

short peduncle usually with a few gland-bearing bristles, its calyx lobes erect or slightly spreading, at last deciduous, bristly glandular, the outer somewhat pinnatifid. Dry open woods and prairies.

*Ribes aureum*, Pursh. Limestone cliffs.

*Saxifraga Virginicensis*, Mx. The plant occurring in Atoka county is low (1-3 inches high), the capsule mostly 3-beaked, flowers clustered even in fruit. Wet prairies, common. The normal form occurs on Arkansas river.

*Sedum sparsiflorum*, Nutt. Sulphate flats, common. Annual.

*Gaura sinuata*, Nutt. Sulphate flats.

*Enothera rhombipetala*, Nutt. Arkansas river.

*Enothera speciosa*, Nutt. Rich prairies, whether limestone or not. Rather common.

*Enothera serrulata*, Nutt. Prairies, rare.

*Enothera linifolia*, Nutt. Sulphate flats.

*Mentzelia oligosperma*, Nutt. Limestone cliffs.

*Mammillaria Nuttallii*, Engelm. Dry hills in prairies.

*Melothria pendula*, L. Fort Smith.

*Daucus pusillus*. Sulphate flats and dry woods. Common.

*Treopocarpus Æthusa*, Nutt. Has the strong odor of carrot throughout. Fruit large. Thickets, not uncommon.

*Polytonia Nuttallii*, DC. Prairies, common.

*Pewceadannum foeniculaceum*, Nutt. Dry ridges. Mostly in limestone where it is common.

*Cynosciadum pinnatum*, DC. Leaves mostly lanceolate and nearly entire. Large specimens have some of the leaves pinnate. Pools, rather common.

*Apium (Amoselinum) Popei*, (Gray). Sulphate flats where it is 1-2 inches high, and thickets where it is 4-6 inches high, common. Umbels oppositifoliate.

*Apium (Leptocaulis) patens*, (Gray). Arkansas river.

*Apium (Leptocaulis) dtearicatus*, (Gray). Blue county.

*Charophyllum procumbens*, Lam. Very common.

*Osmorrhiza longistylis*, DC. Alluvial woods, rare.

*Symphoricarpus vulgaris*, Mx. Very common.

*Galium virgatum*, Nutt. Limestone bluffs, uncommon.

*Fedia radiata*, Mx. Very common.

*Fedia longiflora*, T. & G. Tube of the corolla rose-purple, the limb white; flowers larger than in any other of our Fedias. Limestone cliffs.

*Fedia Nuttallii*, T & G. Flowers also large, but narrower than in *F. longiflora*; bracts variable, entire or red ciliate. Readily distinguished from any other species by a curious spur like appendage on the side of the corolla tube. Springy places and sulphate flats.—[To be continued.]

FRESH WATER ALGÆ.—The question is often asked, Why are there so few who engage in the study of the Fresh Water Algæ? Is it devoid of interest? The Algæ are ranked as a higher order of plants than the Fungi and the Lichens, yet of these there are numerous students; if they find so much to interest, the Algæ ought to claim at least an equal share of attention. Specimens may be collected in almost all localities in common with other forms of Cryptogamic plants, and they are found at all seasons of the year. Early spring brings forth its varieties of livid green Higeocloniams and Mothrines which lived protected under the snow and ice during the vigorous cold of winter; and many varieties of Cacci, without protection maintain their perfect forms and colors; later, as the more genial sun reinvigorates the vegetable kingdom these small but perfect plants are developed everywhere in places supplied with sufficient mois-

are, with wonderful rapidity. The hot sun of June and July is no hindrance but accelerates the growth; now rivers, ponds and pools are made green with the abundance of many of the more common forms; the sultry weather of August and September is favorable to the development of other varieties on moist or shaded grounds, old wood, walls, trunks of trees, &c. There is no season until the earth is again covered with snow and the rivers are bound up with thick layers of ice, in which the collector is not richly rewarded in his researches. Specimens are easily preserved. When it can be done they ought to be examined when fresh, but dried and laid aside for years, they may be taken up and examined with profit. I was particularly struck with this fact, recently examining a collection made in part, some ten and fifteen years back. The specimens retained their generic and specific characters well.

Is variety, delicacy or beauty an object, they are not excelled by the Fungi or Lichens, nor by their nearer kin the larger marine plants, that attract so much attention from the lovers of the beautiful; true, they are generally very small; the eye needs assistance and generally a good compound microscope, but the admiration and the wonder excited is none the less. A single drop of carefully collected pond water will often be found to contain a score or more of smaller forms, all perfect in symmetry, beautifully shaded with chlorophyl, or variously tinted with orange-yellow, purple or golden red. So small and yet so perfect; the wonders of the Divine mind are no less evident here than in the greater works of His design.

But in studying the life history of these plants the mind is constantly fed with new enjoyments. I cannot forget the first time I observed the "birth of an *Edogonium*." I had under the microscope a number of filaments of a plant of this genus; I had been studying the form and character of the oogonias and now was taking the proportions of the length and breadth of the cells, when I saw two cells separating at the joint, and a sack-like form slightly protruding; it was something new to me; I kept my eye on it; it moved very slowly but perceptibly, gradually protruding more and more; soon it was quite out, distorted in form from the pressure it was subjected to in passing through so narrow a passage; in less than five minutes more it changed to a perfect sphere, a head became evident in a somewhat raised colorless point with two cilia on opposite sides of it, these begin to move, the vibration becomes more rapid and communicates motion to the new born thing, it oscillates, and off it darts. In less than fifteen minutes others come to life, and now there are four or five of these "zoospores" darting about in their narrow confines in the field of the microscope. We need not wonder that such men as Ehrenberg and others classified these living spores with the infusoria, they appear to possess volition, how they dart about, but always avoid each other, never collide; the period of their existence is short, in less than half an hour they come to rest, the animal goes back again to the vegetable, they change in form from spherical to oblong, then the heads or ciliated ends gradually put forth prong-like projections, these are the rootlets of a new plant which take hold of any suitable substance near by; the plants elongate by developing cell to cell until we see duplicates of the original mother plant.

The life history of these plants is full of interest and very important for classification, and a large field is here open for investigation.

Have you a desire to make a beginning, where shall you get specimens? Are there near by larger or smaller slow streams, or sheltered angles beside more rapid waters, these are sure to contain something, *Spirogyra*, *Cladophora*, *Microspora* or some other of the common things; or stagnant pools will furnish *Edogonium* of some variety, *Zygnema*, *Horniospora*, &c., or if you have a pond with *Utricularia*, or *Myriophyllum*, gather a quantity, take it hence and wash it by shaking it well in a bucket of clean water, let it settle, pour off the surface until you have a tolerably thick sediment, this will certainly contain some, perhaps very many varieties, of *Desmids*, beautiful

objects for examination under the microscope; or are there damp, or dripping rocks, gather some of the crusts, or gelatinous coatings, you will find in them Sirospira, Scytonema, perhaps Gloeocapsa, Palmella, or Nostocs and the like. We rarely find one plant alone, generally two or three forms intermingled. The field is so large, the variety so great, the forms so diversified, yet all so perfect in symmetry, the study cannot fail to impress the mind and often excite the utmost enthusiasm. The study has been much neglected, there is much to be worked up. Europe boast of upward of two thousand species. We should find no less; but hitherto we have only seven hundred species recorded. Much remains undone.—FRANCIS WOLLE, *Bethlehem, Pa.*

ERRATUM.—In my list of plants from the Indian Territory contained in the GAZETTE for June, pp. 49, 50, the following errors have been detected. The reader will please correct them:

*Delphinium occidentale.* This is *D. azureum*, Mx., a very canescent variety.

*Lepidium integrifolium*, should be read *L. intermedium*, Gray. The leaves are entire.

*Astragalus recticarpus.* This plant is a form of *Indigofera leptosepala*, Nutt. with very narrow leaflets.

*Elymus Canadensis*, var. *minimus* is *Hordeum pusillum*, Nutt.

*Spiranthes Romanzoviana.* This plant is now thought to be an undescribed species. More time and material are wanted for its recognition.—A. WOOD.

POLYTRICHUM TENUE MENZIES, LINDB.—*P. Pennsylvanicum*, HEDW.—*Pogonatum brevicaule* BRID.; SULLIV. ICONES.

POLYTRICHUM BRACHYPHYLLUM, MICHX.—*Pogonatum brachyphyllum*, BEAUV.; SULLIV. ICONES.

Probably the male plants of both these species always occur, in their season, in the same localities where the female plants abound. In *P. tenue* the male plants are often mixed, yet they evidently are not developed in the same *nidus*. The male plants are very numerous and conspicuous, apparently acaulescent, but projecting a kind of stem, which is clothed with the confervoid filaments, into the earth, simple or branched. Leaves dark brown or brownish red, numerous and crowded into globular or rosulate heads, spatulate or flabelliform, mucronately acuminate, strongly costate, subdentate or crenate, often subundulate. Antheridia very numerous, paraphysate. (Vide *Musc. Appalach.*, No. 233.) The male plants mature in July and August; the female in September and October. In *P. brachyphyllum* the male and female plants grow together (always?) and apparently are developed in the same *nidus*. The male plants are extremely minute, being invisible to the naked eye, and only visible by the aid of a good lens as mere reddish specks on the surface of the more highly developed prothallus. They are ovate, acaulescent, cradiclese (not being immediately attached to the ground). Leaves few (about 5), red or reddish brown, lax, ecostate, entire obtuse or obtusish, the outer ones roundish, the inner ones (often narrowly) spatulate. Antheridia few (about 4), short and thick (oblong-cylindrical), eparaphysate. The male plants mature in early spring (in the Southern States) the female in late autumn (in New Jersey).—C. F. AUSTIN.

DARLINGTONIA CALIFORNICA, TORR.—In September, 1874, while observing the habits of *Darlingtonia*, I found a great many small white larvæ in the liquid and insect mass at the bottom of the tubes. They were found in all the tubes, even those of the seedling leaves contained from one to three, while in the larger leaves they numbered hundreds. I tried, in vain, to find out what insect produced the larvæ and to note any change in them. They are always present winter and summer, and even active even when the thermometer marks zero. They make their appearance in the young leaves