size. The measurements are in decimeters and one hundred of them are as follows:

12x11.5	12.5x9.5	8.5x6	9x2	9.5x3.8	7.8x2.2
11x10.5	12x9.5	7.5x5.5	9x3.5	8x4	7.3x2.8
12x11	12x11	8.6x5.4	8x1.5	7x2.8	6x1.7
13x10.6	11x11.8	8x6	6x0.7	8x3.8	5.3x1.6
11x12	12.2x9.8	9x6	8x1.5	4.5x1	8x3.4
12.5x11.2	11.5x10	8.5x6	7x1.8	7x2.2	7.5x2.5
12.2x10	13.5x10.5	8.5x5.8	6.8x2	7x3.2	6x2.5
12x11	11.5x9.6	9.8x6.4	7.5x2.2	6.2x2.5	6x2.8
11x11	8x5.5	9x7.3	5.5x2.5	8.2x2.8	6x2.6
11.5x11.1	9x6	8.3x5.8	7.6x2.2	6.5x2.2	7x2.8
11x10.8	9.2x6.5	9x6.5	7.8x2	5.5x2.9	8.4x3
12x11.5	8x5.5	9.9x7.6	6.5x2	7.3x2.7	9.8x3.5
12x10.6	9x7	8.2x4.6	7x0.8	8x1.8	10x3.5
13x11	8.5x7.5	8.5x6	8.4x0.7	9.5x1.9	9.6x3.8
12x11	7.5x4.5	8.8x6	8x1.4	9.5x2.2	7.5x1.7
11.5x10.8	8.5x6.2	9.5x7	8.5x2	8.4x2.2	9.4x2.5
12x11.3	9x7	11.1x2.2	9x3.5	8x2.5	

DESCRIPTION OF THE LEAF.—Neither the description as given originally (1787) by Walter nor those contained in our Manuals give any intimation of such variability as actually occurs. Some of them are as follows: Walter says "foliis oblongo-cordatis"; Wood, "ovate, finally nearly orbicular, abruptly contracted at one end"; Gray, "ovate, rarely subcordate, abruptly mucronate"; Britton, "ovate, acute or cuspidate at the apex, sometimes cordate at the base." I would suggest the following as applicable to the Ohio specimens: Leaves *mostly ovate, often broadly oval (occasionally broader than long), sometimes oblong-ovate, varying to lanceolate or even linear; the base mostly sub-cordate but often cordate or even cuneate; the apex cuspidate to acute or sub-acuminate.*

SMILAX SPINULOSA.—Britton and Brown in the illustrated Flora, 1: 440, appends to the description of Smilax glauca the following paragraph: "Smilax spinulosa J. E. Smith, is a form with numerous small prickles on the lower part of the stem, and more elongated, sometimes halberd-shaped leaves. It occurs in southern New York, but is not well understood." However Smilax spinulosa

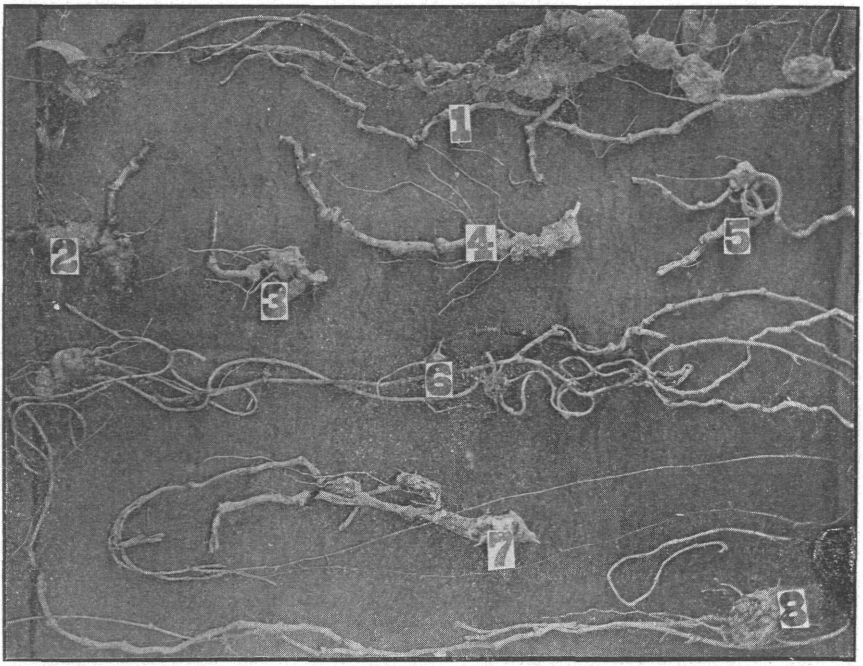

Fig. 1.

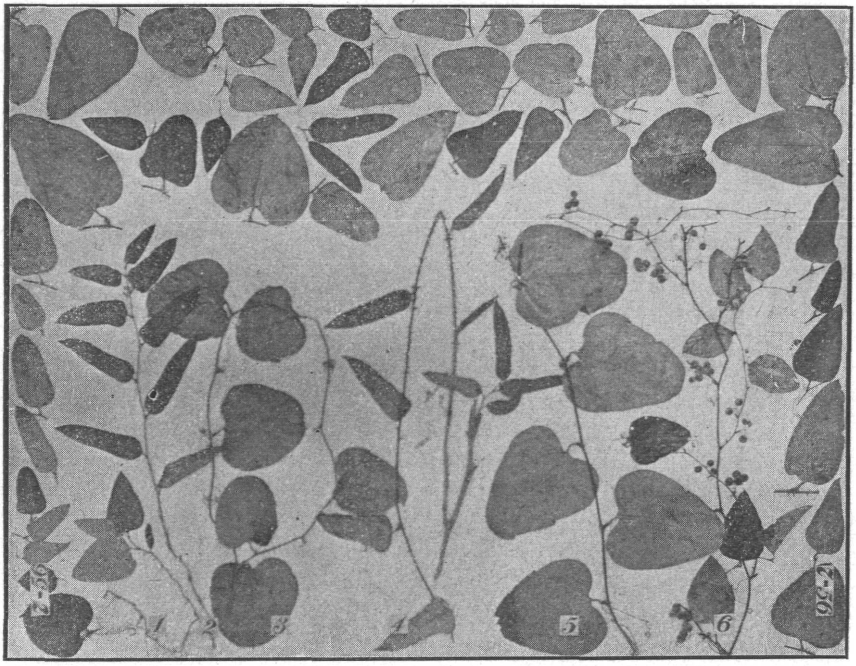

Fig. 2.

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is given by these authors as a synonym of Smilax glauca, which according to my judgment is correct.

SMILAX SPINULOSA AN EXTREME FORM OF S. GLAUCA.—The material secured recently fortunately clears up the case unless I misapprehend the purport of the above quotation. The "more elongated leaves" spoken of may find their counterpart in the figures on plate 4, and yet there can be no question that they belong to Smilax glauca. The twigs bearing them were in many cases found *attached to the same underground stems* that bore the broad leaves. Even at a glance the identity of the specimens in the field could not be mistaken; all their characters showed that they were really Smilax glauca. In herbarium specimens that have been preserved every gradation may be seen between the extremes shown in the plate. These specimens also show in some cases underground stems that bear both leaves and twigs with leaves of the broader form. As a rule in the cornfields where the soil is not rich and crop-cultivation has been diligent the narrower leaves (on shorter stems) are common. In richer cornfields, and in meadows, especially if quite fertile, the short stems are clothed with the broader leaves. Abundant evidence was at hand to demonstrate that this form with "more elongated leaves" (S.spinulosa) is directly connected with the form called S. glauca by the taxonomists. Its peculiarities are doubtless referable to the special environment; in no case could these apparently aberrant specimens be called a specific or even varietal form.

EXPLANATION OF PLATE 4.—Smilax glauca. Figure 1: Eight specimens of tubers reproduced from photographs and much reduced. Fig. 2. Twigs (1-6) bearing leaves of varying shapes also separate leaves (7-56) illustrating variation in shape and size.