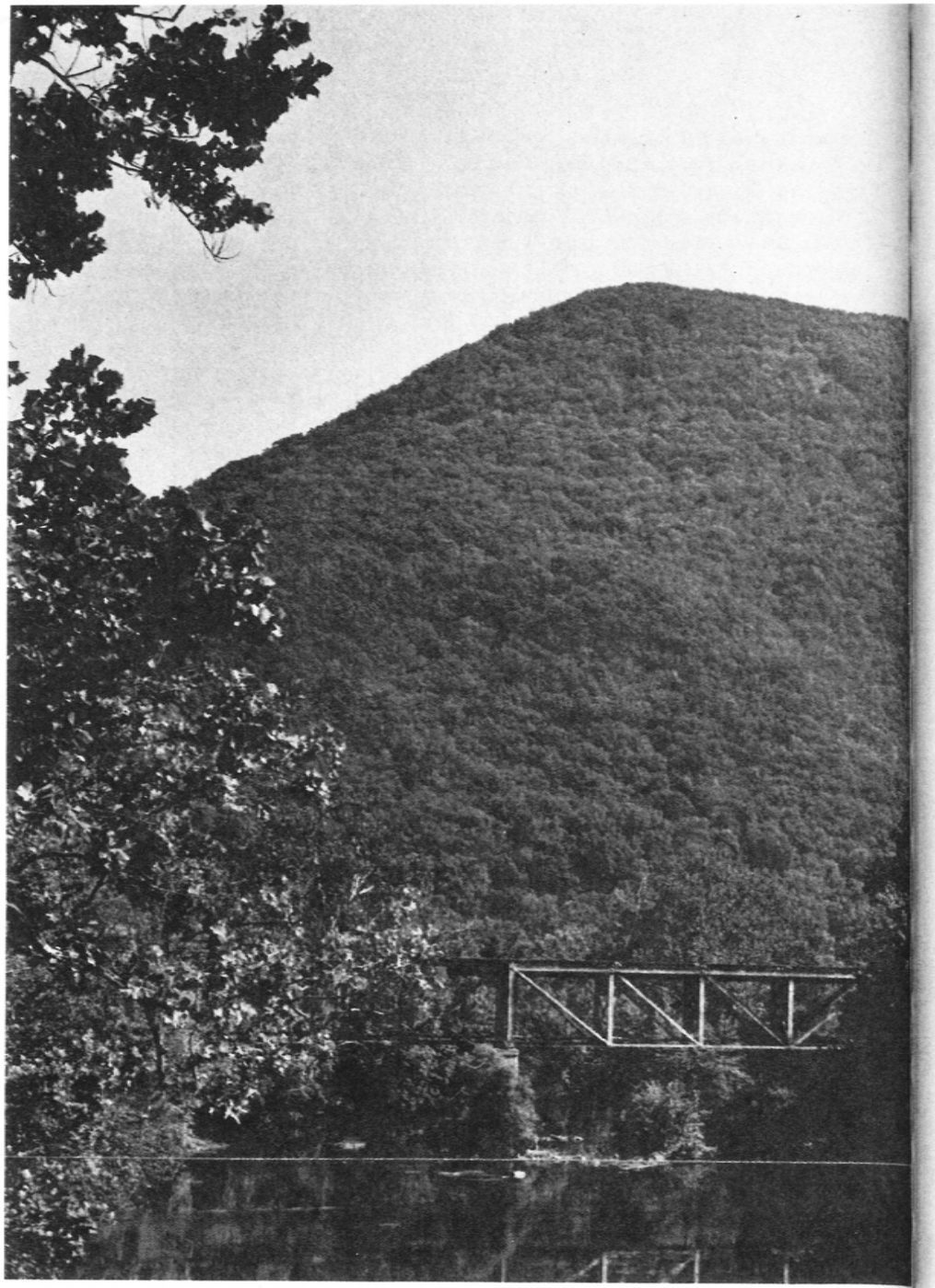


Massanutten Mountain and the stream which flows along its base. (L. A. Durnier, Front Royal, Va.)

Plant Life in the Shenandoah Valley

Lena Artz

The Shenandoah Valley of Virginia extends 150 miles between the Blue Ridge Mountains on the east and the Allegheny Mountains on the west. Because of the diversity of plant habitats in this Appalachian region, the Valley has a rich and varied flora. John Bartram, the famed pioneer botanist, loved this Valley and gave affectionate names to it, such as "my great vale." Here he collected many choice plants, including the beautiful fringe tree, trillium and marsh marigold. In early spring, this marigold's golden blossoms cover stream banks and marshes, which later are adorned with wild cyclamen, or shooting stars.

The Massanutten Mountain system divides the Valley for almost a third of its distance, with meandering tributaries of the beautiful Shenandoah River flowing along its base, one on the east, the other on the west. This mountain system, a part of the Alleghenies, consists of numerous parallel quartzite ridges, cut transversely here and there by streams and ending in steep-walled gorges. Cool bogs fed by springs lie in some of the narrow valleys. The higher mountain tops, the gorges and bogs provide suitable habitats for northern species of plants. Soils here are mainly acid in composition. The Valley floor, consisting chiefly of limestone, has many species that thrive on calcareous soils. On some mountain slopes and on some cliffs along streams occur shale barrens with their rare and unusual plants.

Other collectors of the Valley's flora included the famed botanist Frederick Pursh and Francis Welles Hunnewell, an owner of *Belle Grove*. Hunnewell gave his valuable collection of the Valley plants to the Virginia Polytechnic Institute. Some of the plants in this collection are *Ophioglossum engelmanii,* an adder's tongue fern chiefly southern and western in distribution; *Woodsia ilvensis,* a fern northern in range; and *Pachistima canbyi,* a little rare evergreen shrub of limited range, found in the Valley on three limestone cliffs along Cedar Creek and on one shale cliff along the north fork of the Shenandoah River.

Among the most interesting plant habitats are the cool mountain

Miss Artz, who has taught for over 30 years in the Virginia Public Schools, is the author of numerous articles, including Plants of the Shale Banks of the Massanutten Mountains in Virginia *and* Wild Beverage Plants. *A member of Phi Episolm Phi, National Botanical Fraternity, Miss Artz is listed in* Who's Who in American Education *and in* Leaders of American Science.

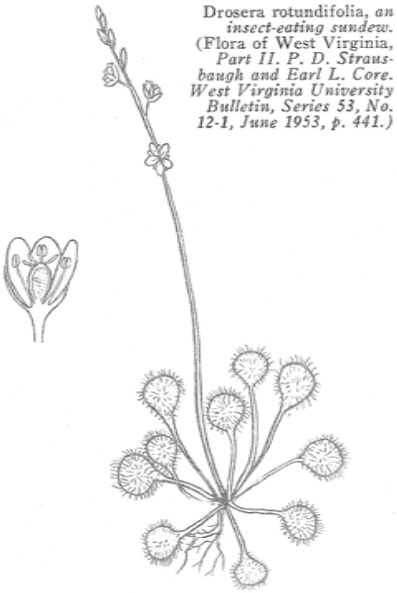
streams and their accompanying bogs. Unique among the bogs is a small muskeg. In addition to its covering of sphagnum and other mosses are *Drosera rotundifolia,* one of the insect-eating sundews, *Eriophorum virginicum,* "cotton grass," and *Calopogon pulchellis,* an orchid. In the boggy area surrounding this quaking bog are several other species of orchids, among them is the Queen lady's slipper, said to be the most beautiful of our native North American orchids. Its only known locations in Virginia are in Massanutten Mountain. Other species of orchids are four *Habenarias:* little club orchid, and three fringed ones—little purple, yellow and ragged fringed. Others are two twayblades, *Liparis lilifolia* and *L. loeselii,* and the very fragrant and showy *Orchis spectabilis.* Nearby are pink lady's slipper, whorled pogonia, and ladies' tresses.

In addition to many species of ferns, other bog-loving plants in the Massanutten area of the Valley are golden saxifrage, *Viola conspersa,* the dog violet, and *Parnassia asarifolia,* "Grass of Parnassus." The latter was one of many native plants taken from America to Europe to be planted in the royal gardens of France. Two northern trees which are found here include *arbor vitae* or "flat cedar," which grows on calcareous cliffs along Cedar Creek and similar stream banks; and *Fraxinus nigra,* black ash, known in Virginia from only two Massanutten bogs.

Most of the many species of native oaks prefer acid soil. However, *Quercus muehlenbergii,* the sweet oak, likes limestone and is found down in the Valley. Of the many beautiful specimens of this oak, one fine example may be seen in front of the historic church at Marlboro, Frederick County. The small dark acorns of this tree are sweet and edible. Another lime-loving tree, conspicuous throughout the Valley, is the juniper, known as "red cedar."

There are many species of native ferns, among them cinnamon, royal, sensitive, and walking fern. Christmas fern is an evergreen common in many woodlands. Purple cliff brake, also evergreen, thrives on limestone cliffs. Three of the daintiest ferns are maidenhair, wall rue, and maidenhair spleenwort. The two latter are frequent on limestone cliffs. Ebony spleenwort, resembling rick-rack braid, is common along old fence rows and roadsides. Wooly lip fern, characteristic of shale cliffs, appears dead in dry weather but clothes the cliffs in beauty on damp days. A fern, southern in range and rare in this area, is gray polypody or resurrection fern. It, too, appears dead in dry weather, but in wet weather the otherwise drab-looking cliffs on which it grows are bright with green drapery.

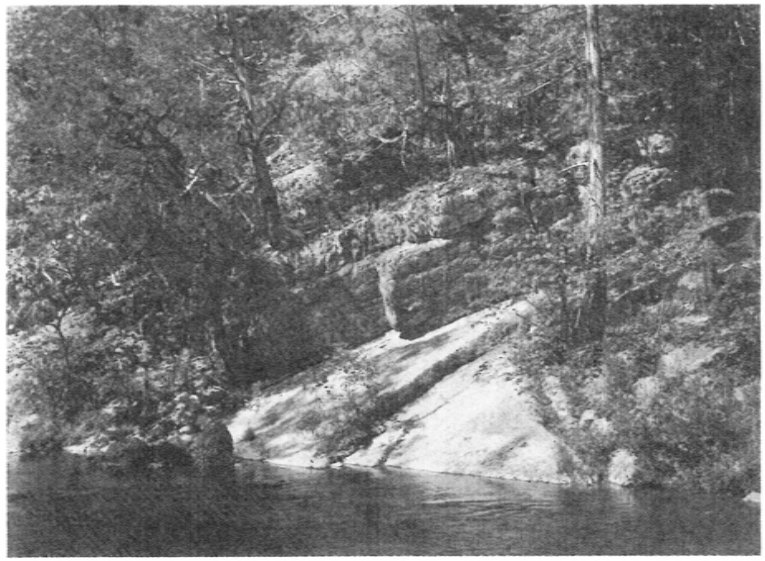
Another plant chiefly southern in range is *Baptisia australis,* a beautiful blue-flowered member of the Pea family. It is conspicuous along limestone stream banks and is sometimes seen in cultivation. Its yellow-flowered relative, *B. tinctoria,* common in woods and known as wild indigo, was used for making blue dye.



Drosera rotundifolia, *an insect-eating sundew.* (Flora of West Virginia, *Part II. P. D. Strausbaugh and Earl L. Core. West Virginia University Bulletin, Series 53, No. 12-1, June 1953, p. 441.)*

Trifolium virginicum, *or "Kate's Mountain Clover."* (Flora of West Virginia, *Part II. P. D. Strausbaugh and Earl L. Core. West Virginia University Bulletin, No. 12-1, June 1953, p. 547.)*

Cedar Creek's limestone cliffs have created a calcareous soil which is preferred by the sweet oak, Quercus muehlenbergii. *A rare evergreen shrub of limited range,* Pachistima canbyi, *is also found on three limestone cliffs on Cedar Creek. (L. A. Durnier, Front Royal, Va.)*



Two of several species of grasses, chiefly coastal plain and southern, are *Uniola latifolia,* akin to "sea oats," valued for flower arrangements, and *Arundinaria gigantea,* a bamboo. This grass of many uses has its northernmost-known Virginia location along Cedar Creek, Shenandoah County. A large-flowered coastal plain mallow, "swamp rose," occurs in a Shenandoah County swamp and in a similar place in Page County. Two other chiefly coastal plain plants are lizard's tail and golden club, both of which grow in water and along stream banks. These two, along with others, belong to that group of plants of ancient lineage that have their nearest relatives in eastern Asia. Roots and seeds of the golden club were prized as food by the Indians.

Other plants of eastern Asian affinity are *Jeffersonia,* named for Thomas Jefferson, blue cohosh, once valued as a remedy, and witch hazel from which commercial witch hazel was obtained. This last plant has another distinction. It is one of the two native American shrubs that bloom in autumn instead of in spring. The other is the beautiful *Franklinia,* now known only in cultivation. In late summer or in early winter the leafless branches of witch hazel are covered with yellow blossoms.

Along Cedar Creek, in Frederick and in Shenandoah Counties, *Dirca palustris,* leatherwood, may be seen. Its flexible branches and tough bark supplied Indians and pioneers with a substitute for leather. This shrub is also known from a Rockingham County cove and from a deep Massanutten ravine in Page County. Also near the Frederick County location grow "ramps," or wild leeks, a species of wild onion beloved by Western Virginia mountain folk who celebrate spring time with odorous ramp feasts.

Two small evergreen shrubs which thrive in the Valley are the trailing arbutus and wintergreen, or teaberry; the latter was used both as a rheumatism remedy and as a beverage. The naturalist Rafinesque describes the flavor of wintergreen as superior to that of imported tea. Two larger evergreen shrubs are mountain laurel and *Rhododendron maximum,* the great laurel. There are at least three species of deciduous *Rhododendrons,* better known as azaleas, and two of these bear conspicuous pink blossoms. One species, very sweet scented and more northern in range, is found at higher elevations. Near a mountain crest when this species is in flower, the air is filled with a delightful fragrance. The white-flowered, sweet-scented azalea is also northern and it is known chiefly from cool mountain top bogs.

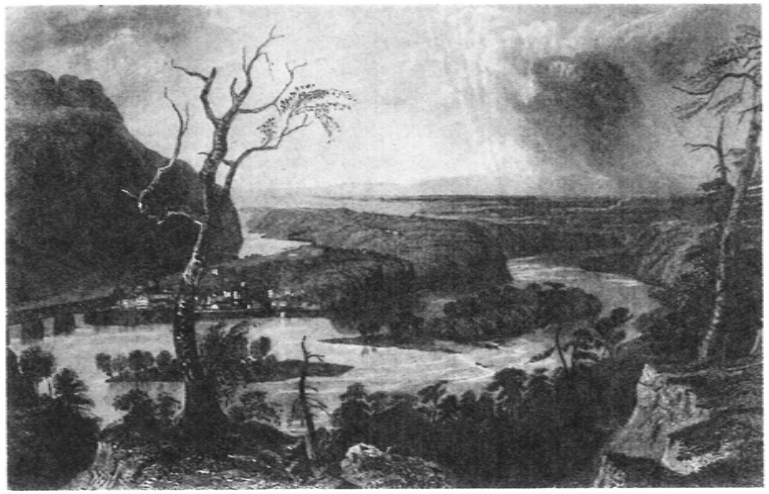
Of the many interesting plant habitats, the shale barrens yield some of the rarest of plants. Among them is *Eriogonum alleni,* a yellow-flowered buckwheat, known only from a few shale barrens in Virginia and in West Virginia. Another rare one is Kate's mountain clover. Long known only from Kate's Mountain, W. Va., it is

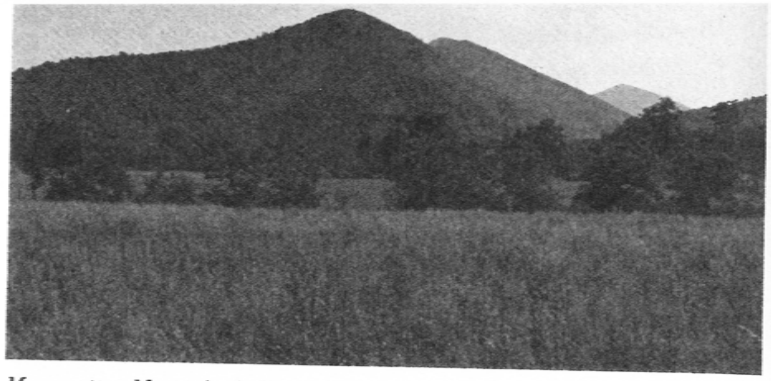
now known from seven locations on Shenandoah Valley shale barrens. One of the most showy of these endemic plants is an evening primrose which in late evening unfolds its large, sweet-scented yellow blossoms. Not limited to shale barrens, but quite conspicuous is *Phlox subulata.* This low-growing *Phlox* forms dense mats, its flowers varying from white to deep pink; when it is in bloom the somewhat barren cliffs become beautiful natural rock gardens. This *Phlox* was one of many plants sent by John Bartram to his English friend, Peter Collinson. From Collinson's garden it spread to other gardens of Europe. Many cultivated varieties have been developed from this *Phlox,* sometimes miscalled "moss pink," and it is often seen in American gardens.

Now and then a western plant invades the valley. *Astragalus distortus,* a member of the Pea family, is one of these. In early May, on shale soil, it is quite conspicuous with its clusters of pink blossoms lying flat on the earth, at other times it is unnoticed. Another westerner is *Solanum rostratum,* or buffalo bur. Its one-known Valley location, discovered in 1967, is near Cedar Creek, Shenandoah County. This plant is said to have been the chief food of the Colorado potato beetle before that other *Solanum,* "Irish" potato, came to North America.

Another plant of interest, woad, long known from Page and Warren Counties, is now appearing in Shenandoah, Rockingham and Frederick Counties. Dyers woad was widely grown in Europe in the days of vegetable dyes as a source of indigo dye. As our American

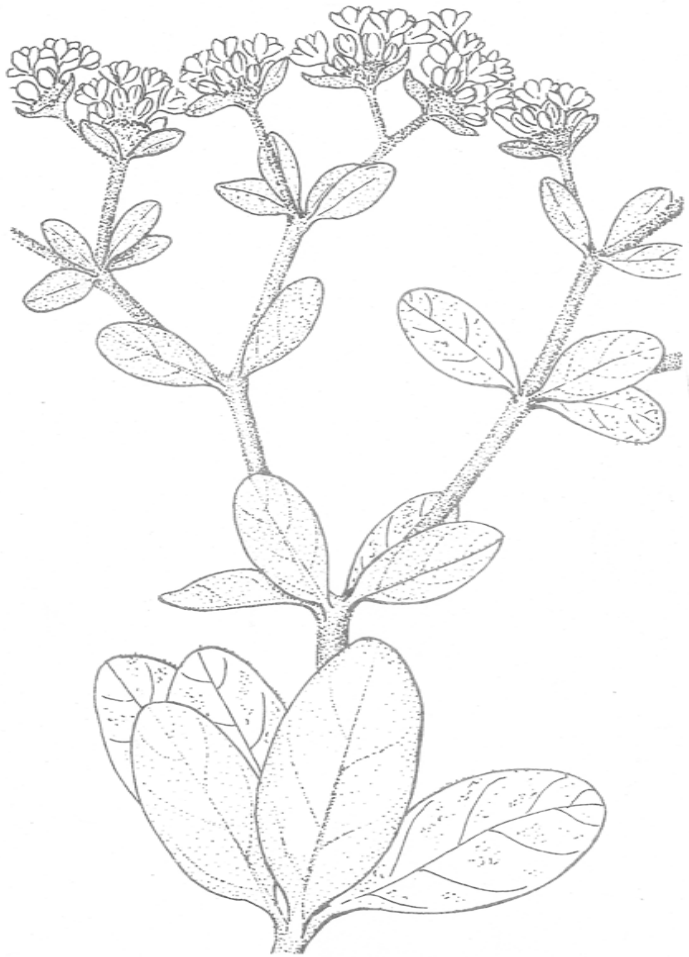
"The Picturesque World," an early engraving by W. H. Bartlett of Harper's Ferry from the Blue Ridge. The unusual landscape has provided diverse plant habitats. (Library of Congress Collections.)





Massanutten Mountain divides the Valley for almost a third of its distance. (L. A. Durnier, Front Royal, Va.)

Erigonum alleni, *whose common name is yellow flowered buckwheat, is known only from a few shale barrens in Virginia and West Virginia.* (Flora of West Virginia, *Part II. P. D. Strausbaugh and Earl L. Core. West Virginia University Bulletin, Series 53, No. 12-1, June 1953, p. 325.)*



Indians painted their skins red with various native American plants, the early inhabitants of the British Isles dyed their bodies blue with *Isatis tinctoria* or woad.

Conium maculatum, poison hemlock, with its finely dissected leaves is sometimes called "Carolina fern." Probably introduced as an ornamental, it is now a conspicuous weed in some places. From this plant was derived the poison which caused the death of Socrates and of many others. Our native poison hemlock, *Cicuta maculata,* is found along streams. Both are members of the Parsley family, but neither should be confused with the beautiful hemlock tree whose tender green tips provided lumbermen with a beverage and vitamin C.

Fly poison, a showy woodland plant of Lily family, has a very poisonous bulb. Sliced and placed in a saucer of water, this bulb was used to kill flies. In late summer and in early autumn white snake root with its white flower clusters is conspicuous in the woods. In pioneer days when food was scarce for man and animal this *Eupatorium* was often eaten by cattle, poisoning the milk. Like lead, it was a slow, cumulative poison. Long before its danger became known, many people, including Nancy Hanks, mother of Lincoln, died of milk sickness, as the disease was called.

Bouncing Bet or soapwort, *Saponaris officinalis,* is a conspicuous weed along roadsides and stream banks. When crushed in water it produces a "suds" and it was once used for washing clothes in some of the coves of the Appalachians, from which comes it common name, white wash. Another plant, sweet cicely, is edible, both root and top. An interesting use of this anise-flavored plant was that of a fish lure. Local people chopped it up and sprinkled it on bait to attract fish.

Some of the most useful and interesting plants are weeds. If they are not interesting to us, Liberty Hyde Bailey expressed it well when he said, "That is not *their* fault."

The Valley has many beautiful shrubs that keep up a succession of blossoms for several weeks in early spring. While trees are yet bare of leaves, shadbush with its racemes of white flowers leads the procession. Soon following is the spicebush, also bare of leaves, with its branches covered with yellow flowers. Akin to sassafras and to other aromatic plants of the Laurel family, spicebush was highly valued as a beverage and as a remedy. Andre Michaux, early French botanist, drank spicebush tea in a mountain cabin and said it greatly refreshed him. The beautiful red spicebush berries were dried and used as a substitute for allspice. Edible pink flowers appear on the bare branches of the redbud, and these may be used to decorate a salad. The showy white bracts of Virginia's state flower, *Cornus florida,* growing in similar areas, make a pleasing contrast with the pink redbud blossoms. The odd brown flowers of pawpaw, usually found growing along streams, precede the large tropical-looking

leaves. Later there is an edible fruit whose rich yellow pulp may be used to flavor ice cream. Black haw bears its clusters of creamy flowers mingled with its tender green leaves. Another shrub is New Jersey tea which was used as a tea substitute during the American Revolution.

Even before spring arrives, skunk cabbage puts forth its odd blossoms in the swamps. Spring brings myriads of wild flowers. Among them are hepatica, Jack-in-the-pulpit, wild ginger, Dutchman's breeches, trillium, buttercups, bluets, rue anemones, pinks, fawn lilies, bloodroot, columbine, star chickweed, Solomon's plume, Canada mayflower, mayapple, and spring beauties. There are also white, purple and pink milkweeds and many species of violets, white, yellow and blue flowered ones.

Many of our wild flowers bring to mind the ancient Doctrine of Signatures, the belief that for every ill there was a plant remedy and that the plant was marked so that its use could be known. Hepatica, liverwort, with its lobed leaf, dark red beneath, was used as a liver remedy. Virginia bluebell leaves are lobed like lungs and were used as lung medicine. Lungwort is another name of this plant. Many violets, of which there are 50 some species in Virginia, have heart-shaped leaves and were used as a heart remedy. Another common name for violets is heart's ease.

In summer come Canada lilies, blue-eyed grass, pasture roses, mullein, Queen Anne's lace, lavender bergamot, wilde senna, chicory, orange milkweed, ox-eye daisies and many others.

Autumn flaunts its royal colors in numerous species of purple asters and yellow goldenrods. *Solidago odora,* sweet goldenrod, was sold in local stores as a beverage and at one time it was shipped to China for this purpose. Dainty purple-flowered dittany, one of the mints, was highly valued both as a beverage and as a remedy. It is still used locally for these purposes. Beautiful purple blazing star thrives on dry banks.

In swamps and along streams are pink turtlehead, monkey flower, jewelweed, purple ironweed, blue mist flower and brilliant red cardinal flowers. In these same areas tall Joe-Pye weed is conspicuous with its large clusters of pale pink or pale lilac blossoms. Joe-Pye, an Indian doctor, taught the early settlers to use a bitter brew made from this plant for fevers. Akin to Joe-Pye is white-flowered boneset, another fever remedy. These plants and blossoms were gathered, dried and stored for winter illnesses.

One of the most striking autumn features of the Shenandoah Valley is the glorious display of color provided by the hundreds of species of native deciduous trees. When one walks the woods he is associated with the aristocrats of the plant world, trees whose ancestors were here millions of years ago. Among them are black gum with its brilliant red shining leaves, tulip tree with tall straight trunk,

aromatic bark and golden leaves, the hickories whose bark made a dye similar to its bright yellow autumn leaf color, and the linden. Among the many products of linden are nectar from its flowers for making honey and a tranquilizing tea made from the dried blossoms and bracts.

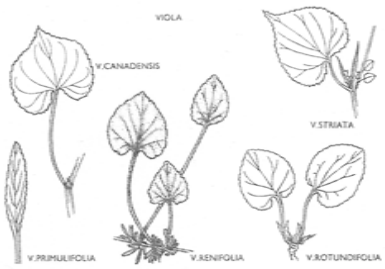
Persimmon of the tropical Ebony family not only bears delicious fruit but tea made from its leaves is said to be rich in vitamin C. From its almost black heartwood was made pioneer ebony furniture. One of the most brilliant trees in autumn is the large shapely sugar maple whose sugar and syrup are well known. Several other species of maples add to the autumn tapestry, among them, the red maple.

These are only a few of the wealth of native trees that splash their yellows, reds, and purples across the autumn landscape. Of all of the Valley's trees, perhaps none is lovelier or more interesting than sassafras of the aromatic Laurel family. Others of this family are bay whose leaf is used for seasoning, spice bush, previously mentioned, and avocado. Others, not native to America, are nutmeg, cinnamon, camphor, and the evergreen laurel, *Laurus nobilis,* with which the Greeks crowned their heroes.

Sassafras root, quite different in flavor from the leaves, was valued as a beverage and as a remedy. The leaves, dried and powdered, have a flavor similar to bay leaf. These leaves have long been used in the South for seasoning soups and stews. Gumbo filet, now on condiment shelves, consists chiefly of sassafras leaves. Oil from the roots was used to flavor root beer and candy. Soaps were perfumed with sassafras. An orange dye was made from the roots. The aromatic wood had many uses.

To the autumn landscape this tree adds much beauty with its orange, red, and yellow foliage. This is often conspicuous along old fence rows where young trees have been left by wise farmers to provide food and protection for wildlife.

For those who love the Shenandoah Valley and its wealth of plants, American naturalist and author John Burroughs expressed it for us when he said, "You have the wealth of the universe at your very door."



The genus Viola includes many members with conspicuously heart-shaped leaves; for this reason violets have often been called "heart's ease," in a tradition following the ancient Doctrine of Signatures which believed that there was a plant remedy for every ill and plants were marked so that their use could be known. (Drawing by Rachel Speiser. Wild Flowers of the United States, *Vol. I, Part II. Publication of the New York Botanical Garden, McGraw-Hill Book Company, N. Y.)*