

QUERY VI: A NOTICE of the mines and other subterraneous riches; its trees, plants, fruits, &c.

The mention of uncommon springs leads me to that of Syphon fountains. There is one of these near the intersection of the Lord Fairfax's boundary with the North mountain, not far from Brock's gap, on the stream of which is a grist-mill, which grinds two bushel of grain at every flood of the spring. Another, near the Cow-pasture river, a mile and a half below its confluence with the Bullpasture river, and 16 or 17 miles from the Hot springs, which intermits once in every twelve hours. One also near the mouth of the North Holston.

After these may be mentioned the Natural Well, on the lands of a Mr. Lewis in Frederick county. It is somewhat larger than a common well: the water rises in it as near the surface of the earth as in the neighbouring artificial wells, and is of a depth as yet unknown. It is said there is a current in it tending sensibly downwards. If this be true, it probably feeds some fountain, of which it is the natural reservoir, distinguished from others, like that of Madison's cave, by being accessible. It is used with a bucket and windlass as an ordinary well.

A complete catalogue of the trees, plants, fruits, &c. is probably not desired. I will sketch out those which would principally attract notice, as being 1. Medicinal, 2. Esculent, 3. Ornamental, or 4. Useful for fabrication; adding the Linnæan to the popular names, as the latter might not convey precise information to a foreigner. I shall confine myself too to native plants.

1. Senna.	Cassia ligustrina.
Arsmart.	Polygonum Sagittatum.
Clivers, or goose-grass.	Galium spurium.
Lobelia of several species.	
Palma Christi.	Ricinus.
(3.) James-town weed.	Datura Stramonium.
Mallow.	Malva rotundisolia.
Syrian mallow.	Hibiscus moschentos.
Syrian mallow.	Hibiscus virginicus.
Indian mallow.	Sida rhombifolia.
Indian mallow.	Sida abutilon.
Virginia Marshmallow.	Napæa hermaphrodita.
Virginia Marshmallow.	Napæa dioica.
Indian physic.	Spiræa trifoliata.
	Euphorbia Ipecacuanhæ.
Pleurisy root.	Asclepias decumbens.
Virginia snake-root.	Aristolochia serpentaria.
Black snake-root.	Actæa racemosa.
Seneca rattlesnake-root.	Polygala Senega.
Valerian.	Valeriana locusta radiata.
	Gentiana, Saponaria, Villosa & Centaurium.
Ginseng.	Panax quinquesolium.
Angelica.	Angelica sylvestris.
Cassava.	Jatropha urens.
2. Tuckahoe.	Lycoperdon tuber.

Jerusalem artichoke.	Helianthus tuberosus.	
Long potatoes.	Convolvulus batatas.	
Granadillas. Maycocks. Maracocks.	Passiflora incarnata.	
Panic.	Panicum of many species.	
Indian millet.	Holcus laxus.	
Indian millet.	Holcus striosus.	
Wild oat.	Zizania aquatica.	
Wild pea.	Dolichos of Clayton.	
Lupine.	Lupinus perennis.	
Wild hop.	Humulus lupulus.	
Wild cherry.	Prunus Virginiana.	
Cherokee plumb.	Prunus sylvestris fructu majori.	Clayton.
Wild plumb.	Prunus sylvestris fructu minori.	Clayton.
Wild crab-apple.	Pyrus coronaria.	

Red mulberry.	Morus rubra.	
Persimmon.	Diospyros Virginiana.	
Sugar maple.	Acer saccharinum.	
Scaly bark hickory.	Juglans alba cortice squamoso.	Clayton.
Common hickory.	Juglans alba, fructu minore rancido.	Clayton.
Paccan, or Illinois nut.		Not described by Linnæus, Millar, or Clayton. Were I to venture to d
Black walnut.	Juglans nigra.	
White walnut.	Juglans alba.	
Chesnut.	Fagus castanea.	
Chinquapin.	Fagus pumila.	
Hazlenut.	Corylus avellana.	
Grapes.	Vitis.	Various kinds, though only three described by Clayton. Scarlet Straw
Whortleberries.	Vaccinium uliginosum.	
Wild gooseberries.	Ribes grossularia.	
Cranberries.	Vaccinium oxycoccos.	
Black raspberries.	Rubus occidentalis.	
Blackberries.	Rubus fruticosus.	
Dewberries.	Rubus cæsius.	
Cloudberries.	Rubus chamæmorus.	
3. Plane-tree.	Platanus occidentalis.	
Poplar.	Liriodendron tulipifera.	
	Populus heterophylla.	
Black poplar.	Populus nigra.	

Aspen.	<i>Populus tremula.</i>
Linden, or lime.	<i>Tilia Americana.</i>
Red flowering maple.	<i>Acer rubrum.</i>
Horse-chesnut, or Buck's-eye.	<i>Æsculus pavia.</i>
Catalpa.	<i>Bignonia catalpa.</i>
Umbrella.	<i>Magnolia tripetala.</i>
Swamp laurel.	<i>Magnolia glauca.</i>
Cucumber-tree.	<i>Magnolia acuminata.</i>
Portugal bay.	<i>Laurus indica.</i>
Red bay.	<i>Laurus borbonia.</i>
Dwarf-rose bay.	<i>Rhododendron maximum.</i>
Laurel of the western country.	Qu. species?
Wild pimento.	<i>Laurus benzoin.</i>
Sassafras.	<i>Laurus sassafras.</i>
Locust.	<i>Robinia pseudo-acacia.</i>
Honey-locust.	<i>Gleditsia. 1.</i>
Dogwood.	<i>Cornus florida.</i>
Fringe or snow-drop tree.	<i>Chionanthus Virginica.</i>
Barberry.	<i>Berberis vulgaris.</i>
Redbud, or Judas-tree.	<i>Cercis Canadensis.</i>
Holly.	<i>Ilex aquifolium.</i>
Cockspur hawthorn.	<i>Cratægus coccinea.</i>
Spindle-tree.	<i>Euonymus Europæus.</i>
Evergreen spindle-tree.	<i>Euonymus Americanus.</i>
	<i>Itea Virginica.</i>
Elder.	<i>Sambucus nigra.</i>
Papaw.	<i>Annona triloba.</i>
Candleberry myrtle.	<i>Myrica cerifera.</i>
Dwarf-laurel.	<i>Kalmia angustifolia called ivy with us.</i>
Dwarf-laurel.	<i>Kalmia latifolia called ivy with us.</i>
Ivy.	<i>Hedera quinquefolia.</i>
Trumpet honeysuckle.	<i>Lonicera sempervirens.</i>
Upright honeysuckle.	<i>Azalea nudiflora.</i>
Yellow jasmine.	<i>Bignonia sempervirens.</i>
	<i>Calycanthus floridus.</i>
American aloe.	<i>Agave Virginica.</i>
Sumach.	<i>Rhus. Qu. species?</i>

Poke.	<i>Phytolacca decandra.</i>	
Long moss.	<i>Tillandsia Usneoides.</i>	
4. Reed.	<i>Arundo phragmitis.</i>	
Virginia hemp.	<i>Acnida cannabina.</i>	
Flax.	<i>Linum Virginianum.</i>	
Black, or pitch-pine.	<i>Pinus tæda.</i>	
White pine.	<i>Pinus strobus.</i>	
Yellow pine.	<i>Pinus Virginica.</i>	
Spruce pine.	<i>Pinus foliis singularibus.</i>	Clayton.
Hemlock spruce fir.	<i>Pinus Canadensis.</i>	
Arbor vitæ.	<i>Thuja occidentalis.</i>	
Juniper.	<i>Juniperus Virginica</i> (called cedar with us).	
Cypress.	<i>Cupressus disticha.</i>	
White cedar.	<i>Cupressus Thyoides.</i>	
Black oak.	<i>Quercus nigra.</i>	
White oak.	<i>Quercus alba.</i>	
Red oak.	<i>Quercus rubra.</i>	
Willow oak.	<i>Quercus phellos.</i>	
Chesnut oak.	<i>Quercus prinus.</i>	
Black jack oak.	<i>Quercus aquatica.</i>	Clayton. Query?
Ground oak.	<i>Quercus pumila.</i>	Clayton.
Live oak.	<i>Quercus Virginiana.</i>	Millar.
Black birch.	<i>Betula nigra.</i>	
White birch.	<i>Betula alba.</i>	
Beach.	<i>Fagus sylvatica.</i>	
Ash.	<i>Fraxinus Americana.</i>	
Ash.	<i>Fraxinus Novæ Angliæ.</i>	Millar.
Elm.	<i>Ulmus Americana.</i>	
Willow.	<i>Salix.</i>	Query species?
Sweet Gum.	<i>Liquidambar styraciflua.</i>	

The following were found in Virginia when first visited by the English; but it is not said whether of spontaneous growth, or by cultivation only. Most probably they were natives of more southern climates, and handed along the continent from one nation to another of the savages.

Tobacco. *Nicotiana.*

Maize.	<i>Zea mays.</i>
Round potatoes.	<i>Solanum tuberosum.</i>
Pumkins.	<i>Cucurbita pepo.</i>
Cymlings.	<i>Cucurbita verrucosa.</i>
Squashes.	<i>Cucurbita melopepo.</i>

There is an infinitude of other plants and flowers, for an enumeration and scientific description of which I must refer to the *Flora Virginica* of our great botanist Dr. Clayton, published by Gronovius at Leyden, in 1762. This accurate observer was a native and resident of this state, passed a long life in exploring and describing its plants, and is supposed to have enlarged the botanical catalogue as much as almost any man who has lived.

Besides these plants, which are native, our farms produce wheat, rye, barley, oats, buck wheat, broom corn, and Indian corn. The climate suits rice well enough wherever the lands do. Tobacco, hemp, flax, and cotton, are staple commodities. Indico yields two cuttings. The silk-worm is a native, and the mulberry, proper for its food, grows kindly.

We cultivate also potatoes, both the long and the round, turnips, carrots, parsneps, pumkins, and ground nuts (*Arachis.*) Our grasses are lucerne, st. foin, burnet, timothy, ray and orchard grass; red, white, and yellow clover; greenswerd, blue grass, and crab grass.

The gardens yield musk-melons, water-melons, tomatas, okra, pomegranates, figs, and the esculent plants of Europe.

The orchards produce apples, pears, cherries, quinces, peaches, nectarines, apricots, almonds, and plumbs.

Our quadrupeds have been mostly described by Linnæus and Mons. de Buffon. Of these the Mammoth, or big buffalo, as called by the Indians, must certainly have been the largest. Their tradition is, that he was carnivorous, and still exists in the northern parts of America. A delegation of warriors from the Delaware tribe having visited the governor of Virginia, during the present revolution, on matters of business, after these had been discussed and settled in

council, the governor asked them some questions relative to their country, and, among others, what they knew or had heard of the animal whose bones were found at the Saltlicks, on the Ohio. Their chief speaker immediately put himself into an attitude of oratory, and with a pomp suited to what he conceived the elevation of his subject, informed him that it was a tradition handed down from their fathers, 'That in ancient times a herd of these tremendous animals came to the Big-bone licks, and began an universal destruction of the bear, deer, elks, buffaloes, and other animals, which had been created for the use of the Indians: that the Great Man above, looking down and seeing this, was so enraged that he seized his lightning, descended on the earth, seated himself on a neighbouring mountain, on a rock, of which his seat and the print of his feet are still to be seen, and hurled his bolts among them till the whole were slaughtered, except the big bull, who presenting his forehead to the shafts, shook them off as they fell; but missing one at length, it wounded him in the side; whereon, springing round, he bounded over the Ohio, over the Wabash, the Illinois, and finally over the great lakes, where he is living at this day.' It is well known that on the Ohio, and in many parts of America further North, tusks, grinders, and skeletons of unparalleled magnitude, are found in great numbers, some lying on the surface of the earth, and some a little below it. A Mr. Stanley, taken prisoner by the Indians near the mouth of the Tanissee, relates, that, after being transferred through several tribes, from one to another, he was at length carried over the mountains West of the Missouri to a river which runs westwardly; that these bones abounded there; and that the natives described to him the animal to which they belonged as still existing in the northern parts of their country;

from which description he judged it to be an elephant. Bones of the same kind have been lately found, some feet below the surface of the earth, in salines opened on the North Holston, a branch of the Tanssee, about the latitude of $36\frac{1}{2}^{\circ}$ North. From the accounts published in

Europe, I suppose it to be decided, that these are of the same kind with those found in Siberia. Instances are mentioned of like animal remains found in the more southern climates of both hemispheres; but they are either so loosely mentioned as to leave a doubt of the fact, so inaccurately described as not to authorize the classing them with the great northern bones, or so rare as to found a suspicion that they have been carried thither as curiosities from more northern regions. So that on the whole there seem to be no certain vestiges of the existence of this animal further South than the salines last mentioned. It is remarkable that the tusks and skeletons have been ascribed by the naturalists of Europe to the elephant, while the grinders have been given to the hippopotamus, or river-horse. Yet it is acknowledged, that the tusks and skeletons are much larger than those of the elephant, and the grinders many times greater than those of the hippopotamus, and essentially different in form. Wherever these grinders are found, there also we find the tusks and skeleton; but no skeleton of the hippopotamus nor grinders of the elephant. It will not be said that the hippopotamus and elephant came always to the same spot, the former to deposit his grinders, and the latter his tusks and skeleton. For what became of the parts not deposited there? We must agree then that these remains belong to each other, that they are of one and the same animal, that this was not a hippopotamus, because the hippopotamus had no tusks nor such a frame, and because the grinders differ in their size as well as in the number and form of their points. That it was not an elephant, I think ascertained by proofs equally decisive. I will not avail myself of the authority of the celebrated* anatomist, who, from an examination of the form and structure of the tusks, has declared they were essentially different from those of the elephant; because another † anatomist, equally celebrated, has declared, on a like examination, that they are precisely the same. Between two such authorities I will suppose this circumstance equivocal.

* Hunter.

† D'Aubenton,

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But, 1. The skeleton of the mammoth (for so the incognitum has been called) bespeaks an animal of five or six times the cubit volume of the elephant, as Mons. de Buffon has admitted. 2. The grinders are five times as large, are square, and the grinding surface studded with four or five rows of blunt points: whereas those of the elephant are broad and thin, and their grinding surface flat. 3. I have never heard an instance, and suppose there has been none, of the grinder of an elephant being found in America. 4. From the known temperature and constitution of the elephant he could never have existed in those regions where the remains of the mammoth have been found. The elephant is a native only of the torrid zone and its vicinities: if, with the assistance of warm apartments and warm clothing, he has been preserved in life in the temperate climates of Europe, it has only been for a small portion of what would have been his natural period, and no instance of his multiplication in them has ever been known. But no bones of the mammoth, as I have before observed, have been ever found further South than the salines of the Holston, and they have been found as far North as the Arctic circle. Those, therefore, who are of opinion that the elephant and mammoth are the same, must believe, 1. That the elephant known to us can exist and multiply in the frozen zone; or, 2. That an eternal fire may once have warmed those regions, and since abandoned them, of which, however, the globe exhibits no unequivocal indications; or, 3. That the obliquity of the ecliptic, when these elephants lived, was so great as to include within the tropics

all those regions in which the bones are found: the tropics being, as is before observed, the natural limits of habitation for the elephant. But if it be admitted that this obliquity has really decreased, and we adopt the highest rate of decrease yet pretended, that is, of one minute in a century, to transfer the northern tropic to the Arctic circle, would carry the existence of these supposed elephants 250,000 years back; a period far beyond our conception of the duration of animal bones left exposed to

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the open air, as these are in many instances. Besides, though these regions would then be supposed within the tropics, yet their winters would have been too severe for the sensibility of the elephant. They would have had too but one day and one night in the year, a circumstance to which we have no reason to suppose the nature of the elephant fitted. However, it has been demonstrated, that, if a variation of obliquity in the ecliptic takes place at all, it is vibratory, and never exceeds the limits of 9 degrees, which is not sufficient to bring these bones within the tropics. One of these hypotheses, or some other equally voluntary and inadmissible to cautious philosophy, must be adopted to support the opinion that these are the bones of the elephant. For my own part, I find it easier to believe that an animal may have existed, resembling the elephant in his tusks, and general anatomy, while his nature was in other respects extremely different. From the 30th degree of South latitude to the 30th of North, are nearly the limits which nature has fixed for the existence and multiplication of the elephant known to us. Proceeding thence northwardly to 36½ degrees, we enter those assigned to the mammoth. The further we advance North, the more their vestiges multiply as far as the earth has been explored in that direction; and it is as probable as otherwise, that this progression continues to the pole itself, if land extends so far. The center of the frozen zone then may be the achmé of their vigour, as that of the torrid is of the elephant. Thus nature seems to have drawn a belt of separation between these two tremendous animals, whose breadth indeed is not precisely known, though at present we may suppose it about 6½ degrees of latitude; to have assigned to the elephant the regions South of these confines, and those North to the mammoth, founding the constitution of the one in her extreme of heat, and that of the other in the extreme of cold. When the Creator has therefore separated their nature as far as the extent of the scale of animal life allowed to this planet would permit, it seems perverse to

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declare it the same, from a partial resemblance of their tusks and bones. But to whatever animal we ascribe these remains, it is certain such a one has existed in America, and that it has been the largest of all terrestrial beings. It should have sufficed to have rescued the earth it inhabited, and the atmosphere it breathed, from the imputation of impotence in the conception and nourishment of animal life on a large scale: to have stifled, in its birth, the opinion of a writer, the most learned too of all others in the science of animal history, that in the new world, 'La nature vivante est beaucoup moins agissante, beaucoup moins forte*.' that nature is less active, less energetic on one side of the globe than she is on the other.

* Buffon, xviii. 122. edit. Paris, 1764.

As if both sides were not warmed by the same genial sun; as if a soil of the same chemical composition, was less capable of elaboration into animal nutriment; as if the fruits and grains from that soil and sun, yielded a less rich

chyle, gave less extension to the solids and fluids of the body, or produced sooner in the cartilages, membranes, and fibres, that rigidity which restrains all further extension, and terminates animal growth. The truth is, that a Pigmy and a Patagonian, a Mouse and a Mammoth, derive their dimensions from the same nutritive juices. The difference of increment depends on circumstances unsearchable to beings with our capacities. Every race of animals seems to have received from their Maker certain laws of extension at the time of their formation. Their elaborative organs were formed to produce this, while proper obstacles were opposed to its further progress. Below these limits they cannot fall, nor rise above them. What intermediate station they shall take may depend on soil, on climate, on food, on a careful choice of breeders. But all the manna of heaven would never raise the mouse to the bulk of the mammoth.

The opinion advanced by the Count de Buffon†, is 1. That the animals common both to the old and new world, are smaller in the latter.

† xviii. 100—156.

2. That those peculiar to the

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