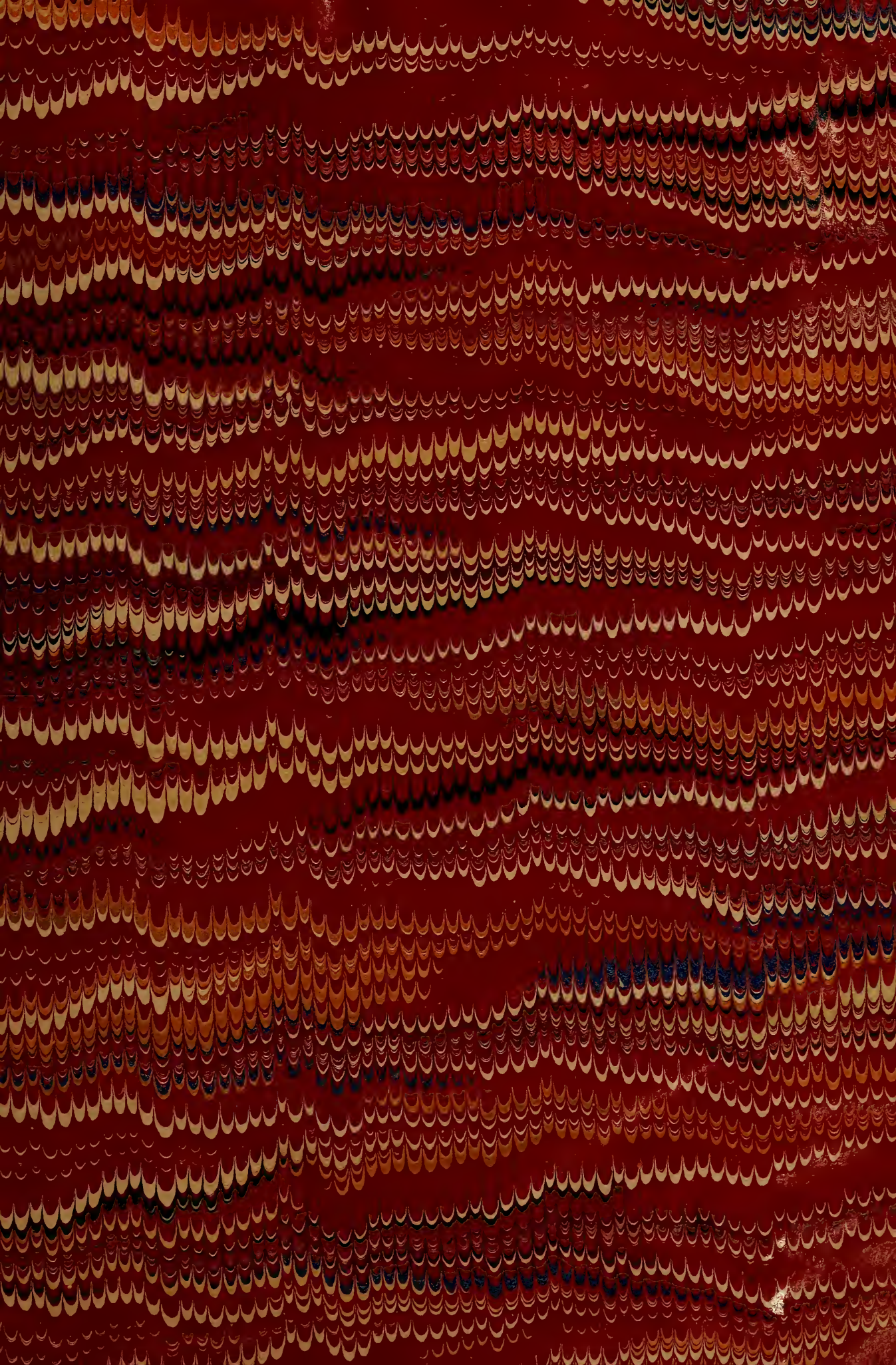


CATALOGUE

OF

PRODUCTS OF MICHIGAN

IN THE

CENTENNIAL EXHIBITION

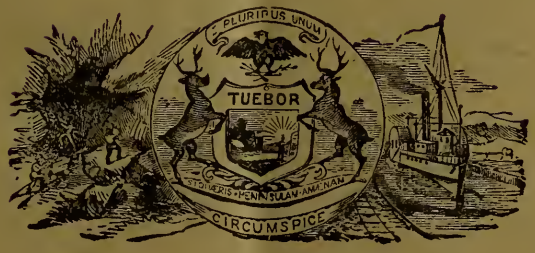
OF ALL NATIONS

AT

FAIRMOUNT PARK, PHILADELPHIA.

OPENED MAY 10, 1876.

CLOSES NOV. 10, 1876.



LANSING, MICH.:
W. S. GEORGE & CO., STATE PRINTERS AND BINDERS.
1876.

THE FOREST.

PRODUCTS OF MICHIGAN AT THE CENTENNIAL EXPOSITION.

BY PROF. W. J. BEAL OF THE STATE AGRICULTURAL COLLEGE.

This collection consists of:

First—Cross sections of trunks of our native trees and some prominent introduced species, all of which grow to be over six inches in diameter. The sections, about sixty-five in number, are from seven inches to two and one-half feet in diameter (in one instance reaching seven and one-half feet), and about one and a half inches thick or long.

Second—A collection of about one hundred and forty blocks and twigs, not over six inches in diameter by about six inches in length, with bark mostly on them. Some of these specimens are of shrubs, quite small, not over one-fourth of an inch in diameter. One-sixth of one side of these blocks is planed off vertically; an oblique section is made upon the same side toward the top, leaving the upper surface a little more than half the diameter.

Third—A collection of polished boards, eight by sixteen inches, and a half inch in thickness, in cases where the trees were of sufficient size to admit of it. From smaller trees and shrubs the boards are ten inches long, and of a varying width. The number of boards of each species varies from one to twenty, according to the importance, beauty or peculiarities of the species. These boards are as unlike each other as is possible to find them, for the purpose of exhibiting the wood in all its peculiarities.

Fourth—There are some specimens of other dimensions not uniform in shape, size or finish. These include samples of the valuable hard woods, as oak, hickory, etc., cut in a variety of shapes. The collection includes knots, natural grafts of roots and trunks, oak sticks with deer's antlers imbedded in them, etc. For a detailed account consult the following list.

Fifth—Samples of seeds and cones; a quart or more of about fifty species.

THE LIST OF SPECIMENS.

Each specimen of wood has a number cut on the back or under side or end. This is to avoid any mistake in case a label is rubbed off and lost or obscured in any way.

Placed on or tied to each specimen is a label containing its number, corresponding to the number in this list; also the Latin name, the common name (if it has one), the locality where it grew, and the name of the donor.

The names are arranged as they succeed each other in Gray's Manual of Botany, as follows:

Number.	Latin Name.	Common Name.	Size and Shape.	Locality.	Donor's Name.	Remarks.

THE CONFUSION IN NAMES OF TREES,

and especially of shrubs, as used in various parts of the State, is often quite bewildering. This arises in a great variety of ways among those who have little observation or no knowledge of botany.

The first one on the list is called by some "whitewood" and "tulip-tree," by others "poplar." The latter name is also used for several other species of trees.

Two species of trees are indiscriminately spoken of as "the soft maple." The names of our oaks are a good deal mixed up. This is true of the scientific descriptions as well as of the common names. We have seven species of birch, five of which are trees. Two or three of them are known as "yellow birch" in different sections of the State. Two others are indiscriminately called "the white birch."

Hardly any one, unless a botanist, pretends to know the species of our willows or poplars and cottonwoods. Two or three different species of pine are known in different parts of the State as "scrub pine," "gray pine," "buckwheat pine," "black pine," "jack pine." Of course there is still greater confusion of names and want of any common name among some of the shrubs and

THE RARE TREES.

Some kinds are plenty enough in a few localities, yet quite rare in most parts of the State, while others are never very abundant any where, but scattered here and there over a large extent of territory. I have been unable to find the cucumber tree *(Magnolia acuminata)* in the State. I have heard of it in a number of places, but when hunted up it proved to be the whitewood, tulip tree, or one of the cottonwoods.

It may exist in some of the southern counties. It forms a beautiful and peculiar shade tree, standing our climate quite well in some sections.

The paw paw is an interesting shrub, with a trunk of soft greenish wood, sometimes six inches in diameter. The leaves are simple, long and drooping. It fruits in several counties as far north as Ionia. The fruit looks somewhat like a banana, only it is larger and straighter.

The Ohio Buckeye *(Aesculus glabra)* is found sparingly along the south part of the State. Its appearance is in every way inferior to the horse chestnut, which is cultivated from Asia.

The striped maple and the mountain maple both attain the size of large shrubs. They are rather rare along streams and in rich woods in the center and northern parts of the State.

The box elder, honey maple, or ash-leaved maple *(Negundo aceroides)*, grows sparingly in the south half of the lower peninsula along streams. It does not generally make a straight, nice tree in our State, but farther south and west of us it thrives better, and is sometimes recommended for cultivation for timber.

The red bud or Judas tree *(Cercis Canadensis)* attains the diameter of six or eight inches in the south tier of counties in rich soil. Where hardy, it is worthy of cultivation, on account of its red purple flowers, which appear quite early in spring before the leaves.

The Kentucky coffee tree is not well known by the mass of the people. It is remarkable for its few thick, stumpy limbs and large compound leaves. The bark is quite rough. The tree sometimes bears large, thick, heavy pods an inch and a half wide by four inches in length, containing several hard beans the size of lima beans.

It grows in the south part of the State to Ionia, and sometimes attains a diameter of eighteen inches. The wood is rose colored, showing the grain well.

The honey locust is still more limited in its growth. It is found in rich woods in the south tier of counties, especially along the rivers Raisin and Kalamazoo. The pods are often eight inches long, an inch wide, and quite thin. The tree usually bears branching thorns, but sometimes no thorns are produced. It is valuable for hedges.

Two species of mountain ash grow in the north part of the State, sometimes attaining a diameter of eight inches or more.

The pepperidge, known also as sour gum tree, tupelo, grows about the margins of swamps in the south part of the State. The wood is usually very difficult to split, but some of it splits easily. The limbs stand out horizontally in a peculiar manner, some like those of the beech. The leaves turn bright crimson in autumn. The tree becomes twenty inches or more in diameter, and is worthy of use as an ornamental tree.

There are two elders scattered all over the State, one bearing a flat cluster of black berries, the other a conical cluster of red berries.

The largest specimen of elder comes from Grand Traverse, and is about five inches in diameter.

The red ash and green ash are both doubtful species. They are rather rare, small trees, found along streams. They resemble white ash too closely.

Sassafras is well known, usually as a shrub, but I hear of it over two feet through in the south and in the southwest part of the State in quite a number of places, and in one case in Allegan county four feet four inches in diameter.

The moosewood or leatherwood has the softest wood and the toughest bark of any woody plant in the State. It sometimes attains a diameter of two and a half inches.

The *Shepherdia* is one of the rarest shrubs in the State, growing along the margins of lakes on gravelly banks. It bears insipid yellowish red berries the size of currants. The leaves are covered with rusty scales, especially on the under side.

The hackberry, sugarberry, nettle tree is sparingly found as far north as Midland, and perhaps considerable farther, two feet or more in diameter. I have met but few people who knew the correct name for it. In three counties I hear it called shittim wood. I have often been asked about it. It has rough bark, which turns over in thin rolls. The tree looks some like its cousins, the elms, having its simple leaves in two rows along opposite sides of the stem the same as

elms. The tree bears small sweet berries the size of peas. The wood is of little value except for firewood.

The red mulberry is a rare tree, never growing in groves or clusters that I have heard of in our State. It has milky juice, attains a diameter of nearly two feet. The wood is yellowish and pretty. It grows in rich woods in the southern part of the State.

The western shell bark hickory *(Carya sulcata)* is the one bearing very large nuts with thick shells of a dull yellowish color. It thrives only in the southeast part of the State, so far as I can learn.

The chestnut is confined to the highest land in the southeast part of the State in limited quantity, in Oakland, Washtenaw, Wayne, Monroe and St. Clair counties. It grows well when planted on the sandy land at the Agricultural College, one of the coldest portions of our State.

The white birch *(Betula alba)* is found north of the central part of the southern peninsula. The leaves are small, triangular; the bark is white, not peeling into rolls very freely.

The paper or canoe birch *(Betula papyracea)* also has a white outer bark, which peels freely in thick or thin layers from around the tree. The leaves are larger. It is often confounded with *Betula alba,* both going by the name of white birch.

The balsam poplar grows in the southern peninsula, but scattering, sometimes attaining a diameter of two or even four feet.

The gray or scrub pine *(Pinus Banksiana)* grows from south of Lake Michigan along the western part of the State to the northern part. It also grows along the eastern side, especially to the north, and occasionally on poor land north of the central part.

The yellow pine *(Pinus mitis)* I hear of at Ludington and Elk Rapids. It doubtless occurs in other portions of the State.

White spruce is quite rare. Our fine sample comes from Ludington. It grows in swamps at the north.

Black spruce grows common in swamps at the north, but disappears a little south of Lansing.

Balsam fir is found with spruce and arbor vitae sparingly, but does not get as far south as these trees. It is a most beautiful tree while young, but when twenty or more years old it begins to grow slowly, lose its lower limbs and look forlorn.

White cedar or cypress *(Cupressus thyoides).* I have looked and inquired in vain for this beautiful tree, but can get no trace of it in Michigan.

Arbor vitæ is very common in the swamps at the north, and is usually known as white cedar. It makes our telegraph poles and many fence posts. I think it is over rated as an ornamental tree, especially on thin sandy land. It is a good tree to trim into ornamental hedges.

Red cedar is found in quite limited quantity along streams and about lakes, here and there all over the State, at least in the southern peninsula. The best trees are nearly all gone. Its timber is a great favorite for pails and tubs and other purposes on account of its color, odor and durability. It grows quite fast with good culture, and even with its brown color in winter is a good tree to plant for ornament.

Among the

MOST COMMON TREES

of the State stand the beech and sugar maple. They are all over the southern peninsula on what is known as timbered land. They are well known everywhere by the same common names for their valuable fire wood. Red beech grows among other trees and has much heart wood; white beech is the same kind of tree grown in more exposed places. There is a similar difference in our species of hickory and American elm. Beech and maple are very perishable when exposed to the changes of the weather.

The sugar maple grows on good land. It is used for wagon axletrees, shoe-lasts, shoe-pegs, ox-yokes, some parts of chairs, for boards and timber not exposed to weather. Sugar is made of the sap. Much of the sugar maple in the north part of the State is curly or birds-eye. It is very nice for furniture and for finishing buildings and railway coaches, especially when used as a veneer. It is a prominent and favorite shade tree.

The white oak is another very valuable tree, found in great abundance in most parts of the southern peninsula. It disappears as we go north among the forests of pine. It is one of our most valuable trees for a great many purposes; for floors, doors and furniture, especially when cut to show the silver grain or medullary rays. It is much used for rails, posts, railroad ties, bridges, planks and hewn timbers, piles, ship building and many other uses. Some of it is very tough, and valuable on this account.

White ash is also widely distributed, prominent and well known all over the State, except limited localities. It stands without a rival for farm implements, for cabinet ware, oars, for floors, for finishing off churches and dwelling houses. It is remarkable for its elasticity, strength and beauty. It grows rapidly to a large tree.

Black walnut is still quite abundant in some parts of the State. It disappears as we go north into the pine timber. Its great value is well known to all for furniture, finishing houses inside. The price has rapidly increased within a few years. The fashion for walnut has not abated.

Black cherry, the timber of which is red, is found with black walnut and farther north. It is not very abundant nor so large as the walnut, oak or white ash. It is not so much used for furniture and finishing churches as formerly. Much school furniture is made of cherry. Perhaps one reason why it is not so fashionable as formerly is that it can be so easily imitated by staining white pine, which is very common and more easily worked. It is much like Mahogany.

Vast forests of nice white pine give Michigan the highest rank as a lumbering State. This is either scattered with other timber north of a line running through Lansing, or in some places it forms large tracts as almost the only timber. The uses of pine are almost endless. It is a general favorite.

Rock or white elm is a very valuable timber on account of its toughness. It is found in the same country with pine and farther south. Large, straight, beautiful trees are found, some of which will make good axe-helves, wagon spokes, fills, farm implements, and it is fit to use in any place where strength and toughness are required.

Shag bark hickory and one or two others which rank as species are very valuable for wagon-makers, especially the second growth, or those trees which grow in exposed places. It is widely distributed, but seldom makes a very large tree.

Black ash is gaining favor. Some of it is considered equal or superior to

chestnut for cabinet ware. It becomes a large tree on rich low land in most parts of the southern peninsula. It has long been used for barrel hoops and bottoming chairs and making baskets. It grows rapidly.

This is not intended as a complete work on forestry. For a fuller account see a valuable work called "Forest Trees for Shelter, Ornament and Profit," by Arthur Bryant, Sr.

GREAT WASTE.

To the best of my knowledge, lumbering has always been overdone in this State. It is in most places very slovenly and wastefully done. Labor is so high and lumber so cheap that the best is culled here and there, a few trees. The tops and refuse are left on the ground. They are very likely to burn in a year or two and destroy the rest of the standing timber. The fire does not stop here, but runs in and destroys the adjacent timber which has been left for future use. It is a great pity that this fearful destruction by fire is not or cannot in some way be prevented.

HIGH TREES.

The exact height of our tallest trees in most cases is not known. They are to be found in some congenial spots where the ground is favorable for a thick growth, in a slight sag in the ground. At Clam Lake an old lumberman informed me that he could furnish spars of pine 175 feet long and not over two feet through at the butt. He had cut them 200 feet long.

LARGE TREES.

Within my recollection a large part of Southern Michigan, which is now in the form of arable land, has been cleared of timber. Our grandfathers, at great labor and expense, cut down, rolled into heaps, and burned the timber from thousands of acres in New York, because they must have room for corn and wheat and meadow. Our fathers did and are still doing the same thing for Michigan. Educated in this way, brought up in the woods, where timber is too plenty, as a people, we have been taught to undervalue timber. There are now living, men who can see no beauty in a tree, except for the cords of wood or loads of lumber, or the hundreds of rails it will make. The lovely elm, with all its grace and beauty, well styled the queen of American trees, shades the border of his meadow, and is a nuisance. He cuts it down. Our large, grand old trees have not been saved, partially because of this lack of love for them. In many places it would be impossible to save them. They would not stand the storms alone when their fellow trees were cut away. In 100 or 200 years it is likely our successors will have and care for large samples of trees which have grown more stocky in exposed places. One of the interesting things now to do is to save what we can and make a record of the size and position of any large trees in Michigan.

We have no written history recording the size and peculiarities of our forest trees. Below I have arranged in a table the name of the tree, the diameter, the locality of the tree, the name of the person giving the information. It is not nearly so full nor so accurate as I should like to make it.

The first part consists of our native trees, arranged with the common names in alphabetical order.

Common Name.	Diameter of Tree.	Locality.	Authority.
Ash (White)	5½ feet	Saugatuck, Allegan Co	H. D. Post.
Black Ash	3 feet 11 inches	Redford, Wayne Co	J. D. Perry.
Birch	3 feet 6 inches	Hersey, Osceola Co	W. J. Beal.
*Black Cherry	3 feet 6 inches	Argyle, Sanilac Co	J. M. Cole.
Black Cherry	7 feet 6 inches	South Lyons, Oakland Co	David Dunlap.
Box Elder	16 inches	Adrian, Lenawee Co	B. W. Steere.
Buttonwood	8 feet 6 inches	Adrian, Lenawee Co	H. E. Owen.
Buttonwood	8 ft. at 10 ft. above ground	Portland, Ionia Co	W. B. Hopkins.
Buttonwood	11 feet below	Grand Rapids (near.)	David Dunlap.
Black Walnut	9 feet 6 inches	Reading, Hillsdale Co	W. K. Kidder.
Black Walnut	11 feet	Allegan Co	Hiram Bennett.
Balsom Poplar	3 feet 7½ inches	Orion, Oakland Co	Prof. R. C. Carpenter.
Butternut	3 feet 9 inches	Hemlock City, Saginaw Co	H. S. Averill.
Cottonwood	3 feet 6 inches	Locke, Ingham Co	J. C. Martin.
Cottonwood	6 feet	Grattan, Kent Co	Mrs. M. A. Lessiter.
Cottonwood	10 feet	Almont	Joseph Bristol.
Dogwood	9½ inches	Battle Creek	J. A. Robinson.
Elder (Red)	5½ inches	Traverse City	W. N. Adsit.
Elder (Red)	5 inches	Traverse City	M. L. Leach.
Elm (American)	8 feet	Manistee	F. L. Kerr.
Grape Vine	10 inches	South Lyons, Oakland Co	David Dunlap.
Grape Vine	10 inches	Raisinville	Frank Atkinson.
Hickory (pig nut)	3 feet	Battle Creek	J. A. Robinson.
Hickory (shell bark)	2½ feet	Oakwood, Oakland Co	Sloan Cooley.
Hickory (2d growth)	18 inches	Franklin, Oakland Co	David Broughton.
Honey Locust	2 feet	Adrian	
Honey Locust	2 feet	Kalamazoo	H. Dale Adams.
Hemlock Spruce	5 feet	Allegan Co	H. D. Post.
Hemlock Spruce	4 feet 4 inches	Hersey, Osceola Co	W. J. Beal.
Ironwood	19 inches	Walton	E. L. Frazer.
Ironwood	1 foot	Cedar Springs	Philip Dines.
Ironwood	1 foot 3 inches	Birmingham	A. B. Simonson.
Maple (sugar)	5 feet 9 inches	Ionia Co	
Maple (sugar)	6 feet	Otsego Co	
Maple (sugar)	5 feet 3 inches	Gaylord, Otsego Co	Chas. L. Fuller.
Maple (sugar)	4 feet 9 inches	Ferry, Oceana Co	W. D. Webber.
Mulberry (red)	1 foot 3 inches	Portland, Ionia Co	W. B. Hopkins.
Mulberry (red)	1 foot 4½ inches	Dearborn, Wayne Co	A. G. Gulley.
Oak (white)	5 feet	Olive, Allegan Co	H. D. Post.
Oak (swamp)	7 feet 8 inches	Yew, Wayne Co	Wm. Ford.
Oak (white)	7 feet	Johnstown, Barry Co	W. K. Vanryckle.
Oak (white)	8 feet 4 inches	Little Salt River	
Pine (white)	6½ feet	Walton	E. L. Frazer.
Prickly Ash	4 inches	South Lyons	John J. McWhorton.
Pepperidge	2 feet 3 inches	Rollin, Lenawee Co	Norman Andress.
Red Cedar	3 feet	North Port	W. W. Tracy.
Sassafras	2 feet	Little Prairie Ronde, Cass Co	H. Dale Adams.
Sassafras	4 feet 4 inches	Saugatuck, Allegan Co	H. D. Post.
Tamarack	3 feet	Lansing, Ingham Co	Truman.
Tamarack	3 feet 4 inches	May, Tuscola Co	Jas. B. Crosby.
White Cedar	4 feet	Cedar River	
White Cedar	4 feet		
White Cedar	5½ feet	Walton	E. L. Frazer.
White Wood	6 feet	Vevay, Ingham Co	C. C. Walker.
White Wood	6 feet	Monroe Co	H. D. Post.
Apple Tree	1 foot 11 inches	Decatur, Van Buren Co	C. H. Morris.
Apple Tree	2 feet 6 inches	Prairie Ronde	Geo. G. Crose.
Apple Tree	1 foot 5 inches	Schoolcraft, Kalamazoo Co	Hosea Cox.
Apple Tree	1 foot 9 inches	Concord	Frank A. Ray.
Apple Tree	3 feet 3 inches	Monroe	Edwin Willits.
Ailanthus	1 foot 6 inches	Mason, Lenawee Co	B. H. Pennington.
Ailanthus	2 feet 1 inch	Farmington, Oakland Co	P. Dean Warner.
Osage Orange	8 inches	Climax	H. Dale Adams.
Pear Tree	3 ½ feet	Monroe	Edwin Willets.
†Weeping Willow	4 feet 6 inches	Adrian	S. E. Graves.

* Length of trunk 55 feet to first limb.

† This weeping willow has several very large branches about six feet from the ground. Within these branches is a bearing currant bush. The tree was set about forty years ago by Wm. Beal, who then owned the place, situated a mile and a half northeast of Adrian.

We send two sections of a large cottonwood to the Centennial, one section near the ground ten feet across, the other fifty feet above it over three feet in diameter. Five feet above the ground the tree was twenty-seven feet in circumference. The tree was 140 feet high. The first limb was twenty-eight inches in diameter and made two saw logs, each fourteen feet long. The tree grew two and

a half miles south of Almont village. The above items in reference to the cottonwood are furnished by the donor, Mr. Joseph Bristol.

The large specimen board of whitewood or tulip tree came from a tree cut some years ago. The tree made 5,060 feet of lumber. These items are given by John N. Heth, Birmingham.

I am informed of another whitewood tree cut in Shelby which made 5,000 feet of lumber; one board was four and a half feet wide.

The following is taken from the Lansing Republican of April 18, 1876, over the initials G. S. T.:

"I send you statement of logs cut by S. R. Sanford, of Muskegon, a man well known in this State, whose figures are to be relied on. They were scaled merchantable,—that is, all defects were taken out. Had they been scaled at surface they would have shown much larger figures. Take, for example, the first tree. The butt thrown out, it scaled 1,186 feet. Three logs scaled 5,520 feet, and nearly 2,000 feet left in the woods, making nearly 9,000 feet in this one tree.

"The following is a statement of the merchantable scale of twenty trees, cut by S. R. Sanford in the town of Belvidere, Montcalm county, and scaled by William Durno for John White, M. P., of Canada, who owns the land and is lumbering at Grand Haven:

"One tree in 10-feet lengths, 1,186 feet, cut off from butt, 3 logs scaled 5,520 feet; diameter at top 44 inches. One tree in 10-feet lengths, 1,252 feet cut off from butt, 3 logs, scaled 5,471 feet; diameter at top 42 inches. One tree in 8-feet lengths, 987 feet cut off from butt, 3 logs, scaled 4,683 feet; diameter at top 40 inches. One same length, 974 feet off butt, 4 logs, scaled 4,869 feet; diameter at top 31 inches.

No. Logs.	Lengths in feet.	No. logs in tree.	Scaled feet.	Diameter at top in inches.	No. Logs.	Lengths in feet.	No. logs in tree.	Scaled feet.	Diameter at top in inches.
1	12	4	4,705	33	5	16	5	7,043	37
1	14				5	16	5	6,412	32
2	16				1	12	5	6,287	36
2	14	4	4,587	34	1	14			
2	16				3	11			
4	16	4	4,379	32	5	16	5	6,149	35
4	-------	4	4,652	35	5	16	5	6,432	38
1	12	4	4,593	33	5	16	5	5,831	32
3	16				5	16	5	5,672	31
2	14	4	4,649	31	2	12	5	5,148	30
2	16				3	16			
1	12	4	5,173	36					
3	16								

A total of 85 logs, scaling 107,455 feet. The largest log scaled (merchantable) 2,025 feet; several scaled 1,700 feet and over; and 200 logs scaled an average of over 900 feet each log."

The logs were mostly cork pine, *i. e.*, a sort of white pine with wood very soft and nice to work.

VALUABLE TREES.

Some trees prove of great value because of the peculiarity of the grain or color. If I am rightly informed, a walnut tree in Potterville sold for $1,000, as the

wood was in beautiful waves. It was made into veneering. Mr. J. W. King, of Lansing, bought a black walnut tree seven feet through in Brookfield. He sold it for nearly $1,200 to be cut up into veneering in New York. Mr. H. D. Post, of Saugatuck, Allegan Co., tells me of a blistered walnut, very dark in color, which lay for some years in the water near Grand Rapids. The owner cut it into veneering for his own use, after refusing $2,000 for it.

Doubtless many a valuable log has been cut into fire-wood, or rolled into a log-heap and burned, or sawed into boards for a hog-pen by ignorant people not knowing its real worth.

At Grand Rapids I learned of a black cherry with very dark wood which was shipped to Central America, and from there shipped back to this country as good mahogany.

In the north part of the State, as at Otsego and Petoskey, there is some very fine curly and bird's eye maple. Considerable quantities are going to Europe. Some choice trees of rock elm, white oak, and white ash are also going to Europe, besides to nearly all parts of our own country, either in the unfinished state or after being first manufactured into some articles of furniture.

NATURAL GRAFTING

is very common with various kinds of roots, and not uncommon with the branches of trees and shrubs.

We send one or two small samples of root grafting and some of top grafting as found in the natural state.

In Branch county stand two trees, twelve feet apart, each about twelve inches through. They run up twelve feet, when one starts off horizontally and strikes the other, when they grow together in one body. I heard of a specimen, perhaps not now standing, two pines, about four feet apart, diameters twenty-six and twenty inches respectively. About sixteen feet from the ground they are joined by a tie six inches in diameter. Above the point of union the smaller tree becomes the largest,

Mr. George Rowell, of Bennington, Shiawassee Co., writes of two beeches now growing on his farm. They are about eighteen inches in diameter near the ground, thrifty and straight. About twenty feet above the ground they are joined together. The trunks are nearly covered with the names of persons who have made them a visit, some of them dating back thirty years. I should say of these beeches, which go to the Centennial, "united we stood, united we fell."

Mr. L. B. Peck, of Muskegon, writes: "On the farm of William H. Hubbard, in the township of Ferry (Reed P. O.), Oceana county, is a specimen of natural grafting. Two trees, standing some fifteen feet apart, are united together some ten feet high, forming from thence upward a perfect single top, with a smooth, round, natural trunk. Having seen it but a few moments, I am not able to give a very precise description,—not even to name the variety of timber, but I think the two are of the same."

Mr. E. J. Shirts, of Shelby, Oceana Co., sends a drawing and description of two sugar maples in his section grown together. The larger tree stands up straight, and is about two feet in diameter. The smaller tree is fifty feet from the larger one, and is about one foot in diameter. The small one, some eight feet from the ground, is bent over and touches the larger one where the graft occurs, thirty feet above the ground. At the point of union the large tree is twenty inches and the small one six inches in diameter.

I have looked many times at forest trees of different genera which had appar-

ently grown together by root, trunk or limbs, but on cutting into them I never found the least union of the wood.

KNOTS.

Mr. Warren Brown, Flint, writes as follows in reference to a huge oak knot which he donates: "The tree is nearly three feet at the butt. The wart is ten feet up the tree and is sound as a nut. I should have it made into a punch bowl, neatly carved. This wart goes round the tree within ten inches. Around the tree over the knot the tree is in circumference about twenty-five feet."

Sanford Keeler, Superintendent of the Flint & Pere Marquette Railroad, sends a portion of a pine tree which made a complete turn around and then grew on straight. The curl was about 30 feet from the ground and there was six inches in diameter.

Hon. J. Webster Childs sends a mallet made of a black ash knot. It is well made and is a beautiful specimen, showing a variety of faces or sides of the grain.

Mr. V. G. Canfield, Lansing, gives a cut from a knot of black walnut. One side we have polished; the other shows the bark.

DEER'S ANTLER IN A TREE.

A part of one is imbedded in an oak rail from a tree two feet in diameter, where it remained some years before it was discovered. By estimate the horn was about nine feet from the ground when the tree was standing. This was sent by Augustus Schmidt, of Kalamazoo, at the suggestion of H. Dale Adams.

A. B. Wetherbee, of Cass County, sends the following: The deer's horn in this case is about 16 inches long and has two branches, one projecting obliquely up alongside, and the other passing horizontally into and through the heart of the tree. The point of the upper branch is perfect; the lower one is somewhat damaged, and the base of the horn, fixed in the sap-wood of the tree, shows proofs of its former attachment to the head of the deer. The tree is perfectly sound, and is an ordinary white oak, 22 inches in diameter. It was first noticed by the early settlers about 36 years ago, when the tree was but eight or ten inches in diameter, with the horn projecting apparently through the center; the points disappeared about ten years ago, and when the tree was cut, March 7, 1876, only a small portion of the bone attached to the horn was visible.

The writer remembers seeing a specimen at the University of Michigan much like the one sent by Mr. Wetherbee.

In all these cases we suppose some one hung the antler on the limb of a tree out of the reach of wolves and dogs, or to place it where he could find it on some future occasion.

Allen & Co., Lansing, send a model of their new patent window blind made of the rich, beautiful wood of staghorn sumach.

WHAT TREES TO PLANT.

It may seem strange to hear of raising trees for timber in Michigan, but our people will soon begin to raise some kinds, and some of us will live to see it in all probability. So far as we can judge now our best trees to raise for timber are white ash, hickory, black walnut, white pine, white oak, European larch, and chestnut. An acre of timber raised, cultivated and properly cared for is of much more value than an acre of forest trees of the same species.

At the Agricultural College we have begun in a small way to raise some of our native trees, some foreign ones also, to see which will prove of most value for future generations to grow for profit, shelter and ornament.

We all know that our forests are of great value and that they are

RAPIDLY DISAPPEARING.

Maine was but a few years ago a great lumbering State. Her valuable pine is now about all gone. The same is true of Northern New York. In Pennsylvania, at the present rate, all the good timber will be gone in three years. Of course some of it will be kept longer. Michigan is now the great headquarters for valuable lumber. Two-thirds of the best in the markets of New York, Philadelphia and Boston goes from Michigan. Some of it goes to Germany and Great Britain.

Besides the demand at the East, Michigan supplies immense quantities of lumber to the cities and prairies of the southwest.

No other country of its size on this continent or any other has so much hard and soft wood valuable for hewing and for boards as the northern half of the southern peninsula of Michigan.

THE FORESTS OF GREAT BRITAIN.

It is human nature for us all to praise our own country. Even the poor men of Lapland and Iceland do this. To comprehend the relative importance of Michigan timber, let us take a glance at the forests of Great Britain. Great Britain and Ireland contain 121,260 square miles of land, Michigan 60,000, a little less than one-half as much as Great Britain. She has one species of basswood not so good as ours; one maple not over twenty feet high; one cherry, from ten to twenty feet high; one small ash, two elms, two poplars, one beech, which grows very large but not very high (sometimes ninety feet around), one small white birch, one species of pine, by no means a match for our white pine, a species of oak which sometimes grows to a great size (seventy feet in circumference). But the trees in many places there do not grow as thickly as they do here. They branch out low. They are magnificent trees for a park, a kind of second growth, but not very good for logs of hewn or sawed timber.

Great Britain, we see, has about ten species of trees natives of her soil. Michigan, with half the territory, has about ninety species, nine times as great a variety. Of course so old a country has introduced a great many species from other climates. Great Britain has no white wood (tulip tree), no white or red cedar, no walnuts or hickories. Michigan has six species of maple of tree size, a basswood, a white wood, honey locust, Kentucky coffee tree, two cherries, a pepperidge, five species of ash, a sassafras, three elms, a hackberry, a mulberry, a buttonwood, black walnut, butternut, six hickories, about twelve oaks, a chestnut, a beech, five tree birches, four or six willows of tree size, six poplars, five or more pines, four spruces, one larch, one arbor vitæ, and a red cedar.

THE FORESTS OF SOUTH AMERICA.

I have never had the privilege of a visit to tropical climes, but I have read the remarks of others who have. I have lately had a long visit from Dr. J. B. Steere, of our own State, who has spent over five years in a trip around the world, passing across South America in the widest place, along the Amazon, visiting some of China, the tropical islands east and south of the Hindostan, Egypt, France, Great Britain, etc. During all these five years he has been collecting birds, land shells, plants, etc. He has been in the forests a great deal of the time. He is a very good botanist. In all his travels he saw no forests to compare with the grandeur of our northern forests of pines. In the tropics there are 6,000 species of trees on a territory where we should find sixty species, 100 times as great a variety there as here. There might there be one, two or

three trees of a kind on an acre. As the climate along the Amazon is always mild, the leaves are always on the trees and always dying. There is nothing bleak as our winter; there is no fresh, universal thrifty green like our June.

Dr. Steere saw some large trees now and then six to seven feet in diameter; one grove of Brazil nut trees three feet through and trunks eighty feet high on the Upper Paru river. They stood as thick as sugar maples stand in some parts of our State. All the valuable and fragrant woods he noticed have only a very small heart (the only valuable part) surrounded by an immense growth of sap wood of no value. The best of the timber in this State for boards and hewing grows thick and tall and straight, usually much of it good and of a few kinds on a single acre. Where the soil is not favorable, the trees are more scattering, broader, crooked, and less valuable.

A THOROUGH SURVEY OF THE STATE

in reference to its trees, shrubs, and herbaceous plants, with some fine illustrations, would be of great interest and value in many respects. This has been strongly impressed upon my mind more especially while engaged in making a collection for the centennial. The timber which is large or most valuable has already been cut away in many of the older parts of the State. While facts can be easily obtained of the older settlers in reference to the trees, they should be collected and recorded by text and maps and other means. Such a work well done would not only interest men of science, but farmers, mechanics, nurserymen, all classes of intelligent persons. Massachusetts has a good report of two volumes lately revised for a second edition.

THE DIFFICULTIES OF COLLECTING

good specimens of such a great variety of trees and shrubs in so short a time with no money to pay for them have been very great. Many of the specimens are not known by any one but a good botanist. Every body was asked through the State press to give information and to help about making a collection. The invitation was so general, and the people so numerous that nearly all waited for others. Many who replied very generously offered valuable aid in getting fine specimens, but when asked, most of these gave the matter no further attention or found some good excuse for not complying with the request. Some were very slow. In many places the roads were very bad nearly all winter. After being offered specimens, then asking for them, and again being assured they would certainly be sent, and then several letters written to hurry up and encourage the person, I often found as the time approached for the specimens to be ready that I must go without them or get them from some other source.

A large specimen often proved hollow or rotten and worthless, or the owner had sold the place and the new proprietor wasn't patriotic.

One promises to get forest seeds. He gets them, but when too late to get them from other sources, they are spoiled by some accident.

One man offers, without price, a nice apple tree which blew over the summer previous. He is asked for it, and replies, "I could receive from ten to twelve dollars for it for turning purposes. Now if you will, or can through your influence and business, assist me to get a pass to the Centennial, I will ship you the tree. Let me hear from you soon."

Another man is sure he can get a nice ailanthus, but it is not on his place. He tries, but the man's wife doesn't want to spare it. He was sorry he had said anything about furnishing the tree. So was I.

A Kentucky coffee tree was promised, as the owner had two nice ones. When asked, after some delay, he finds another man who is willing to furnish a tree,

which, fortunately, he is prompt to do. All kinds of inquiries were made by letter. I mention one, "what would be the prospect for making money at the Centennial by a brass band made up of nine brothers?"

But there was

A BRIGHT SIDE

to the labor of making the collection. It gave the writer an opportunity to learn more about the *flora* of our State, which so abounds in interesting things.

Quite a number of men deserve especial mention for their sacrifice and prompt response to a call for specimens.

L. H. Foster, Ludington, deserves great credit for supplying eight fine birch logs of three species; also logs of white spruce, mountain ash, and others.

Hosea Cox, of Schoolcraft, with no delay went fifteen miles and obtained at his own expense a large red cedar log for the Centennial.

S. Alexander, of Birmingham, deserves mention here for promptness in sending valuable blocks of willows and oaks.

Mr. C. E. Sumner, of Monroe Co., also furnished at considerable trouble and expense several fine specimens.

Joseph Bristol, of Almont, furnished the largest tree, a cottonwood, which was costly to handle.

Israel Pennington and son were very self-sacrificing in going a long way in muddy time to deliver, without charge, trunks of nice trees set for ornament on their own place years before.

Warren Brown, of Flint, was one of the first to respond to the call by furnishing the huge knot referred to in another place.

Mr. George Rowell employed ten men to help get the twin beeches down and to the railroad.

A. B. Wetherbee, Cass Co., delivered at the railroad with very short notice the choice sample of oak containing the buck's horn.

Hon. O. M. Barnes, of Lansing, was very prompt in furnishing whatever was asked along the Jackson, Lansing & Saginaw Railroad.

Perhaps others deserve especial notice for promptness and work in this good cause, but space hardly permits a special notice of every person.

Most of the specimens of trees and shrubs were collected and prepared at the expense of the Agricultural College.

Especial mention is due to the officers of the Flint & Pere Marquette Railway for granting free transit for myself and for specimens which were collected along their railroad.

The same acknowledgment should here be made to the officers of the Michigan Central Railway and all their leased lines, to Detroit, Lansing & Lake Michigan Railway, and to the officers of the Detroit & Milwaukee Railway, and the Grand Rapids & Indiana Railway, and Chicago & Lake Huron Railway.

LIST OF SPECIMENS.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
1	*Magnolia acuminata*	Cucumber Tree.			
2	" "	" "			
3	* *Liriodendron tulipifera*	White-wood	Board 31x72 in.	Birmingham	John N. Heith.
4	" "	"	Block 6x6 in.	Lansing	Agricultural College.
5	" "	"	Board 4x10 in.	Grand Rapids	Phœnix Man'fg Co.
6	" "	"	Board 8x16 in.	Lansing	Agricultural College.
7	" "	"	" "	"	" "
8	" "	"	Seeds	"	" "
9	" "	"	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
10	" "	"	" "	" "	" "
11	" "	"	" "	" "	" "
12	" "	"	" "	" "	" "
12 a	" "	"	" "	Lansing	N. Glassbrook.
12 b	" "	"	" "	"	"
12 c	" "	"	" "	"	"
13	*Asimina triloba*	Pawpaw	Block 4½x6 in.	Paw Paw	Geo. E. Breck.
14	" "	" "	Block 2½x6 in.	Grand Ledge	Agricultural College.
15	" "	" "	Seeds	Cassopolis	Warren W. Reynolds.
16	" "	" "	Board 3x10 in.	Paw Paw	Agricultural College.
17	" "	" "	" "	"	" "
18	" "	" "	" "	"	" "
19	*Menispermum Canadense*	Moon-seed	6-in by ½-in. vine	Lansing	" "
20	*Hypericum*	St. John's wort.			
21	"	" "			
22	"	"			
23	"	"			
24	"	"			
25	"	"			
26	*Tilia Americana*	Bass-wood	Cross section 20 in.	Lansing	Agricultural College.
27	" "	"	6x6 in. block	"	" "
28	" "	"	4x10 in. board	Grand Rapids	Phœnix Manf. Co.
29	" "	"	Board 8x16 in.	Saginaw City	D. Hardin & Co.
30	" "	"	Seeds	Lansing	Agricultural College.
31	" "	"	Board 8x16 in.	"	A. A. Wilbur.
32	" "	"	" "	Grand Rapids	Nelson, Matter & Co.

33	*Tilia Americana*	Bass-wood	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
34	" "	"	" "	" "	" "
35	" "	"			
36	*Zanthoxylum Americana*	Prickly-ash	Block 6x4½ in.	South Lyons	J. J. McWharton.
37	" "	"	Board 4x10 in.	" "	Agricultural College.
38	" "	"	Board 2x10 in.	" "	" "
39	" "	"	" "	" "	" "
40	" "	"	" "	" "	" "
41	" "	"	" "	" "	" "
42	" "	"	" "	" "	" "
43	*Ptelia trifoliata*	Hop-tree	Block 6x3½ in.	Lansing	" "
44	" "	"	Block 3¼x6 in.	Paw Paw	Geo. E. Breck.
45	" "	"	Board 2½x10 in.	"	Agricultural College.
46	" "	"	" "	"	" "
47	" "	"	" "	"	" "
48	" "	"	Seeds	Lansing	" "
49	*Rhus typhina*	Stag-horn Sumac	6x5 inches block	"	" "
50	" "	"			
51	" "	"	Board 4x10 in.	Paw Paw	" "
52	" "	"	" "	"	" "
53	" "	"	" "	"	" "
54	" "	"	" "	"	" "
55	" "	"	" "	"	" "
56	" "	"			
57	*Rhus glabra*	Smooth Sumac	Cross section 10½ in.	Locke, Ingham Co.	H. A. Atkins.
58	" "	"	Board 4x10 in.	"	Agricultural College.
58 a	" "	"	" "	"	" "
59	" "	"	" "	"	" "
59 a	" "	"	" "	"	" "
60	" "	"	" "	"	" "
60 a	" "	"	" "	"	" "
61	" "	"	" "	"	" "
61 a	" "	"	" "	"	" "
62	" "	"	" "	"	" "
63	" "	"	" "	"	" "
64	*Rhus copallina*	Dwarf Sumac	Block 1¼x6 in.	Jackson	" "
65	" "	"			
66	" "	"			
67	" "	"			

* From a tree which cut 5600 feet.

LIST OF SPECIMENS.—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
68	*Rhus copallina*	Dwarf Sumac.			
69	*Rhus venenata*	Poison Sumac	Block 1¾x6 in	Lansing	Agricultural College.
70	" "	" "	Board 1¾x10 in	"	" "
71	" "	" "	" "	"	" "
72	" "	" "			
73	" "	" "			
74	*Rhus toxicodendron*	Poison Ivy	Block 6x2 in	Lansing	Agricultural College.
75	" "	"	Board 2x10 in	"	" "
76	" "	"	" "	"	" "
77	" "	"			
78	" "	Poison Oak.			
79	" "	"			
80	*Rhus aromatica*	Fragrant Sumac	Block 6x8⅜ in	Point Crystal	C. F. Wheeler.
81	*Vitis*	Grape-vine	Cross section 5¾	Birmingham	S. Alexander.
82	"	"	Block 5¾x6 in	"	"
83	"	"			
84	"	"			
85	"	"			
86	"	"			
87	"	"	Block 18x9 in	Raisinville	Atkinson Bros.
88	"	"	Cross section 9 in.	"	" "
89	*Ampelopsis quinquefolia*	Virginia creeper	Block 6x½ in.	Lansing	Agricultural College.
90	" "	" "	Block 6x1¼ in.	Hudson	A. H. Seeley.
91	" "	" "			
92	" "	" "			
93	" "	" "			
94	" "	" "			
95	*Rhamnus alnifolius*		Block 6x¼ in.	Lansing	Agricultural College.
96	" "				
97	" "				
98	" "				
99	" "				
100	" "				
101	*Ceanothus Americanus*	New Jersey tea, red-root	Irregular block 6 in.	Sanford	Agricultural College.
102	" "	" " "			
103	*Ceanothus ovalis*	" " "			
104	*Celastrus scandens*	Bitter sweet, wax work	Block 6x2½ in.	Ludington	Agricultural College.

105	*Celastrus scandens*	Bitter sweet, wax work	Block 2x24 in.	Ludington	Agricultural College.
106	" "	" "	Board 2x10 in.	"	"
107	" "	" "	" "	"	"
108	" "	" "			
109	" "	" "			
110	*Euonymus atropurpureus*	Burning-bush, Wahoo	Block 6x3 in.	Lansing	Agricultural College.
111	" "	" "	Board 2x10 in.	"	"
112	" "	" "	" "	"	"
113	" "	" "	Seeds	"	"
114	" "	" "			
115	" "	" "			
116	*Euonymus Americanus var. obovatus*	Strawberry bush.			
117	*Staphylea trifolia*	Bladder nut	Block 2x6 in.	Lansing	Agricultural Cellege.
118	" "	" "	Board 1¼x10 in.	"	"
119	" "	" "	" "	"	"
120	" "	" "	Seeds	"	"
121	" "	" "			
122	*Aesculus glabra*	Fetid or Ohio Buckeye	Cross section 10 in.	Monroe	C. E. Sumner.
123	" "	" " "	Seeds	"	" "
124	" "	" " "	Two boards 8x16 in.	"	Agricultural College.
125	" "	" " "	Board 4x10 in.	"	"
126	" "	" "			
127	" "	" "			
128	" "	" "			
129	*Acer Pennsylvanicum*	Striped maple	Block 6x4 in.	Little Traverse	Morrice & Crandall.
130	" "	" "	Board 3x10 in.	" "	Agricultural College.
131	" "	" "	" "	" "	" "
132	" "	" "	" "	" "	" "
133	" "	" "			
134	" "	" "			
135	*Acer spicatum*	Mountain maple	Block 6x3 in.	Grand Ledge	Agricultural College.
136	" "	" "	Board 2x10 in.	" "	" "
137	" "	" "	" "	" "	" "
138	" "	" "	" "	" "	" "
139	" "	" "	Seeds	" "	" "
140	*Acer saccharinum*	Sugar or rock maple	Cross section 21 in.	Lansing	" "
141	" "	" "	Block 6x6 in.	"	" "
142	" "	" "	* Board 7x16 in.	East Saginaw	Jesse Hoyt.
143	" "	" "	" "	" "	" "

* Birdseye.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
144	*Acer saccharinum*	Sugar or rock maple	* Cross section 20 in.	Little Traverse	Morrice & Crandall.
145	" "	" "	Board 4x10 in.	Grand Rapids	Phœnix M'f'g Co.
145 a	" "	" "	* Board 8x16 in.	Otsego	O. M. Barnes.
146	" "	" "	" "	"	"
147	" "	" "	" "	"	"
148	" "	" "	" "	"	Agricultural College.
148 a	" "	" "	" "	"	" "
149	" "	" "	" "	"	" "
149 a	" "	" "	" "	"	" "
150	" "	" "	" "	"	" "
150 a	" "	" "	Slab 8x16 in.	"	" "
151	" "	" "	* Board 8x16 in.	Petosky	" "
151 a	" "	" "	" "	"	" "
152	" "	" "	" "	"	" "
152 a	" "	" "	" "	"	" "
153	" "	" "	" "	Otsego	" "
153 a	" "	" "	" "	Saginaw City	D. Hardin & Co.
154	" "	" "	" "	Grand Rapids	Nelson, Matter & Co.
154 a	" "	" "	" "	"	" "
155	" "	" "	" "	"	" "
155 a	" "	" "	" "	"	" "
156	" "	" "	" "	"	" "
157	" "	" "	" "	Lansing	" "
158	" "	" "	† Board 4x10 in.	Grand Rapids	Phœnix M'f'g Co.
159	*Acer saccharinum nigrum var.*	Black maple	Block 4x6 in.	Lansing	Agricultural College.
160	" " "	"	Cross section 11 in.	"	" "
161	" " "	"	Board 8x16 in.	"	" "
162	" " "	"	" "	"	" "
163	" " "	"			
164	" " "	"			
165	*Acer dasycarpum*	White or silver maple	Cross section 20 in.	Lansing	Agricultural College.
166	" "	" "	Block 6x6 in.	"	" "
167	" "	" "	Board 8x16 in.	"	" "
168	" "	" "	" "	"	" "
169	" "	" "	" "	"	" "
170	" "	" "	" "	"	" "
171	" "	" "			

172	*Acer dasycarpum*	White or silver maple.			
174	*Acer rubrum*	Red maple	Cross section 20 in.	Lansing	Agricultural College.
175	" "	"	Block 6x5 in.	"	" "
176	" "	"	Board 6½x16 in.	East Saginaw	Jesse Hoyt.
177	" "	"	" "	"	"
178	" "	"	Board 8x16 in.	Cooperville	W. S. Cole.
179	" "	"	" "	"	"
180	" "	"	" "	Lansing	Agricultural College.
181	" "	"	" "	"	" "
182	" "	"	" "	"	" "
183	" "	"	" "	Saginaw City	D. Hardin & Co.
184	" "	"	" "	"	" "
185	" "	"	" "	Grand Rapids	Nelson, Matter & Co.
186	" "	"			
187	*Negundo aceroides*	Ash-l'v'd m'ple or box elder	Block 6x6 in.	Lansing	Agricultural College.
188	" "	" "	Cross section 11 in.	"	" "
189	" "	" "	Board 8x16 in.	"	" "
190	" "	" "	" "	"	" "
191	" "	" "	" "	"	" "
192	" "	" "	Seeds	"	" "
193	" "	" "			
194	" "	" "			
195	" "	" "			
196	" "	" "			
197	" "	" "			
198	" "	" "			
199	" "	" "			
200	" "	" "			
201	*Amorpha fruticosa*	False indigo.			
202	*Cercis Canadensis*	Red-bud or Judas-tree	Block 6x6 in.	Adrian	H. E. Owen.
203	" "	" "	Board 4x10 in.	"	Agricultural College.
204	" "	" "	" "	"	" "
205	" "	" "			
206	" "	" "			
207	" "	" "			
208	" "	" "			
209	" "	" "			
210	" "	" "			
211	*Gymnocladus Canadensis*	Kentucky coffee-tree	Block 6x5 in.	Lansing	Agricultural College.
212	" "	" "	‡ Cross section 13 in.	Macon	Israel Pennington.

* Birdseye. † Veneering. ‡Once transplanted in nursery.

LIST OF SPECIMENS—Continued.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
213	*Gymnocladus Canadensis*	Kentucky coffee-tree	* Board 8x16 in.	Macon	Agricultural College.
214	" "	" "	" "	"	" "
215	" "	" "	" "	"	" "
216	" "	" "	" "	"	" "
216 a	" "	" "	" "	"	" "
217	" "	" "	Seeds	Rollin	" "
218	" "	" "			
219	" "	" "			
220	" "	" "			
221	" "	" "			
222	*Gleditschia triacanthos*	Honey locust	Cross section 6½ in.	Adrian	H. E. Owen.
223	" "	" "	Block 6x6½ in.	"	"
224	" "	" "	Board 4x10 in.	"	Agricultural College.
225	" "	" "	" "	"	" "
226	" "	" "	" "	"	" "
227	" "	" "	" "	"	" "
228	" "	" "			
229	" "	" "			
230	" "	" "			
231	*Prunus Americana*	Wild yellow or red plum	Block 5x6 in.	Orion	R. C. Carpenter.
232	" "	" " "	Board 4x10 in.	"	Agricultural College.
233	" "	" " "	" "	"	" "
234	" "	" " "	" "	"	" "
235	" "	" " "	" "	"	" "
236	*Prunus pumila*	Dwarf cherry	Block 6x¾ in.	Ludington	" "
237	*Prunus Pennsylvanica*	Wild red cherry	Block 6x4 in.	Grand Ledge	" "
238	" "	" "	Board 2x10 in.	"	" "
239	" "	" "			
240	" "	" "			
241	" "	" "			
242	*Prunus Virginiana*	Choke cherry	Block 6x3 in.	Lansing	Agricultural College.
243	" "	" "	Board 2x10 in.	"	" "
244	" "	" "			
245	" "	" "			
246	" "	" "			
247	" "	" "			
248	*Prunus serotina*	Black cherry	Block 6x6 in.	Lansing	Agricultural College.

249	*Prunus serotina*	Black cherry	Cross section 24 in.	Lansing	Agricultural College.
250	" "	" "	Board 8x16 in.	East Saginaw	Jesse Hoyt.
251	" "	" "	" "	"	"
252	" "	" "	Board 4x10 in.	Grand Rapids	Phœnix M'f'g Co.
253	" "	" "	Board 8x16 in.	Lansing	Agricultural College.
254	" "	" "	" "	Saginaw City	D. Hardin & Co.
255	" "	" "	" "	Grand Rapids	Nelson, Matter & Co.
256	" "	" "	" "	"	" "
257	" "	" "	" "	Lansing	Agricultural College.
258	" "	" "	" "	"	A. A. Wilbur.
259	" "	" "	" "	Grand Rapids	Nelson, Matter & Co.
260	" "	" "	" "	"	" "
261	" "	" "	" "	"	" "
262	" "	" "	" "	"	" "
263	" "	" "			
264	*Spiraea opulifolia*	Nine bark	Block 6x1 in.	Lansing	Agricultural College.
265	*Spiraea salicifolia*	Common meadow-sweet	† Block 6x½ in.	"	" "
266	*Spiraea tomentosa*	Hard bark or steeple-bush			
267	*Spiraea labata*	Queen of prairie.			
268	*Rosa Carolina*	Swamp rose	Block 6x½ in.	Lansing	Agricultural College.
269	*Rosa lucida*	Dwarf wild rose.			
270	*Rosa blanda*	Early wild rose.			
271	*Crataegus coccinea*	Scarlet fruited thorn	Block 6x3½ in.	Lansing	Agricultural College.
272	" "	" " "	Board 2½x10 in.	"	" "
273	" "	" " "			
274	" "	" " "			
275	" "	" " "			
276	" "	" " "			
277	" "	" " "			
278	*Crataegus tomentosa*	Black or pear thorn, var.	Block 6x4 in.	Lansing	Agricultural College.
279	" "	" " "	Block 6x6 in.	"	" "
280	" "	" " "	Board 3½x10 in.	"	" "
281	" "	" " "	" "	"	" "
282	" "	" " "	" "	"	" "
283	*Crataegus Crus-galli*	Cockspur thorn	Board 2x10 in.	"	" "
284	" "	" "	" "	"	" "
285	" "	" "	" "	"	" "
286	" "	" "	Block 6x4 in.	"	" "
287	" "	" "			
288	" "	" "			

* Once transplanted in nursery. † Two specimens.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
289	*Cratægus*	Hawthorn	Board 4x10 in.	Paw Paw	G. E. Breck.
290	*Pyrus coronaria*	American crab-apple	Block 6x3 in.	Lansing	Agricultural College.
291	" "	" "	Board 2x10 in.	"	" "
292	" "	" "	" "	"	" "
293	" "	" "			
294	" "	" "			
295	" "	" "			
296	*Pyrus arbutifolia*	Choke berry	Block 6x¾ in.	Lansing	Agricultural College.
297	" "	" "			
298	*Pyrus Americana*	Mountain ash	Block 6x5 in.	Ludington	Agricultural College.
299	" "	" "	Board 4x10 in.	"	" "
300	" "	" "	" "	"	" "
301	" "	" "	" "	"	" "
302	" "	" "			
303	" "	" "			
304	*Pyrus sambucifolia.*				
305	" "				
306	" "				
307	*Amalanchier Canadensis*	Shad-bush, June berry, service berry	Block 6x4 in.	Lansing	Agricultural College.
308	" "	Shad-bush, June berry, service berry	Board 2x10 in.	"	" "
309	" "	Shad-bush, June berry, service berry	" "	"	" "
310	" "	Shad-bush, June berry, service berry	" "	"	" "
311	" "	Shad-bush, June berry, service berry.			
312	" "	Shad-bush, June berry, service berry.			
313	*Ribes cynosbati*		Block 6x½ in.	Lansing	Agricultural College.
314	*Ribes hirtellum.*				
315	*Ribes rotundifolium*		Block 6x¼ in.	Lansing	Agricultural College.
316	*Ribes lacustre.*				
317	*Ribes prostratum*		Block 6x¼ in.	Lake county	Agricultural College.
318	*Ribes floridum*	Wild black currant	Block 6x½ in.	Lansing	" "
319	" "	" " "			

320	*Ribes rubrum*	Red currant	Block 6x2½ in.	Lansing	Jno. W. Post.
321	" "	" "			
322	*Hamamelis Virginica*	Witch hazel	Block 6x5 in.	Grand Ledge	Agricultural College.
323	" "	" "	Board 3½x10 in.	"	" "
324	" "	" "	" "	"	" "
325	" "	" "	Seeds	Lansing	" "
326	" "	" "			
327	" "	" "			
328	*Cornus florida*	Flower'g cornel or dogw'd	Cross section 7½ in.	Lansing	Agricultural College.
329	" "	" " "	Block 6x5 in.	"	" "
330	" "	" " "	Board 4x10 in.	"	" "
330 a	" "	" " "	" "	"	" "
331	" "	" " "	" "	"	" "
331 a	" "	" " "	" "	"	" "
332	" "	" " "	" "	"	" "
333	" "	" " "	" "	"	" "
334	*Cornus circinatum*	Round-leaved dogwood	Block ¾x6 in.	Sanford	" "
335	" "	" "			
336	" "	" "			
337	" "	" "			
338	" "	" "			
339	*Cornus sericea*	Silky cornel or kininkinink	Block 6x¾ in.	Lansing	Agricultural College.
340	" "	" " "			
341	" "	" " "			
342	" "	" " "			
343	" "	" " "			
344	*Cornus stolonifera*	Red osier dogwood	Block 6x1 in.	Lansing	Agricultural College.
345	" "	" "			
346	*Cornus paniculata*	Panicled cornel	* Block 1¾x6 in.	Lansing	Agricultural College.
346 a	" "	" "	Board 1½x6 in.	"	" "
347	*Cornus alternifolia*	Alternate leaved cornel	Block 6x1½ in.	Grand Ledge	" "
348	" "	" " "	Block 6x1¾ in.	"	" "
349	" "	" " "	Board 3x10 in.	"	" "
350	" "	" " "	" "	"	" "
350 a	" "	" " "	" "	"	" "
351	*Nyssa multiflora*	Pepperidge sour-gum	Cross section 20 in.	Lansing	" "
352	" "	" "	Block 6x6 in.	"	" "
353	" "	" "	Board 8x16 in.	"	" "
354	" "	" "	" "	"	" "
355	" "	" "	" "	"	" "

* Two specimens.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
356	*Nyssa multiflora*	Pepperidge sour-gum.			
357	" "	" "			
358	" "	" "			
359	" "	" "			
360	" "	" "			
361	*Symphoricarpus occidentalis*	Wolf berry	Block 6x½ in.	Lansing	Agricultural College.
362	" "	" "			
363	" "	" "			
364	" "	" "			
365	*Symphoricarpus racemosus*	Snow-berry.			
366	*Symphoricarpus vulgaris*	Coral berry or Indian currant.			
367	*Lonicera grata*	American woodbine	6 in. x ½ in.	Lansing	Agricultural College.
368	*Lonicera flava*	Yellow honeysuckle.			
369	*Lonicera parviflora*	Small honeysuckle	6 in. x ¼ in.	Lansing	Agricultural College.
370	*Lonicera hirsuta*	Hairy honeysuckle	6 in. x ¼ in.	"	" "
371	*Lonicera ciliata*	Fly honeysuckle.			
372	*Lonicera cærulea*	Mountain Fly honeysuckle			
373	*Lonicera oblongifolia*	Swamp Fly honeysuckle	6 in. x ¾ in.	Lansing	Agricultural College.
374	*Diervilla trifida*	Bush honeysuckle	6 in. x ¼ in.	"	" "
375	*Sambucus Canadensis*	Common elder	6 in. x ⅞ in.	"	" "
376	*Sambucus pubens*	Red berried elder	6 in. x 5 in.	Grand Traverse	W. N. Adsit.
377	" "	" "			
378	" "	" "			
379	" "	" "			
380	" "	" "			
381	*Viburnum lentago*	Sheep berry, sweet viburnum	Block 3½x6 in.	Lansing	Agricultural College.
382	" "	Sheep berry, sweet viburnum	Board 2x10 in.	"	" "
382 a	" "	Sheep berry, sweet viburnum	" "	"	" "
383	" "	Sheep berry, sweet viburnum	" "	"	" "
383 a	" "	Sheep berry, sweet viburnum	" "	"	" "
384	*Viburnum nudum*	White rod	6 in. x ⅞ in.	"	" "

385	*Viburnum dentatum*	Arrow wood	6 in. x ¾ in.	Lansing	Agricultural College.
386	*Viburnum pubescens*	Downy Arrow wood	6 in. x ½ in.	"	" "
387	*Viburnum acerifolium*	Dockmackie maple-leaved arrow wood	6 in. x ½ in.	"	" "
388	*Viburnum pauciflorum.*				
389	*Viburnum opulus*	Cranberry tree	6 in. x 2 in.	Lansing	" "
390	" "	" "			
391	" "	" "			
392	" "	" "			
393	*Viburnum lantanoides*	Hobble-bush, wayfaring tree.			
394	" "	Hobble-bush, wayfaring tree.			
395	" "	Hobble-bush, wayfaring tree.			
396	*Cephalanthus occidentalis*	Button-bush	6 in. x 2 in.	Lansing	Agricultural College.
397	" "	"	Board 2x10 in.	"	" "
398	" "	"	" "	"	" "
399	" "	"			
340 a	*Gaylussacia racemosa*	Black huckleberry.			
341 a	*Vaccinium Pennsylvanicum*	Dwarf blueberry	6 in. x ½ in.	Lansing	Agricultural College.
342 a	*Vaccinium corymbosum*	Swamp blueberry	6 in. x 1 in.	"	" "
343 a	" "	" "			
344 a	" "	" "			
345 a	*Arctostaphylos uva-ursi*	Bearberry	⅛x6 in.	Sanford	Agricultural College.
346 a	*Epigæa repens*	Trailing arbutus.			
347 a	*Cassandra calyculata*	Leatherleaf	6 in. by ⅜ in.	Lake Co.	Agricultural College.
348 a	*Kalmia angustifolia*	Lambkill, sheep laurel.			
349 a	*Kalmia glauca*	Pole laurel	6 in x ¼ in.	Clam Lake	Agricultural College.
350 a	*Ledum latifolium*	Labrador tea.			
351 a	*Ilex verticillata*	Bl'k alder, winterberry	6 in. x 2½ in.	Lansing	Agricultural College.
352 a	" "	" "			
353 a	" "	" "			
354 a	*Nemopanthes Canadensis*	Mountain holly	6 in. by ½ in.	Lansing	Agricultural College.
355 a	" "	" "	2x10-in. Board	"	" "
356 a	" "	" "	" "	"	" "
357 a	" "	" "			
358 a	*Fraxinus Americana*	White ash	Section 20 in.	Lansing	Agricultural College.
359 a	" "	"	6 in. x 5 in.	"	" "

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
360 a	*Fraxinus Americana*	White ash	2 ft. 4 in. x 2½ in.	Jackson	Austin, Tomlinson & Webster.
361 a	" "	" "	8 in. x 16 in.	Lansing	Agricultural College.
362 a	" "	" "	" "	"	" "
363 a	" "	" "	" "	"	" "
364 a	" "	" "	10 in. x 20 in.	"	" "
365 a	" "	" "	4x10 in.	"	" "
366 a	" "	" "	"	"	" "
367 a	" "	" "	10 in. x 4 in.	Grand Rapids	Phœnix Co.
368 a	" "	" "	Board 8x16 in.	Saginaw City	D. Hardin & Co.
369 a	" "	" "	" "	" "	" "
370 a	" "	" "	Seeds	Grand Ledge	Agricultural College.
371 a	" "	" "	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
371 b	" "	" "	" "	" "	" "
372 a	" "	" "	" "	" "	" "
372 b	" "	" "	" "	" "	" "
373 a	" "	" "	" "	" "	" "
373 b	" "	" "	" "	Lansing	A. A. Wilbur.
374 a	" "	" "	" "	"	"
375 a	" "	" "	" "	"	"
375 b	" "	" "	" "	"	"
376 b	" "	" "	" "	"	"
377 a	" "	" "	" "	"	"
377 b	" "	" "	" "	"	"
378 a	" "	" "	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
379 a	*Fraxinus pubescens*	Red ash	6 in. by 6 in.	Lansing	Agricultural College.
380 a	" "	" "	Board 4x10 in.	"	" "
380 b	" "	" "	" "	"	" "
381 a	" "	" "	" "	"	" "
381 b	" "	" "	" "	"	" "
382 a	" "	" "	" "	"	" "
383 a	" "	" "	" "	"	" "
384 a	*Fraxinus viridis*	Green ash	6 in. x 6 in.	Grand Ledge	" "
385 a	" "	" "	Section 7 in.	" "	" "
386 a	" "	" "	Board 4x10 in.	" "	" "
387 a	" "	" "	" "	" "	" "
388 a	" "	" "	" "	" "	" "

389 a	*Fraxinus sambucifolia*	Black ash	Section 19 in.	Lansing	Agricultural College.
390 a	" "	" "	6 in. x 6 in.	"	" "
391 a	" "	" "	Board 8x16 in.	"	" "
391 b	" "	" "	" "	"	" "
392 a	" "	" "	" "	"	" "
392 b	" "	" "	" "	"	" "
393 a	" "	" "	" "	Saginaw City	D. Hardin & Co.
394 a	" "	" "	6 in. x 5 in.	Lansing	Agricultural College.
395 a	" "	" "	* Board 4x10 in.	Grand Rapids	Phœnix Co.
396 a	" "	" "	Board 8x16 in.	Lansing	A. A. Wilbur.
397 a	" "	" "			
398 a	" "	" "			
399 a	" "	" "			
400	" "	" "			
401	" "	" "			
402	" "	" "			
403	" "	" "			
404	" "	" "			
405	" "	" "			
406	" "	" "			
407	" "	" "			
408	" "	" "			
409	" "	" "			
410	" "	" "			
411	" "	" "			
412	" "	" "			
413	" "	" "			
414	" "	" "			
415	*Fraxinus quadrangulata*	Blue ash	Section 17 in.	Lansing	Agricultural College.
416 a	" "	" "	Board 8x16 in.	"	" "
416	" "	" "	6 in. x 5 in.	"	" "
417 a	" "	" "	16 in. x 6 in.	Coldwater	J. H. Lawrence.
417 b	" "	" "	8x16 in. board	Lansing.	
417	*Sassafras officinale*	Sassafras	Section 11 in.	"	Agricultural College.
418	" "	"	6 in. x 5½ in.	"	" "
419	" "	"	Board 8x16 in.	"	" "
420	" "	"	" "	"	" "
421	" "	"	" "	"	" "
422	*Fraxinus quadrangulata*	Blue ash	" "	"	" "
423	" "	" "	" "	"	" "

* Veneered with knot.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
424	*Fraxinus quadrangulata*	Blue ash	Board 8x16 in.	Lansing	Agricultural College.
425	" "	" "			
426	" "	" "			
427	" "	" "			
428	*Lindera benzoin*	Spice-bush, fever-bush	6 in. x 2 in.	Kalamazoo	D. T. Fox.
428 a	" "	" "	10 in. x 1⅝ in.		
428 b	" "	" "	10 in. x 1½ in.		
429	*Dirca palustus*	Leather wood, moose wood	6 in. x 2½ in.	Ludington	Agricultural College.
430	*Shepherdia Canadensis*	Canadian shepherdia	6 in. x 1½ in.	"	" "
431	*Ulmus Americana*	American elm	Section 14 in.	Lansing	" "
432	" "	" "	6 in. x 6 in.	"	" "
433	" "	" "	10 in. x 4 in.	Grand Rapids	Phœnix Co.
434	" "	" "	Board 8x16 in.	Lansing	Agricultural College.
435	" "	" "	" "	"	" "
436	" "	" "	" "	"	" "
437	" "	" "			
438	" "	" "			
439	" "	" "			
440	*Ulmus fulva*	Red or slippery elm	6 in. x 5 in.	Lansing	Agricultural College.
441	" "	" "	Section 12 in.	"	" "
442	" "	" "	Board 7x16 in.	"	" "
443	" "	" "	Board 4x10 in.	"	" "
444	" "	" "	" "	"	" "
445	" "	" "	" "	"	" "
446	" "	" "			
447	" "	" "			
448	" "	" "			
449	" "	" "			
450	" "	" "			
451	*Ulmus racemosa*	White or rock elm	Section 20 in.	Lansing	Agricultural College.
452	" "	" "	6 in. x 6 in.	"	" "
453	" "	" "	Board 8x16 in.	"	" "
454	" "	" "	" "	"	" "
455	" "	" "	" "	"	" "
456	" "	" "	" "	Saginaw City	D. Hardin & Co.
457	" "	" "			
458	" "	" "			

459	*Ulmus racemosa*	White or rock elm.			
460	" "	" "			
461	*Celtis occidentalis*	Hackberry, sugarberry, or tree nettle	6 in. x 5 in.	Lansing	Agricultural College.
462	" "	Hackberry, sugarberry, or tree nettle	Board 8x16 in.	Saginaw City	D. Hardin & Co.
463	" "	Hackberry, sugarberry, or tree nettle	" "	Sanford	Agricultural College.
464	" "	Hackberry, sugarberry, or tree nettle	" "	"	" "
465	" "	Hackberry, sugarberry, or tree nettle	" "	"	" "
466	" "	Hackberry, sugarberry, or tree nettle	" "	"	" "
467	" "	Hackberry, sugarberry, or tree nettle	" "	Lansing	" "
468	" "	Hackberry, sugarberry, or tree nettle.			
469	*Morus rubra*	Red mulberry	6 in. x 5 in.	Lansing	Agricultural College.
470	" "	" "	Section 16 in.	Dearborn	A. G. Gulley.
470 a	" "	" "	Board 4x10 in.	Richland	Rev. E. H. Day.
471	" "	" "	Board 8x16 in.	"	Agricultural College.
472	" "	" "	" "	Dearborn	" "
472 a	" "	" "	" "	"	" "
473	" "	" "	" "	"	" "
473 a	" "	" "	" 4x10 in.	Richland	" "
474	" "	" "	" 8x16 in.	Dearborn	" "
474 a	" "	" "	" "		" "
475	*Platinus occidentalis*	Planetree, sycamore, buttonwood	6 in. x 5 in.	Lansing	Agricultural College.
476	" "	Planetree, sycamore, buttonwood	Section 18 in.	"	" "
477	" "	Planetree, sycamore, buttonwood	Seeds	"	" "
478	" "	Planetree, sycamore, buttonwood	Board 8x16 in.	"	" "
479	" "	Planetree, sycamore, buttonwood	" "	"	" "
480	" "	Planetree, sycamore, buttonwood.			

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
481	*Platinus occidentalis*	Planetree, sycamore, buttonwood.			
482	" "	Planetree, sycamore, buttonwood.			
483	" "	Planetree, sycamore, buttonwood.			
484	" "	Planetree, sycamore, buttonwood.			
485	" "	Planetree, sycamore, buttonwood.			
486	*Juglans cinerea*	Butternut	14 in. x 7½ in.	Battle Creek	J. A. Robinson.
487	" "	"	17 in. x 8 in.	" "	" "
488	" "	"	Section 16 in.	Lansing	Agricultural College.
489	" "	"	10 in. x 4 in.	Grand Rapids	Phœnix Co.
490	" "	"	" "	" "	"
491	" "	"	6 in. x 6 in.	Lansing	Agricultural College.
492	" "	"	Board 8x16 in.	Saginaw	D. Hardin & Co.
493	" "	"	" "	" "	" "
493 a	" "	"	" "	Grand Rapids	Nelson, Matter & Co.
494	" "	"	Seeds	Lansing	Agricultural College.
495	" "	"	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
496	" "	"	" "	" "	" "
497	" "	"	" "	" "	" "
498	" "	"			
499	*Juglans nigra*	Black walnut	Section 22 in.	Lansing	Agricultural College.
500	" "	"	10 in. x 4 in.	Grand Rapids	Phœnix Co.
501	" "	"	" "	" "	"
502	" "	"	" "	" "	"
503	" "	"	" "	" "	"
504	" "	"	" "	" "	"
505	" "	"	" "	" "	"
506	" "	* "	18 in. by 9 in. and 4 in.	Redmond	W. R. Kidder.
507	" "	"	Board 8x16 in.	Lansing	Agricultural College.
508	" "	"	4 in. x 6 in.	"	" "
509	" "	"	Board 8x16 in.	Saginaw City	D. Hardin & Co.
510	" "	"	" "	" "	" "
511	" "	"	Seeds	Lansing	Agricultural College.

512	*Juglans nigra*	Black walnut	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
513	" "	"	" "	" "	" "
514	" "	"	" "	Lansing	D. G. Canfield & Co.
515	" "	† "	" 4x10 in.	Grand Rapids	Phœnix Co.
515 a	" "	"	" 8x16 in.	Lansing	A. A. Wilbur.
516	" "	"	" "	"	"
516 a	" "	"	" "	"	"
517	" "	"	" "	"	"
517 a	" "	"	" "	"	"
518	" "	"	" "	Grand Rapids	Nelson, Matter & Co.
518 a	" "	"	" "	" "	" "
519	" "	"	" "	" "	" "
519 a	" "	"	" "	" "	" "
520	" "	"	" "	" "	" "
520 a	" "	† "	" 4x10 in.	" "	Phœnix Co.
521	*Carya alba*	Shell-bark or shag-bark hickory	6 in. x 5 in.	Lansing	Agricultural College.
522	"	Shell-bark or shag-bark hickory	Section 15 in.	"	Warren Burcham.
523	"	Shell-bark or shag-bark hickory	2 ft. x 4 in. x 2½ in.	Jackson	Austin, Tomlinson & Webster.
524	"	‡ Shell-bark or shag-bark hickory	4½ ft. x 15 in. x 2 in.	Monroe	J. Vanwormer.
525	"	Shell-bark or shag-bark hickory	12 ft. x 18 in. x 1½ in.	Franklin	Dr. Daniel Broughton.
526	"	Shell-bark or shag-bark hickory	Board 8x16 in.	Lansing	Agricultural College.
526 b	"	Shell-bark or shag-bark hickory	Seeds	"	" "
527	"	Shell-bark or shag-bark hickory	Board 8x16 in.	"	" "
528	"	Shell-bark or shag-bark hickory	" "	Saginaw City	D. Hardin & Co.
529	*Carya macrocarpa*	Small fruited hickory	6 in. by 5 in.	Lansing	Agricultural College.
530	" "	" "	Board 8x16 in.	"	" "
531	" "	" "	" 4x10 in.	"	" "
532	" "	" "	" "	"	" "
533	" "	" "	" "	"	" "
533 a	" "	" "	Seeds	"	" "
534	*Carya sulcata*	Western shellbark hickory	Section 15 in.	Monroe	C. E. Sumner.

* Taken from stump 9½ feet in diameter. † Veneered. ‡ Second growth.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
535	*Carya sulcata*	Western shellbark hickory	Board 8x16 in.	Monroe	Agricultural College.
536	" "	" "	Seeds	"	" "
537	" "	" "		"	C. E. Sumner
538	" "	" "			
539	" "	" "			
540	*Carya porcina*	Pignut, brown hickory.			
541	" "	" "			
542	" "	" "			
543	" "	" "			
544	" "	" "			
545	" "	" "			
546	*Carya amara*	Bitternut	Section 14 in.	Lansing	Agricultural College.
547	" "	"	6 in. x 6 in.	"	" "
548	" "	"	Board 4 x 10 in.	"	" "
549	" "	"	" "	"	" "
550	" "	"	" "	"	" "
551	" "	"	" "	"	" "
552	*Quercus alba*	White oak	Section 22 in.	"	" "
553	"	"	6 in. x 7 in.	"	" "
554	"	"	2 ft. x 4 in. x 2½ in.	Jackson	Austin, Tomlinson, and Webster.
555	"	"	10 x 4 inches	Grand Rapids	Phœnix Co.
556	"	"	" "	" "	" "
557	"	"	4 ft. x 16 in. x 2½	Monroe	J. Van Wormer.
558	* "	"	Board 8x16 in.	Saginaw City	D. Hardin & Co.
559	"	"	Seeds	Lansing	Agricultural College.
560	"	"	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
561	"	"	" "	" "	" "
562	"	"	" "	" "	" "
563	"	"	" "	" "	" "
564	"	"			
565	"	"			
566	"	"			
567	"	"			
568	"	"			
569	"	"			
570	"	"			

571	*Quercus oblusiloba*	Post oak or box white oak	Block 6x2 in	Sanford	Agricultural College.	
572	" "	" " "				
573	" "	" " "				
574	" "	" " "				
575	" "	" " "				
576	" "	" " "				
577	" "	" " "				
578	" "	" " "				
579	*Quercus macrocarpa*	Bur oak, mossy cup white oak	Section 16 in	Lansing	Agricultural College.	
580	" "	Bur oak, mossy cup white oak	6x6 in	"	"	"
581	" "	Bur oak, mossy cup white oak	Board 8x16 in	"	"	"
582	" "	Bur oak, mossy cup white oak	" "	"	"	"
583	" "	Bur oak, mossy cup white oak				
584	" "	Bur oak, mossy cup white oak.				
585	" "	Bur oak, mossy cup white oak.				
585 b	" "	Bur oak, mossy cup white oak	Seeds	Lansing	Agricultural College.	
586	*Quercus bicolor*	Swamp white oak	Section 17 inch	"	"	"
587	" "	" "	6x5 inch	"	"	"
588	" "	" "	12x20 inch	Lyons	J. F. Fosmir.	
589	" "	" "	Board 8x16	Lansing	Agricultural College.	
590	" "	" "	Seeds	"	"	"
591	" "	" "				
592	" "	" "				
593	*Quercus Prinus*	Chestnut oak	Section 16 inch	Lansing	Agricultural College.	
594	" "	" "	Board 8x16 in	"	"	"
595	" "	" "	" "	"	"	"
596	" "	" "	" "	"	"	"
597	" "	" "	" "	"	"	"
598	" "	" "	" "	"	"	"
599	" "	" "				
600	" "	" "				
571 a	*Quercus Prinus var. acuminata*	Yellow chestnut oak.				

* Second growth.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
572 a	*Quercus Prinus var acuminata*	Yellow chestnut oak.			
573 a	" " "	" "			
574 a	" " "	" "			
575 a	" " "	" "			
576 a	" " "	" "			
577 a	" " "	" "			
578 a	" " "	" "			
579 a	" " "	" "			
581 a	*Quercus imbricata*	Laurel or shingle oak			
582 a	" "	" "			
583 a	" "	" "			
584 a	" "	" "			
585 a	" "	" "			
586 a	" "	" "			
587 a	*Quercus coccinea*	Scarlet oak	Section 12 inch	Lansing	Agricultural College.
588 a	" "	"	Board 8x16 in.	"	"
589 a	" "	"	" "	"	"
590 a	" "	"	" "	"	"
591 a	" "	"	Seeds	"	"
592 a	" "	"			
593 a	" "	"			
594 a	" "	"			
595 a	" "	"			
596 a	" "	"			
597 a	" "	"			
598 a	" "	"			
599 a	" "	"			
600 a	* *Quercus coccinea var tinctoria*	Black oak or Quercitron	Block 6x6 in.	Lansing	Agricultural College.
601	" " "	" "	Board 8x16 in.	Birmingham	" "
602	" " "	" "	" "	"	" "
603	" " "	" "	" "	"	" "
604	" " "	" "	" "	Saginaw City	D. Hardin & Co.
605	" " "	" "	Seeds	Lansing	Agricultural College.
606	" " "	" "			
607	" " "	" "			
608	" " "	" "			

516 a	*Quercus rubra*	Red oak	Section	Lansing	Agricultural College.
517 a	" "	"	Board 8x16 in.	"	" "
518 a	" "	"	" "	"	" "
519 a	" "	"	" "	"	" "
520 a	" "	"	" "	"	" "
521 a	" "	"	" "	Saginaw City	D. Hardin & Co.
522 a	" "	"	Seeds	Agricultural College	Lansing.
523 a	" "	"			
524 a	" "	"			
525 a	" "	"			
526 a	" "	"			
527 a	" "	"			
528 a	" "	"			
529 a	" "	"			
531 a	*Quercus palustris*	Swamp,Spanish,or pin oak			
532 a	" "	" " " "			
533 a	" "	" " " "			
534 a	" "	" " " "			
535 a	" "	" " " "			
536 a	" "	" " " "			
537 a	" "	" " " "			
538 a	" "	" " " "			
539 a	*Castanea vesca*	Chestnut	Section	Wayne Co.	S. W. Walker.
540 a	" "	"	Board 8x16 in.	Wayne	Agricultural College.
541 a	" "	"	" "	"	" "
542 a	" "	"	" "	"	" "
543 a	" "	"	" "	"	" "
544 a	" "	"	" "	"	" "
545 a	" "	"	" "	"	" "
546 a	" "	"	" "	"	" "
547 a	" "	"	" "	"	" "
548 a	" "	"	" "	Saginaw City	D. Hardin & Co.
549 a	" "	"	Seeds	Lansing	Agricultural College.
550 a	*Pumila*	Chingapin	Burrs	Adrian	B. W. Steere.
551 a	"	"	"		
552 a	*Fagus ferruginea*	American beech	Section 2 feet	Lansing	Agricultural College.
553 a	" "	" "	4x10 inch	"	" "
554 a	" "	" "	"	"	" "
555 a	" "	" "	6x6 inch	"	" "
556 a	" "	" "	10x4 inch	Grand Rapids	Phœnix Manf. Co.

* Missing.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
557 a	*Fagus ferruginea*	American beech	10x4 inch	Grand Rapids	Phœnix Manf. Co.
558 a	" "	" "	Board 8x16 in.	Saginaw City	D. Hardin & Co.
559 a	" "	" "	Seeds	Lansing	Agricultural College.
560 a	" "	" "	"		
561 a	*Corylus Americana*	Hazle-nut	6x¾ inch	Lansing	Agricultural College.
562 a	" "	"	Seeds	Jackson.	
563 a	*Corylus rostrata*	Beaked hazle-nut	6 in. x ¾ in.	Reed City	Agricultural College.
564 a	" "	" "			
565 a	*Astrya Virginica*	Iron or lever wood, or hop-horn-beam	Section 15 inches	Battle Creek	J. A. Robinson.
566 a	" "	Iron or lever wood, or hop-horn beam	6x6 inch	Lansing	Agricultural College.
567 a	" "	Iron or lever wood, or hop-horn-beam	8x16 inch	Battle Creek	J. A. Robinson.
568 a	" "	Iron or lever wood, or hop-horn-beam.			
569 a	" "	Iron or lever wood, or hop-horn-beam.			
570 a	" "	Iron or lever wood, or hop-horn-beam.			
571 b	*Carpinus Americana*	Blue beech, horn-beam	Section 7½ inc	Lansing	Agricultural College.
572 b	" "	" "	6x7 inch	Paw Paw	G. E. Brede.
573 b	" "	" "	Board 4x10	"	Agricultural College.
574 b	" "	" "	" "	"	" "
575 b	" "	" "	Seeds	Lansing	" "
576 b	" "	" "			
577 b	*Myrica Gale*	Sweet gale.			
578 b	*Comptonia aspenifolia*	Sweet fern	½x6 inches block	Sanford	Agricultural College.
579 b	*Betula lenta*	Cherry, sweet or bl'k birch	Block 6x6 in.	"	" "
580 b	"	" " "	Cross section 12 in.	"	" "
581 b	"	" " "	Board 4x10 in.	"	" "
582 b	"	" " "	Board 8x16 in.	"	" "
583 b	"	" " "	" "	"	" "
584 b	"	" " "			
585 b	"	" " "			
586 b	"	" " "			
587 b	"	" " "			

588 b	*Betula lenta*	Cherry, or black birch.			
589 b	*Betula lutea*	Yellow or gray birch	Cross section 22 in.	Ludington	Agricultural College.
590 b	"	" " "	Board 8x16 in.	"	" "
591 b	"	" " "	" "	"	" "
592 b	"	" " "	" "	"	" "
593 b	"	" " "	" "	"	" "
594 b	"	" " "	" "	"	" "
595 b	"	" " "			
596 b	"	" " "			
597 b	*Betula alba var papalifolia*	White birch	Cross section 18 in.	Ludington	Agricultural College.
598 b	" " "	"	Board 8x16 in.	"	" "
599 b	" " "	"	" "	"	" "
601 a	" " "	"	" "	"	" "
602 a	*Betula papyracea*	Paper or canoe birch	Cross section 17½ in.	"	" "
603 a	" "	" " "	Slab 8x16 in.	"	" "
604 a	" "	" " "	Board 8x16 in.	"	" "
605 a	" "	" " "	" "	"	" "
606 a	" "	" " "	" "	"	" "
607 a	" "	" " "	Board 4x10 in.	"	" "
608 a	" "	" " "	6 in. x 7 in.	"	" "
609	*Betula nigra*	River or red birch	Block 6x1¾ in.	Lansing	" "
610	"	" " "	Board 1½x10 in.	"	" "
611	"	" " "	" "		
612	"	" " "	" "		
613	"	" " "	" "		
614	"	" " "	" "		
615	"	" " "	" "		
616	*Betula pumila*	Low birch	Block 6x1 in.	Lansing	Agricultural College.
617	*Betula glandulosa*	Dwarf birch.			
618	*Alnus viridis*	Green or Mt. alder.			
619	"	" "			
620	"	" "			
621	*Alnus incana*	Speckled or hoary alder.			
622	"	" " "			
623	"	" " "			
624	"	" " "			
625	"	" " "			
626	*Alnus serrulata*	Smooth alder	Block 6x6¾ in.	Lansing	Agricultural College.
627	"	" "	Board 3½x10 in.	"	" "
628	"	" "	" "	"	" "

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
629	*Alnus serrulata*	Smooth alder.			
630	" "	" "			
631	" "	" "			
632	*Salix lucida*		Block 6x2½ in.	Lansing	Agricultural College.
633	" "		Two boards 1x10 in.	"	" "
634	" "		Board 2x10 in.	"	" "
635	" "				
636	" "				
637	" "				
638	*Salix discolor*		Block 6x2½ in.	Grand Traverse	Agricultural College.
639	" "		Board 2x10 in.	" "	" "
640	" "		" "	" "	" "
640 a	" "		" "	" "	" "
641	*Salix nigra falcata*		Cross section 32½ in.	Birmingham	S. Alexander.
641 a	" "		Board 4x10 in.	Oakland Co.	Agricultural College.
642	" "		Board 8x16 in.	" "	" "
642 a	" "		Block 6x4 in.	Lansing	" "
643	" "		Block 8x16 in.	"	" "
644	" "		Board 8x16 in.	Birmingham	" "
645	" "				
646	" "				
647	" "				
648	" "				
649	*Salix petiolaris*		Block 6x¾ in.	Lansing	Agricultural College.
650	" "				
651	" "				
652	" "				
653	" "				
654	" "				
655	*Salix sericea.*				
656	" "				
657	" "				
658	" "		Block 6x1 in.	Sanford	Agricultural College.
659	" "				
660	" "				
661	*Salix humilis*		Block ⅜x6 in.	Sanford	Agricultural College.
662	*Salix.*				

662	*Salix.*					
663	"					
664	"					
665	"					
666	"					
667	"					
668	"					
669	"					
670	"					
671	*Populus tremuloides*	American aspen	Block 6x6 in.	Lansing	Agricultural College.	
672	" "	" "	Board 2½x10 in.	"	" "	
673	" "	" "	" "	"	" "	
674	" "	" "	" "	"	" "	
675	" "	" "	" "	"	" "	
676	" "	" "				
677	" "	" "				
678	" "	" "				
679	" "	" "				
680	" "	" "				
681	*Populus grandidentata*	Large-toothed aspen	Cross section 12 in.	Lansing	Agricultural College.	
682	" "	" "	Block 6x6 in.	"	" "	
683	" "	" "				
684	" "	" "				
685	" "	" "				
686	" "	" "				
687	" "	" "				
688	" "	" "				
689	" "	" "				
690	" "	" "				
691	*Populus heterophylla*	Downy poplar.				
692	" "	" "				
693	" "	" "				
694	" "	" "				
695	" "	" "				
696	*Populus monilifera*	Cottonwood	Block 6x6 in.	Lansing	Agricultural College.	
697	" "	"	Cross section 24 in.	Monroe	C. E. Sumner.	
698	" "	"	Board 8x16 in.	"	" "	
699	" "	"	" 6x16 in.	"	" "	
701	" "	"	" "	"	Agricultural College.	
702	" "	"	" "	Saginaw City	D. Hardin & Co.	
703	" "	"				

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
704	*Populus monilifera*	Cottonwood.			
705	" "	"			
706	" "	"			
707	*Populus angulata*	Angled cottonwood.			
708	" "	" "			
709	" "	" "			
710	" "	" "			
711	" "	" "			
712	" "	" "			
713	" "	" "			
714	*Populus balsamifera*	Balsam poplar, tacamahar			
715	" "	" " "			
716	" "	" " "			
717	" "	" " "			
718	" "	" " "			
719	" "	" " "			
720	" "	" " "			
721	" "	" " "			
722	" "	" " "			
723	*Pop. balsamifera var candicans*	Balm of Gilead.			
724	" " "	" "	Board 8x16 in.	Sanford	Agricultural College.
725	" " "	" "	" "	"	" "
726	" " "	" "	" "	"	" "
727	" " "	" "	" "	"	" "
728	" " "	" "			
729	" " "	" "			
730	" " "	" "			
731	*Pinus Banksiana*	Scrub pine or gray pine	Cross section 13 in.	Baldwin	Agricultural College.
732	" "	" "	Block 6x6 in.	"	" "
733	" "	" "	Board 8x16 in.	Lake Co.	" "
734	" "	" "	" "	"	" "
735	" "	" "	Seeds	Traverse Co.	W. N. Adsit.
736	" "	" "	Board 8x16 in.	Lake Co.	Agricultural College.
737	" "	" "			
738	" "	" "			
739	*Pinus mitis*	Yellow pine.			
740	" "	"			

741	*Pinus mitis*	Yellow pine.				
742	" "	" "				
743	" "	" "				
744	" "	" "				
745	" "	" "				
746	" "	" "				
747	*Pinus resinosa*	Red or Norway pine	Cross section 23 in.	East Saginaw	Jesse Hoyt.	
748	" "	" " "	Board 7½x19 in.	"	"	
748 a	" "	" " "	Block 6x6 in.	Baldwin	Agricultural College.	
749	" "	" " "	Board 7½x19 in.	East Saginaw	Jesse Hoyt.	
750	" "	" " "	" "	"	"	
750 a	" "	" " "	Board 8x16 in.	Saginaw City	D. Hardin & Co.	
751	" "	" " "	Board 7½x19 in.	East Saginaw	Jesse Hoyt.	
752	" "	" " "	" "	"	"	
753	" "	" " "	" "	"	"	
754	" "	" " "	" "	"	"	
755	" "	" " "	" "	"	"	
756	" "	" " "	" "	"	"	
757	" "	" " "	" "	"	"	
758	" "	" " "	" "	"	"	
759	" "	" " "	" "	"	"	
760	*Pinus strobus*	White pine	Cross section 23 in.	Baldwin	Agricultural College.	
761	" "	"	Board 4x10 in.	Grand Rapids	Phœnix M'f'g Co.	
762	" "	"	Board 8x16 in.	Farwell	Agricultural College.	
763	" "	"	" "	"	" "	
764	" "	"	" "	"	Allen & Co.	
765	" "	"	" "	"	" "	
766	" "	"	" "	"	" "	
767	" "	"	" "	Saginaw City	D. Hardin & Co.	
768	" "	"	Seeds	Traverse Co.	W. N. Adsit.	
769	" "	"	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.	
770	" "	"	" "	"	" " "	
770 A	" "	"	" "	Lansing	Allen & Co.	
771	" "	"	" "	"	" "	
771 A	" "	"	" "	"	" "	
772	" "	"	" "	"	" "	
772 A	* " "	"	" "	"	" "	
773	" "	"	" "	Grand Rapids	Nelson, Matter & Co.	
773 A	" "	"	" "	"	" "	
774	" "	"	" "	"	" "	

* Cork pine.

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
774 A	*Pinus strobus*	White pine	Board 8x16 in.	Grand Rapids	Nelson, Matter & Co.
775	" "	"			
776	*Abies nigra*	Black or double spruce.			
777	"	" "	Board 8x16 in.	Lansing	Agricultural College.
778	"	" "	" "	"	" "
779	"	" "	Seeds	Traverse Co.	W. N. Adsit.
780	"	" "			
781	"	" "			
782	"	" "			
783	"	" "			
784	*Abies alba*	White spruce	Cross section 7 in.	Ludington	Agricultural College.
785	"	" "	Block 6x7 in.	"	" "
786	"	" "	Board 4x10 in.	"	" "
787	"	" "	" "	"	" "
788	"	" "	" "	"	" "
789	"	" "	" "	"	" "
790	"	" "	" "	"	" "
791	"	" "	" "	"	" "
792	"	" "	" "	"	" "
792	"	" "	Cones	Rollin	J. O. Beal.
793	*Abies canadensis*	Hemlock spruce	Block 6x6 in.	Coleman's, Pr. M. R. R.	Agricultural College.
794	" "	" "	Cross section 25 in.	" " "	" "
795	" "	" "	Board 8x16 in.		" "
796	" "	" "	" "		" "
797	" "	" "	" "	Coleman's	" "
798	" "	" "	" "	Farwell	" "
799	" "	" "	" "	Saginaw City	D. Hardin & Co.
800	" "	" "	Cones	Traverse Co.	W. N. Adsit.
801	" "	" "			
802	" "	" "			
803	" "	" "			
804	" "	" "			
805	" "	" "			
806	*Abies balsamea*	Balsam fir	Board 8x16 in.	Lake Farwell	Agricultural College.
807	" "	"	" "	Farwell	" "
808	" "	"	" "	"	" "
809	" "	"			

810	*Abies balsamea*	Balsam fir			
811	" "	"	Cross section 7 in.	Clare Co.	Agricultural College.
812	" "	"			
813	" "	"			
814	" "	"			
815	" "	"			
816	" "	"			
817	*Larix Americana*	American larch, tamarack	Cross section 12 in.	Lansing	Agricultural College.
818	" "	" " "	Board 8x16 in.	"	" "
819	" "	" " "	" "	"	" "
820	" "	" " "	" "	"	" "
821	" "	" " "	" "	"	" "
822	" "	" " "	Seeds, cones	"	" "
823	" "	" " "			
824	" "	" " "			
825	" "	" " "			
826	" "	" " "			
827	" "	" " "			
828	*Thuja occidentalis*	Arbor vitæ, white cedar	Knot 19 in. diameter.		
829	" "	" " "	Board 8x16 in.		Agricultural College.
830	" "	" " "	" "		" "
831	" "	" " "	" "		" "
832	" "	" " "	" "	Saginaw City	D. Hardin & Co.
833	" "	" " "			
834	" "	" " "			
835	" "	" " "			
836	" "	" " "			
837	" "	" " "			
838	*Cypressus thyoides*	White cedar.			
839	*Juniperus communis*	Juniper.			
840	*Juniperus communis var Alpina*			Adrian	H. E. Owen.
841	*Juniperus Virginiana*	Red cedar, savin	Cross section 19x24 in.	Three Rivers	Hosea Cox, Samuel Leland, Wm. G. Leland.
842	" "	" "	Block 6x5 in.	Lansing	Agricultural College.
843	" "	" "	Board 8x16 in.	Three Rivers	" "
844	" "	" "	" "	"	" "
845	" "	" "	Board 4x10 in.	"	" "
846	" "	" "	" "	"	" "
847	" "	" "	" "	"	" "
848	" "	" "	" "	"	" "
849	" "	" "			

LIST OF SPECIMENS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
850	*Juniperus Virginiana*	Red cedar, savin.			
851	" "	" "			
852	" "	" "			
853	" "	" "			
854	*Juniperus Sabina, var procumbens*		Block 6x1 in.	Little Traverse	Morrice & Crandall.
855	*Taxus baccata, var canadensis*	Yew, ground hemlock	Block 6x2½ in.	"	" "
855 a	" " "	" " "	Board 2x10 in.	"	Agricultural College.
855 b	" " "	" " "	" "	"	" "
856	*Smilax rotundifolia*	Green brier	Block 6x⅜ in.	Lansing	" "

EXOTICS.

857	*Magnolia.*				
858	*Berberis vulgaris*	Common barberry	Block 6x¾ in. Board 8x¾ in.	Lansing "	Agricultural College. " "
859	*Tamarix gallica*	French Tamarisk.	⅜x6 in. block	"	" "
860	*Althea rosea*	Rose of Sharon.			
861	*Tilia Europea*	European linden.			
862	"	" "			
863	"	" "			
864	"	" "			
865	"	" "			
866	*Citrus*	Orange and lemon.			
867	"	" "			
868	"	" "			
869	"	" "			
870	*Ailanthus glandulosus*	Tree of Heaven, ailanthus	Cross section 16 in.	Macon, Lenawee Co.	Israel Pennington.
871	" "	" " "	Board 8x16 in.	" " "	" "
872	" "	" " "	" "	" " "	" "
873	" "	" " "	" "	" " "	" "
874	" "	" " "	" "	" " "	" "
875	" "	" " "	" "	" " "	" "
876	" "	" " "	" "	" " "	" "
878	" "	" " "			
879	" "	" " "			

880	" " "	" " "			
881	*Rhus cortinus*	Smoke tree	Block 6x3¾ in.	Jackson	S. O. Knapp.
882	"	" "	Board 2x10 in.	"	Agricultural College.
883	"	" "	" "	"	" "
884	"	" "	" "	"	" "
885	"	" "			
886	*Rhamnus catharticus*	Buck-thorn.			
887	" "	"			
888	" "	"			
889	" "	"			
890	" "	"			
891	" "	"			
892	" "	"			
893	*Æsculus hippocastinum*	Horse chestnut.			
894	" "	" "			
895	" "	" "			
896	" "	" "			
897	" "	" "			
898	*Acer*	Maple.			
899	"	"			
900	"	"			
901	"	"			
902	"	"			
903	"	"			
904	"	"			
905	"	"			
906	"	"			
907	"	"			
908	"	"			
909	"	"			
910	"	"			
911	*Robinia pseudacacia*	Locust	Cross section 19x13 in.	Battle Creek	J. A. Robinson.
912	" "	"	Board 8x16 in.	" "	Agricultural College.
913	" "	"	" "	" "	" "
914	" "	"	Board 4 x 10 in.	" "	" "
915	" "	"	" "	" "	" "
916	" "	"			
917	" "	"			
918	" "	"			
919	" "	"			
920	" "	"			

LIST OF SPECIMENS—EXOTICS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
921	*Robinia pseudacacia*	Locust.			
922	" "	"			
923	" "	"			
924	" "	"			
925	" "	"			
926	*Prunus amygdolus-nana*	Flowering almond.			
927	" " "	" "			
928	*Prunus amygdolus-Persica*	Peach.			
929	" " "	"			
930	" " "	"			
931	*Prunus domesticus*	Plum.			
932	" "	"			
933	" "	"			
934	" "	"			
935	" "	"			
936	*Prunus cerasus*	Garden red cherry	Board 4x10 in.	Grand Rapids	C. W. Garfield.
937	" "	" "			
938	" "	" "			
939	" "	" "			
940	" "	" "			
941	*Prunus avium*	Bird cherry.			
942	" "	" "			
943	" "	" "			
944	" "	" "			
945	" "	" "			
946	" "	" "			
947	" "	" "			
948	" "	" "			
949	*Pyrus communis*	Pear.			
950	" "	"			
951	" "	"			
952	" "	"			
953	" "	"			
954	*Pyrus malus*	Apple.			
955	" "	"	Block 6x4 in.	Lansing	Agricultural College.
956	" "	"	Board 4x10 in.	"	" "
957	" "	"	" "	"	" "

959	*Pyrus malus*	Apple	Board 4x10 in.	Lansing	Agricultural College.
958	" "	"	" "	"	" "
960	" "	"			
961	" "	"			
962	" "	"			
963	" "	"			
964	" "	"			
965	" "	"			
966	*Pyrus prunifolia*	Siberian crab-apple	Cross section 12 in.	Lenawee	William Lamb.
967	" "	" "	Board 8x16 in.	"	J. O. Beal.
968	" "	" "	" "	"	" "
969	" "	" "			
970	" "	" "			
971	*Cydonia japonica*	Japan quince	Block ½x6 in	Lansing	Agricultural College.
972	*Cydonia vulgaris*	Common quince.			
973	*Philadelphus*	Mock orange	Block ½x6 in.	Lansing	Agricultural College.
974	*Liquidambar stycaflura*	Sweet gum tree.			
975	" "	" "			
976	" "	" "			
977	*Aralia spinosa*	Hercules club	Block 5x6 in.	Hudson.	
978	" "	" "	Section 7 in.	"	
978 A	" "	" "	Board 4x10 in.	"	Agricultural College.
978 B	" "	" "	" "	"	" "
978 C	" "	" "	" "	"	" "
978 D	" "	" "	" "	"	" "
978 E	" "	" "	" "	"	" "
979	*Jecoma radicans*	Trumpet creeper	Block 1x6 in.	Lansing	
980	" "	" "	Seeds	Jackson	S. O. Knapp.
981	" "	" "			
982	" "	" "			
983	*Catalpa bignonoides*	Catalpa.			
984	" "	"			
985	" "	"			
986	" "	"			
987	" "	"			
988	" "	"			
989	" "	"			
990	" "	"			
991	" "	"	Seeds	Battle Creek	Mr. Day.
992	" "	"			
993	*Syringa vulgaris*	Common lilac	Block 6x2 in.	Lansing	Agricultural College.

LIST OF SPECIMENS—EXOTICS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
994	*Syringa vulgaris*	Common lilac	Board 1½x10 in.	Lansing	Agricultural College.
994 a	" "	" "	" "	"	" "
995	*Syringa Persica*	Persian lilac	Block 6x¾ in.	"	" "
996	" "	" "			
997	" "	" "			
998	*Ligustrum vulgare*	Privet	Block 2½x6 in.	Lansing	Agricultural College.
999	" "	"			
1000	" "	"			
1001	*Morus alba*	White mulberry	Block 6x7 in.	Lenawee Co.	John R. Hawkins.
1002	" "	" "	Section 7 in.	" "	" "
1003	" "	" "	Board 4x10 in.	Rollin	J. O. Beal.
1004	" "	" "	" "	"	" "
1005	" "	" "	" "	"	" "
1006	" "	" "	" "	"	" "
1007	" "	" "			
1008	" "	" "			
1009	" "	" "			
1010	" "	" "			
1011	*Maclura aurantiaca*	Osage orange	Block 6x4 in.	Richland	Rev. E. H. Day.
1012	" "	"	Board 4x10 in.	"	Agricultural College.
1013	" "	"	" "	"	" "
1014	" "	"	" "	"	" "
1015	" "	"	" "	"	" "
1016	" "	"	" "	"	" "
1017	" "	"	Seeds	Jackson.	
1018	" "	"			
1019	" "	"			
1020	" "	"			
1021	" "	"			
1022	*Salix Babylonica*	Weeping willow	Cross section 12 in.	Lenawee Co.	
1023	" "	" "	Board 4x10 in.	Rollin	Agricultural College.
1024	" "	" "	Board 8x16 in.	"	" "
1025	" "	" "	" "	"	" "
1026	" "	" "			
1027	" "	" "			
1028	" "	" "			
1029	" "	" "			

1030	*Salix Babylonica*	Weeping willow.			
1031	" "	" "			
1032	" "	" "			
1033	*Salix vininalis*	Basket willow.			
1034	" "	" "			
1035	*Salix alba*	White willow	Block 6x6 in.	Jackson	S. O. Knapp.
1036	" "	" "	Board 6x16 in.	"	" "
1037	" "	" "	" "	"	" "
1038	" "	" "	Board 4x10 in.	"	Agricultural College.
1039	" "	" "	" "	"	" "
1040	" "	" "	Board 8x16 in.	"	" "
1041	" "	" "			
1042	" "	" "			
1043	" "	" "			
1044	" "	" "			
1045	" "	" "			
1046	*Populus alba*	White poplar	Block 6x6 in.	Lansing	N. Parmelee.
1047	" "	" "			
1048	" "	" "			
1049	" "	" "			
1050	" "	" "			
1051	*Pinus.*				
1052	"				
1053	"				
1054	"				
1055	"				
1056	"				
1057	"				
1058	"				
1059	"				
1060	"				
1061	*Abies excelsa*	Norway spruce	Cones	Lansing	Agricultural College.
1062	" "				
1063	" "				
1064	" "				
1065	" "				
1066	" "				
1067	" "				
1068	" "				
1069	" "				
1070	" "				
1071	*Larix Europea*	European larch	Seeds and cones	Lansing	Agricultural College.
1072	" "	" "			
1073	" "	" "			
1074	" "	" "			

LIST OF SPECIMENS—EXOTICS—CONTINUED.

No.	Latin Name.	Common Name.	Description.	Locality.	Donor's Name.
1075	*Larix Europea*	European larch.			
1076	" "	" "			
1077	" "	" "			
1078	" "	" "			
1079	" "	" "			
1080	" "	" "			
1081	" "	" "			
1082	" "	" "			
1083	*Toxodium distichum*	Bald or southern cypress	Block 1x6 in.	Lansing	Agricultural College.
1084	" "	" " "			
1085	" "	" " "			
1086	" "	" " "			
1087	" "	" " "			
1088	" "	" " "			
1089	" "	" " "			
1090	" "	" " "			
1091	* Deer's antler in oak rail			Galesburg	Augustus Schmidt.
1092	† Pine curl or knot			East Saginaw	Sanford Keeler.
1093	Oak knot—very large			Flint	Warren Brown.
1094	Natural graft in oak limb,—deer's antler in oak section			Greenville, Cass Co.	John E. Taylor. A. B. Wetherby.
1095	Natural root graft	Beech.			
1096	" "	"			
1097	" "	"			
1098	" "	"			
1099	" "	"			
1100	" "	"			
1101		Chinese wistaria	Seeds	Adrian	B. W. Steere.
1102		French walnut	Board 4x10 in.	Grand Rapids	‡ Phœnix Man'f. Co.
1103	*Juglans nigra*	Black-walnut		Lansing	‖ D. G. Canfield & Co.
1104	Black ash mallet—J. Webster Childs—knot.				
1105	Four specimens of vines around trees.				
1106	Shumac "blind"—Lansing—A. Allen & Co.				
1107	One board, bird's-eye maple—Petosky—Agricultural College. About 4 feet by 18 inches.				
1108	One beech limb, knotted—Agricultural College.				
1109	Twin beeches, united 25 ft. above ground, given by Geo. Rowell, Bennington, Oakland Co. "United we stood, united we fell."				
1110	Section of cottonwood in four pieces. Also 1 piece about 3½ ft., from same tree, above stump—Joseph Bristol, Almont.				
1111	Box wagon timber from S. S. Scoville & Co., Coldwater—not opened.				
1112 1113 1114	Three large sections of maples given by Jackson, Lansing, & Saginaw Railroad—grew at Otsego.				
1115	One large rock elm, given by Jackson, Lansing, & Saginaw Railroad—grew at Otsego.				

* Taken 9 feet from the ground. † Grew 30 feet from ground. ‡ Veneered. ‖ Burl.

LIST OF SPECIMENS—GRASSES—CONTINUED.

LATIN NAME.	Common Name.	Habitat.
Agrostis perennis	Thin grass	North America.
" *scabra*	Hair "	" "
" *spica venti*	Spreading wind grass	Europe.
" *stolonifera*	Creeping bent "	"
" *vulgaris, var.*	Rhode Island bent grass	North America.
" "	Red-top	" "
Avena flavescens	Yellow oat grass	Europe.
" *hirsuta*	Fairy oat grass	"
" *sativa*	Oats	"
Andropogon sorghum	Sorghum	Old world.
" *furcatus*	Beard grass	North America.
" *scoparius*		" "
Anthoxanthum odorabum	Sweet-scented vernal grass	
Arrhenatherum bulbosum	Oat-like grass	Europe.
Alopecurus aristulatus	Wild fox-tail.	
" *pratensis*	Meadow fox-tail.	
Ægilops cylindracea		Europe.
" *ovata*		"
Bromus Kalmii	Wild chess	North America.
" *sterilis*	Barren broom-grass	Europe.
" *macrostachys*	Broom-grass	"
" *vadritentis.*		
" *erectus*	Upright oat-grass	Europe.
" *mascinus*		"
" *secalinus*	Chess (in wheat-fields)	"
" *Schraderi*	Schruder's bromus	"
" *ciliatus*	Wild chess	North America.
Briza maxima	Quaking grass	Europe.
Cinna arundinaceal	Wood reed grass	North America.
Chloris radiata.		
Corynephoris canescens	Gray club grass	Europe.
Calamagrostis Canadensis	Blue joint.	
Danthonia spicata	Old fog—wild oat-grass	North America.
Dactylis glomerata	Orchard grass	Europe.
Eleusine corocana		Japan.
Elymus Europeus	Wild rye	Europe.
" *canadensis*	"	North America.
" *Virginicus*	"	" "
" *striatus*	"	" "
Eatonia Pennsylvanica		" "
" *obtusata*		" "
Eragrostis pœoides, var. megastachya		Europe.
Festuca Hallerii	Holler's fescue.	
" *heterophylla.*		
" *ovina*	Sheep's fescue	Europe.
" *nutans*		North America.
" *glaucescens.*		
" *rubra*	Purple fescue.	
" *duriuscula*	Hard "	
" *divaicata.*		
" *viride*	Green "	
" *cynosuioides.*		
" *elatior*	Meadow "	
Glycera nervata	Fowl meadow grass	North America.
" *fluituns*	Reed " "	" "
" *aquatica.*		
Gymnostichum hystrix	Bottle brush grass	" "
Hordeum maratimum	Sea-side barley	Europe.
" *jubatum*	Wild barley	North America.

LIST OF SPECIMENS—GRASSES—CONTINUED.

LATIN NAME.	Common Name.	Habitat.
Holcus lanatus	Meadow soft grass	Europe.
Kelerea glauca.		
" *voliscia.*		
Leersia oryzoides	Rice cut-grass	North America.
Lolium Italicum	Italian rye-grass.	
" *perenne*	Ray, rye-grass, darnel	Europe.
Muhlenbergia glomerata		North America.
" *sylvatica*		" "
Oryzopsis canadensis	Wild rice.	
Poa vitellina		Europe.
" *trivialis*	Rough meadow-grass	"
" *nemoralis*	Wood " "	"
" *alpina*	Alpine " "	"
" *pratensis*	June grass, Ky. blue-grass.	
" *compressa*	Wire grass	Europe & N. A.
Phleum pratensis	Timothy, herd's grass.	
Phalaris arundinacea picta	Ribbon grass	North America.
" *cærulescens.*		
" *arundinacea*	Ribbon grass	North America.
Paspalum elegans.		
Panicum capillare	Hair grass	Europe.
" *sanguinale*	Finger grass	"
" ————		Colorado.
" *Germanicum*	Millet	Europe.
" *latifolium*	Broad-leaved panicum	North America.
" *virgatum*		" "
" *clandestinum*		" "
" *crus galli*	Barn-yard grass	Europe.
Spartina cynosuroides	Cord grass	North America
Setaria verticillata		Europe.
" *viridis*	Green fox-tail	"
" *glauca*	Fox-tail	"
" *macra cheta.*		
Secale cereale	Rye	Europe.
Sorghum nutans	Indian grass	North America.
Triticum imbricatum		
" *violacceum*		North America.
" ————	Kansas grass	" "
Vicia sativa	Spring vetch.	

Three bunches of pop-corn—Esselstyn & Co., Lansing.
" " " " —J. J. Sidway, "
" " " " —Agricultural College, Lansing.

OF THE BEAUTY OF OUR FORESTS

I may say but little at this time. The full beauty is best appreciated by the student who knows and studies each one as friend talks to friend. To enjoy the full beauties of our forest scenery, it is necessary that one should possess a good knowledge of botany, landscape gardening, and to know something of drawing and painting. To such a person, a trip through the forests is a perpetual delight, which cannot be understood by the uninitiated. The mixtures of evergreens and deciduous-leaved trees, the shrubs, the autumn tints, the streams, the hills and valleys, our beautiful lakes with the different seasons of the year, and different phases of the weather, lend a perpetual charm and freshness to our Michigan woodlands.

CATALOGUE

OF SPECIMENS, LAKE SUPERIOR COPPER AND IRON, UPPER PENINSULA, MICHIGAN.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 100.
1	1	4	Native metallic copper, chips from masses, Minesota Mine, Ontonagon Co.
2	1a	1	Native metallic copper, small mass, Pewabic Belt, Quincy Mine, Houghton Co.
3	2	2	Native metallic copper and silver, Minesota Mine, Ontonagon Co.
4	2a	2	Native metallic copper, silver, and green carbonate, Ontonagon Co.
5	3	1 Lot.	Native metallic copper, crystallized, Fissure veins, Keweenaw Co.
6	3a	1	Native metallic copper, crystallized, Minesota Mine, Ontonagon Co.
7	3b	1	Native metallic copper, crystallized, Ridge Mine, Ontonagon Co.
8	3c	1	Native metallic copper, crystallized, Copper Falls Mine, Keweenaw Co.; cabinet A. P. Thomas, Esq.
9	4	1	Native metallic copper, crystallized, with black oxide, Keweenaw Co.
10	5	1	Native metallic copper, crystallized, with black oxide and spar, Keweenaw Co.
11	5b	1	Native metallic copper, crystallized, with spar, from Ridge Mine, Ontonagon Co.
12	5a	1	Native metallic copper, silver and calc-spar, from Ridge Mine, Ontonagon Co.
13	2b	2	Native metallic copper and silver, cabinet of Mr. Harris.
14	6c	1	Epidote and dog tooth spar, from Ridge Mine, Ontonagon Co.
15	6	1	Dog tooth spar, from Ridge Mine, Ontonagon Co.
16	6a	1	Native copper, in spar crystals, from Ridge Mine, Ontonagon Co.
17	6b	1	Native copper and silver, from Ridge Mine, Ontonagon Co.
18	6d	1	Native copper, vug with spar, from Ridge Mine, Ontonagon Co.
19	6e	2	Native copper, in spar crystals, from National Mine, Ontonagon Co.; cabinet Dr. Overfield.
20	6f	3	Native copper, in spar crystals, Ontonagon Co.; cabinet of Mr. Sales.
21	6g	37	Native metallic copper, crystallized, Keweenaw and Ontonagon counties; cabinet of Hon. Jay A. Hubbell.

CATALOGUE—CONTINUED.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 100.
22	7	1	Underlaying rock of Pewabic Belt, Quincy Mine, Houghton Co.
23	8	1	Overlaying rock of Pewabic Belt, Quincy Mine, Houghton Co.
24	9	Lot.	Copper-bearing amygdaloid rock, Pewabic Belt, Quincy Mine.
25	10	4	Vugs, with crystallized copper, Pewabic Belt, Quincy Mine.
26	10a	2	Vugs, with crystals of spar containing native copper, Pewabic Belt, Quincy Mine.
27	9e	2	Copper-bearing amygdaloid with spar, Pewabic Belt, Quincy Mine.
28	9a	3	Copper-bearing amygdaloid, Pewabic Belt, Franklin and Pewabic Mine, Houghton Co.
29	9d	3	Copper-bearing amygdaloid and epidote, Pewabic Belt (lode), Franklin and Pewabic Mine.
30	9b	1	Copper-bearing amygdaloid with crystals of copper, Franklin and Pewabic Mine.
31	9c	1	Copper-bearing amygdaloid with native sheet copper, Franklin and Pewabic Mine.
32	10b	2	Vugs, with crystals of spar and copper, Franklin and Pewabic Mine.
33	9f	1	Copper-bearing amygdaloid, South Pewabic lode, Atlantic Mine, Houghton Co.
34	9f	11	Copper-bearing amygdaloid, South Pewabic lode, Atlantic Mine.
35	11	1	Copper-bearing amygdaloid, Isle Royale lode, Houghton Mine.
36	11a	1	Copper-bearing amygdaloid, Isle Royale lode, Concord Mine, Houghton Co.
37	2c	2	Native metallic copper and silver, Ontonagon Co.; cabinet of Mr. T. W. Edwards.
38	3g	4	Native metallic copper crystallized, Keweenaw Co.; cabinet of Mr. T. W. Edwards.
39	9g	1	Copper-bearing amygdaloid, crystals of copper on epidote, Franklin Mine; cabinet of T. W. Edwards.
40	10e	1	Vug copper-bearing amygdaloid, Pewabic lode; cabinet of Mr. T. W. Edwards.
41	15	2	Crystallized copper and quartz, Ontonagon Co.; cabinet of Mr. T. W. Edwards.
42	16	1	Native metallic copper in spar; cab. of Hon. Jay A. Hubbell.
43	10p	Lot.	Vugs native metal copper, Ontonagon and Keweenaw counties; cabinet of Hon. Jay A. Hubbell.
44	3c	1	Native metallic copper crystallized, Fissure vein, Copper Falls Mine, Keweenaw Co. (Donated to Smithsonian Institute.)
45	17	2	Copper-bearing amygdaloid, Ashbed lode, Copper Falls Mine, Keweenaw Co.
46	17a	1	Copper-bearing amygdaloid with crystals of calcite, Ashbed lode, Copper Falls Mine.
47	17b	4	Overlaying trap (hanging wall) of Ashbed, Copper Falls Mine.
48	18	3	Vein rock (gangue) fissure vein, Copper Falls Mine.
49	5d	1	Native metallic copper and silver on epidotic trap; cabinet of Mr. Harris.
50	5e	1	Native metallic copper,—silver and calc-spar; cab. of Mr. Harris.
51	5f	1	Native metallic silver; cabinet of Mr. Harris.

CATALOGUE—CONTINUED.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 100.
52	3d	1	Native metallic copper crystallized; cabinet of Mr. Harris.
53	2	1	Native metallic copper with green carbonate; cabinet of Mr. Harris.
54	13	1	Red oxide of copper; cabinet of Mr. Harris.
55	10c	1	Vug of crystallized copper and spar; cab. of Mr. Harris.
56	5g	1	Native metallic silver and spar, Keweenaw Co.
57	10d	1	Native metallic copper and spar, Keweenaw Co.
58	3e	1	Native metallic copper crystallized, Ontonagon Co.; cabinet of Mr. Sales.
59	3f	1	Native metallic copper crystallized, Ontonagon Co.; cabinet of Mr. R. Sheldon.
60	21	Lot.	Vein rock, National Mine, fissure vein, Ontonagon.
61	22	.....	Overlaying trap (hanging wall), fissure vein, National Mine, Ontonagon Co.
62	23	2	From 40 feet thick conglomerate underlaying or foot wall, Fissure vein, National Mine, Ontonagon Co.
63	24	1	From 40 feet thick conglomerate underlaying or foot wall, Fissure vein, National Mine, Ontonagon Co.
64	21a	3	Vein rock (gangue), with green carbonate, fissure vein, National Mine, Ontonagon Co.
65	1c	.....	Native metallic copper nugget, from 550 ton mass, Minesota Mine, Ontonagon Co.
66	1	.....	Phrenite with crystals of quartz and copper; cabinet of Mr. Sales, Ontonagon Co.
67	12	2 and Lot.	Copper-bearing conglomerate, Calumet and Hecla lode, Calumet and Hecla Mine, Houghton Co.
68	12a	Lot.	Copper-bearing amygdaloid overlaying Calumet conglomerate.
69	39	.....	Trap rock overlaying Calumet and Hecla conglomerate.
70	40	.....	Copper-bearing sandstone, Calumet and Hecla Mine.
71	41	4	Ripple-marked sandstone, from Calumet and Hecla Mine.
72	*57c	Lot *57	Native metallic sheet copper, from Calumet and Hecla Mine.
73	12c	Lot.	Calumet and Hecla conglomerate, Schoolcraft Mine, Houghton Co.
74	19	Lot.	Calumet and Hecla conglomerate, Osceola Mine, Houghton Co.
75	27	Lot.	Allouez copper-bearing conglomerate, Allouez lode, Allouez Mine, Keweenaw Co.
76	14c	.....	Conglomerate and malachite, Allouez Mine.
77	60	2	Albany and Boston copper-bearing conglomerate, Albany and Boston Mine, Houghton Co.
78	60a	1	Trap rock overlaying Albany and Boston conglomerate.
79	60b	1	Foot wall underlaying Albany and Boston conglomerate.
80	61	2	Kearsarge copper-bearing conglomerate, Keweenaw Co.
81	20	6	Island Mine copper-bearing conglomerate, Isle Royale.
82	69	1	Native metallic copper, Cliff Mine, Keweenaw Co.
83	70	Lot.	Vein rock, Fissure vein, Cliff Mine, Keweenaw Co.
84	71	Lot.	Vein rock, Fissure vein, Phœnix Mine, Keweenaw Co.
85	68	.....	Native metallic float copper, Douglass location, Houghton Co.
86	66	1	Native metallic copper crystallized; cab. of Johnson Vivian.
87	5i	.....	Native metallic silver crystallized; cab. of C. D. Sheldon.
88	29	1	Native metallic copper with quartz and spar crystals; cabinet of A. J. Corey.
89	3i	2	Native metallic copper crystallized; cabinet of A. J. Corey.
90	2d	1	Native metallic copper and silver; cabinet of A. J. Corey.
91	5h	3	Native metallic silver; cabinet of A. J. Corey.

CATALOGUE—CONTINUED.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 100.
92	30	1	Copper-bearing epidote, Ontonagon Co.; cabinet of A. J. Corey.
93	31	1	Native metalic copper crystallized, and spar; cabinet of A. J. Corey.
94	32	1	Heavy spar with quartz crystals; cabinet of A. J. Corey.
95	33	1	Sugar spar and copper in spar crystals; cab. of A. J. Corey.
96	34a	2	Phrenite, with native metallic copper crystals; cabinet of A. J. Corey.
97	34b	3	Phrenite, with native metallic copper crystals; cabinet of A. J. Corey.
98	34c	1	Phrenite, with native metallic copper and spar; cabinet of A. J. Corey.
99	35	2	Datholite, Quincy Mine; cabinet A. J. Corey.
100	6h	3	Native metalic copper in spar crystals, Quincy Mine; cabinet of A. J. Corey.
101	44	1	Rose spar, Evergreen Mine, Ontonagon Co.; cabinet of A. J. Corey.
102	45	1	Spar encasing quartz crystals; cabinet of A. J. Corey.
103	51a	2	Smoky spar; cabinet of A. J. Corey.
104	30a	1	Copper-bearing epidote; cabinet of T. W. Edwards.
105	47	1	Calc-spar, Ontonagon Co.
106	48	1	Quartz crystals and phrenite, Quincy Mine, Houghton Co.
107	50	2	Quartz and spar, Houghton Co.
108	51	2	Smoky spar, Houghton Co.
109	49	1	Native copper crystallized, black oxide and phrenite.
110	13b	Lot.	Red oxide copper, Ontonagon Co.
111	13c	Lot.	Brick copper, Ontonagon Co.
112	14b	1	Malachite, Allouez Mine; cabinet of John Chassell.
113	53	1	Sugar-spar, calc-spar, and epidote.
114	55	1	Sugar-spar and calc-spar.
115	54	2	Moss copper; cabinet of Hon. Jay A. Hubbell.
116	------	----------	Moss copper; cabinet of Mr. Meads, Marquette.
117	14	2	Malachite, Allouez Mine; cabinet R. Sheldon.
118	14a	----------	Malachite, Allouez Mine.
119	35a	2	Datholite, Franklin Mine.
120	35b	2	Datholite, Quincy Mine.
121	67	1	Tabular-spar.
122	41	Lot.	Vein rock, silver veins, Iron River district, Ontonagon Co.
123	42	Lot.	Hanging wall rock, silver veins, Iron River district, Ontonagon Co.
124	43	Lot.	Foot wall rock, silver veins, Iron River district, Ontonagon Co.
125	57	4	Copper-bearing sandstone, Carp Lake, Ontonagon Co.
126	12b	1	Calumet and Hecla conglomerate, polished; cabinet of R. Sheldon.
127	13a	1	Red oxide copper; cabinet of R. Sheldon.
128	25	Lot.	Copper ore, gray sulphuret, Mendota Mine, Lac la Belle, Keweenaw Co.
129	36	Lot.	Arsenate of copper Houghton Co.
130	37	1	Scapolite, National Mine.
131	28	1	Spar crystals; cabinet of A. J. Corey.
132	26	2	Copper-bearing sandstone, Nonesuch Mine, Iron River district, Ontonagon Co.
133	58	Lot.	Ancient copper tools; cabinet of Mr. John Chassell.
134	58a	Lot.	Ancient copper tools; cabinet of Mr. C. D. Sheldon.
135	46	----------	Stone hammers.
136	------	----------	Stone axe; cabinet of James Reid.

CATALOGUE—CONTINUED.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 100.
137	61	.....	Geological section of trap range crossing at Calumet Mine.
138	64	.....	Agates, Lake Superior.
139	65	.....	Chlorastrolites, Lake Superior.
140	1d	4	Native metallic copper stampwork, Calumet and Hecla Mine.
141	1b	5	Native metallic copper tailing sands, Calumet and Hecla Mine.
142	1f	4	Native metallic copper stampwork, Franklin and Pewabic Mines.
143	1g	4	Native metallic copper stampwork, Osceola Mine.
144	1h	4	Native metallic copper stampwork, Allouez Mine.
145	5j	1	Native metallic silver stampwork, Osceola Mine.
146	63	1	Native metallic silver and copper stampwork, Osceola Mine.
147	88	1	Native metallic silver and copper in vein matter, Copper Falls Mine, Keweenaw Co.; cabinet of B. F. Emerson.
148	89	1	Native metallic silver and copper in vein matter, Copper Falls Mine, Keweenaw Co.; cabinet of B. F. Emerson.
149	90	1	Calcite crystal with native metalic copper; cabinet of B. F. Emerson.
150	91	1	Native metallic copper in vein matter (brick copper), Copper Falls Mine, Keweenaw Co.; cabinet of B. F. Emerson.
151	92	1	Miniature set of miners' tools made of native metalic silver and copper; cabinet of B. F. Emerson.
152	.....	1	Mass native metallic copper, mined by ancient miners (prehistoric races, Menong Mine, Isle Royale.
153	.....	1	Mass native metallic copper, from 70-ton mass, Central Mine, Keweenaw Co.
154	.....	Lot.	Native metallic copper, fissure veins, Amygdaloid Mine, Keweenaw Co.
155	.....	Lot.	Vein rock, fissure veins, Amygdaloid Mine.
156	.....	Lot.	Copper bearing, Amygdaloid Delaware Mine, Keweenaw County.
157	.....	.....	Maps of Geological Survey of Michigan, by Brooks and Pumpelly, 1869–73.
158	.....	.....	Geological map Upper Peninsula of Michigan, by G. Gaujot, 1876.

CATALOGUE—CONTINUED.

Catalogue Number.	Specimen Number.	Number of Specimens.	CLASS 112.
1	1	3	Copper in ingot from Detroit & Lake Superior Smelting Works.
2	1a	.....	Cake copper, Detroit & Lake Superior Smelting Works.
3	1b	.....	Bar copper, Detroit & Lake Superior Smelting Works.
4	1c	.....	Pig copper, Detroit & Lake Superior Smelting Works.
5	1d	.....	Feathered copper, Detroit & Lake Superior Smelting Works.
6	1e	.....	Straw copper, Detroit & Lake Superior Smelting Works.
7	.....	.....	Rolled copper, Houghton Rolling Mill.
8	.....	.....	Rolled and pressed copper, Houghton Rolling Mill.
6	3	Lot.	Reverberatory slags, Detroit & Lake Superior Smelting Works.
10	3a	.....	Cupola slags, Detroit & Lake Superior Smelting Works.
11	3b	.....	Reverberatory slags from grey sulphuret ore, Lac la Belle Smelting Works.
12	3c	.....	Matt slags from grey sulphuret ore, Lac la Belle Smelting Works.
13	3d	.....	Cupola slags from grey sulphuret ore, Lac la Belle Smelting Works.

IRON COLLECTIONS.

FROM MARQUETTE IRON DISTRICT, UPPER PENINSULA OF MICHIGAN.

COLLECTED AND CLASSIFIED BY CHAS. E. WRIGHT, MARQUETTE, MICHIGAN.

No.	Mines.
1	Cleveland, Specular slate ore.
2	" Specular slate ore, holds marlite.
3	" Specular slate ore, holds marlite.
4	" Banded Jasper.
5	Barnum No. 1 Pit, Mixed specular ore.
6	" No. 2 Pit, Specular slate ore.
7	" No. 3 Pit, Granular specular ore.
8	Saginaw, Fine granular specular ore.
9	" Specular slate ore.
10	" Specular slate ore.
11	" Botryoidal and Velvety brown iron ore.
12	" Brown Grape ore (Limotil).
13	Lake Superior, Specular slate ore.
14	" Specular slate ore.
15	" Specular slate ore.
16	" Specular slate ore.
17	Spurr Mountain granular magnetic ore.
18	" Mountain granular magnetic ore.
19	Washington, Granular magnetic ore.
20	Kloman, Micaceous specular ore.
21	Jackson, Specular slate ore.
22	" Specular slate ore.
23	" Specular slate ore.
24	" Specular slate ore.
25	" Hard specular slate ore.
26	" Granular specular slate ore.
27	" Granular specular slate ore.
28	" Brown iron ore.
29	" Soft Hematite.
30	" Manganiferous brown iron ore.

No.	Mines.	
31	New York,	Specular slate ore.
32	"	Hard hematite ore.
33	"	Hard specular ore.
34	"	Specular slate ore.
35	"	Specular micaceous ore.
36	Lake Angeline,	Specular ore.
37	"	Specular ore.
38	"	Specular ore.
39	"	Soft hematite.
40	"	Soft hematite.
41	Champion,	Micaceous specular slate ore.
42	"	Granular magnetic ore.
43	"	Granular magnetic ore.
44	"	Micaceous specular slate ore.
45	"	Micaceous specular slate ore.
46	Michigammi,	Steely magnetic ore.
47	"	Granular magnetic ore.
48	Republic,	Micaceous specular slate ore.
49	"	Micaceous specular slate ore.
50	"	Micaceous specular slate ore.
51	"	Micaceous specular slate ore.
52	"	Granular magnetic ore.
53	"	Granular magnetic ore.
54	Iron Mountain,	Manganiferous brown iron ore.
55	"	Manganiferous brown iron ore.
56	Lake Superior,	Brown grape ore.
57	"	Brown grape ore.
58	"	B. Curtis' Collection. Brown grape ore.
59	"	Brown grape ore.
60	"	Specular micaceous iron ore.
61	"	Brown grape ore.
62	"	Brown grape ore.
63	"	John L. Bray's Collection. Brown grape ore.
64	"	Brown grape ore.
65	"	Brown grape ore.
66	"	Velvety brown iron ore.
67	Champion,	
68	"	Talcose schist.
69	"	Talcose schist.
70	"	Gray quartzite.
71	"	Chloritic schist.
72	"	Talcose quartzite.
73	"	Garnetiferous rock.
74	Spur,	Garnetiferous rock.
75	Magnetic,	Steely magnetic ore.
76	"	Steely magnetic ore.
77	"	Argentiferous Galena.

Hon. Edward Breiting's Collection:

78	Brown grape ore.
79	Brown grape ore.

No.	
80	Brown grape ore.
81	Brown grape ore.
82	Brown grape ore.
83	Brown grape ore.
84	Brown grape ore.
85	Brown grape ore.
86	Brown grape ore.
87	Velvety brown iron ore.
88	Manganiferous brown iron ore.
89	Manganiferous brown iron ore.
90	Manganiferous brown iron ore.
91	Manganiferous brown iron ore.
92	Manganiferous ore.
93	Manganiferous ore.
94	Manganiferous ore.
95	Manganiferous ore.
96	Manganiferous ore.
97	Manganiferous ore.
98	Manganiferous ore.
99	Manganiferous ore.
100	Manganiferous ore.
101	Manganiferous ore.
102	Manganiferous ore.
No.	Mines.
103	Rolling Mill, Brown pipe ore.
104	Edwards, Fine granular magnetic ore.
105	" Fine granular magnetic ore.
106	" Specular slate ore.
107	" Specular slate ore.
108	Rolling Mill, Brown grape ore.
109	Rolling Mill Furnace, A No. 1 Bessemer pig iron.
110	" " A No. 1 Bessemer pig iron.
111	" " A No. 1 Bessemer pig iron.
112	" " A No. 1 Bessemer pig iron.
113	Ishpeming Peat.
114	" "
115	" "
116	" "
117	" "
118	Burt Free Sand Stone Co., Marquette, L. S.
119	Brown Stone, Isle Royal, Noble and Brady.
120	Bog Iron ore, Birmingham, Noble and Brady.
121	Clays for Pottery and Brick and Tile, Brady.

MANUFACTURED IRON FROM WYANDOTTE ROLLING MILLS, WYANDOTTE, WAYNE CO., MICH., FROM LAKE SUPERIOR ORES.

No.

1. 3-inch round L. S., bent cold.
2. 4-inch round L. S., bent cold.
3. 3-inch square L. S., bent cold.
4. 2x½-inch L. S., bent cold and hot.
5. ⅞-inch square L. S., bent cold and hot.
6. 1-inch square L. S., bent cold and hot.
7. 1x½-inch L. S., bent cold and hot.
8. 1x½-inch L. S., bent cold and hot.
9. ¾-inch square L. S., bent cold and hot.
10. 1-inch round L. S., bent cold.
11. ⅞-inch round L. S., bent cold.
12. ¾-inch round L. S., bent cold and hot.
13. ¾-inch round L. S., bent cold and hot.
14. ½-inch round L. S., bent cold and hot.
15. ⅜-inch square L. S., bent cold.
16. 5-16-inch square L. S., bent cold.
17. 2¼-inch round L. S., bent cold.
18. 1½-inch round L. S., bent cold.
19. 1⅛-inch round L. S., bent cold.
20. 1⅛-inch round L. S., bent cold.
21. ⅞-inch round L. S., bent cold and hot.
22. ¾-inch round L. S., bent cold.
23. ¾-inch round L. S., bent cold.
24. ¾-inch round L. S., bent cold.
25. ⅝-inch round L. S., bent cold.
26. ⅜-inch round L. S., bent cold.
27. 2½x⅜-inches L. S., bent cold and hot.
28. 1-inch square L. S., bent cold.
29. 2¾x1-inch L. S., bent cold.
30. Fire-Box B. P., Wyandotte, T. S. 60,000 lbs.
31. Extra Flange B. P., Wyandotte, T. S. 60,000 lbs.
32. Extra Flange B. P., Wyandotte, T. S. 60,000 lbs.
33. Extra Flange B. P., Wyandotte, T. S. 60,000 lbs.
34. C. H. 1-inch B. P., Wyandotte, T. S. 60,000 lbs.
35. C. H. Shell B. P., Wyandotte, T. S. 55,000 lbs.
36. C. H. Shell B. P., Wyandotte, T. S. 55,000 lbs.
37. C. H. Shell B. P., Wyandotte, T. S. 55,000 lbs.
38. C. Rolled B. P., Wyandotte, T. S. ——.
39. ⅞-inch square Wyandotte Swedes, T. S. 15,625 lbs.; elongation 1⅝-inch.
40. ⅞-inch square Wyandotte Swedes.
41. 1-inch L. S. Chain, T. S. 74,000 lbs.
42. 1⅛-inch L. S. Chain, T. S. 86,675 lbs.

No.

43. 1⅛-inch L. S. Chain.
44. ⅞-inch L. S. Chain.
45. 9-16-inch L. S. Chain, T. S. 20,000 lbs.
46. 5-16-inch Bessemer Steel Chain, T. S. 5,825 lbs.
47. 7-16-inch Bessemer Steel Chain, T. S. 12,250 lbs.
48. ½-inch Bessemer Steel Chain, T. S. 16,625 lbs.
49. 2x½-inch Wyandotte Norway, bent cold.
50. 2x½-inch Wyandotte Norway, bent cold.
51. 1¼-inch square Wyandotte Norway, bent cold.
52. ¾-inch square Wyandotte Norway, bent cold.
53. 1½x½-inch Wyandotte Norway, bent cold and hot.
54. ⅜-inch square Wyandotte Norway, bent cold and hot.
55. ⅞-inch square Wyandotte Swede, bent cold, polished.
56. ⅞-inch square Wyandotte Swede, bent cold.
57. ⅞-inch square Wyandotte Swede, bent cold.
58. ⅞-inch square Wyandotte Swede, bent cold.

SALT.

DISTRICT NO. 1, EAST SAGINAW, MICHIGAN.

FROM SEARS & HOLLAND.

1 sample fine steam salt; 1 sample packer's salt; 1 sample fine pan salt; 1 sample brine.

FROM C. & E. TEN EYCK.

1 sample fine steam salt; 1 sample brine.

FROM EAST SAGINAW SALT MANUFACTURING COMPANY.

1 sample solar salt; 1 sample brine, S. G. 1.177.
1 case solar salt crystal.

DISTRICT NO. 2, SAGINAW CITY, MICHIGAN.

FROM BARNARD & BINDER.

1 sample fine steam salt; 1 sample brine, S. G. 2.173.

FROM PIERSON, WRIGHT & CO.

1 sample fine steam salt; 1 sample brine.

DISTRICT NO. 3. CARROLLTON, MICHIGAN.

H. P. LYON & CO., FLORENCE, MICH.

1 sample fine pan salt; 1 sample brine, S. G. 1.173.

T. JEROME & CO., CARROLLTON.

1 sample fine pan salt; 1 sample brine.

DISTRICT NO. 4, ZILWAUKEE.

RUST, EATON & CO., ZILWAUKIE.

1 sample fine steam salt; 1 sample brine.

NEW YORK & MICHIGAN SOLAR SALT COMPANY, ZILWAUKIE.

1 sample solar salt; 1 sample brine.

DISTRICT NO. 5, PORTSMOUTH, MICHIGAN.

JOHN M'GRAW & CO., PORTSMOUTH, MICH.

1 sample fine steam salt; 1 sample fine steam dairy salt; 1 sample brine.

DISTRICT NO. 6, BAY CITY, MICHIGAN.

JOHN M'EWEN & CO.

1 sample fine steam salt; 1 sample brine.

CHAPIN & BARBER.

1 sample fine steam salt; 1 sample brine.

DOLSON, CHAPIN & BRO., BAY CITY, MICH.

1 sample fine kettle salt.

DISTRICT NO. 7, WENONA AND BANKS.

KEYSTON SALT AND LUMBER COMPANY, WENONA.

1 sample fine steam salt; 1 sample brine.

H. W. SAGE & CO., WENONA.

1 sample fine steam salt; 1 sample brine.

KELLEY & CO., BAY CITY.

1 specimen large salt crystals.

DISTRICT NO 8, WHITE ROCK.

THOMSON & BROTHER, WHITE ROCK.

1 specimen fine pan salt; 1 specimen brine.

DISTRICT NO. 9, EAST TAWAS, MICHIGAN.

EAST TAWAS MILL COMPANY.

1 sample fine steam salt; 1 sample packer's salt; 1 sample brine.

ANALYSIS OF SALT BRINE, WHITE ROCK, HURON COUNTY, MICHIGAN.

THOMSON & BRO.

Sodium Chloride	18.9102
Calcium Chloride	0.5373
Magnesia Chloride	0.4106
Lime Sulphate	0.2623
Iron Oxide	0.0032
Water	79.8764
	100.0000

Specific gravity 1.1550 at 60° F. Salometer.

ARCHÆOLOGY.

The growing interest which is felt in the Archæology of our country, and the zeal shown by some of the States in forwarding antiquities to the Centennial exhibition, have been the inducements to send the small collection of relics from Michigan which we have catalogued.

They are forwarded under the auspices of the Detroit Scientific Association, and though few compared with what might have been obtained, had the subject received earlier attention, will at least, in the way of comparison, add to the illustrations now being so diligently sought for, of the pre-historic age of America.

RECEIVED FROM B. F. BUSH OF DETROIT.

No.

1 Stone spade from Grand Rapids.
2 Stone instrument from Shiawassee.
3 Stone ornament from Bay county.
4 Stone ornament from New Baltimore.
5 Indian implement from Genesee county.
6 Indian shuttle from Genesee county.
7 Indian implement from Oakland county.
8 Indian implement from Genesee county.
9 War hatchet from Oakland county.
10 Stone hatchet from Bay county.
11 Stone hatchet from Bay county.
12 Stone hatchet from Bay county.
13 Stone pestle from Wayne county.
14 Stone pestle from Bay county.
15 Stone pestle from Bay county.
16 Stone pestle from Bay county.
17 Stone pestle from Lake Superior.
18 Stone adze from Saginaw county.
19 Stone axe from Saginaw county.
20 Stone war hatchet found in the skull of an Indian, near Detro t.
21 Stone hatchet from Lake Superior.
22 Small stone hatchet from Genesee county.
23 Small stone hatchet from Saginaw county.
24 Small stone hatchet from Saginaw county.
25 Small stone hatchet from Saginaw county,
26 Stone celt from Saginaw county.
27 Stone celt from Saginaw county,

No.
28 Stone celt from Saginaw county.
29 Stone celt from Saginaw county.
30 Large stone celt from Bay county.
31 Large stone celt from Bay county.
32 Large stone celt from Bay county.
33 Large stone celt from Kent county.
34 Large stone celt from Bay county.
35 Large stone celt from Genesee county.
36 Stone gouge from Shiawassee county.
37 Stone gouge from Bay county.
38 Stone hammer from Bay county.
39 Stone hammer from Bay county.
40 Stone hammer from Bay county.
41 Stone hammer from Shiawassee county.
42 Stone pestle from Genesee county.
43 Piece of pottery from a mound in Genesee county.
44 Indian flute, bought of an Indian in Shiawassee county.
45 Indian totem (lizard) from Charity Island, Saginaw Bay.
46 Indian totem (otter) from a mound in Bay county.
47 Indian totem (frog) from the battle ground in Bay county.
48 Indian ornament from Bay county.
49 Indian gorget from Bay county.
50 Long auger shape stem pipe from Lake Superior.
51 Red stone pipe from Genesee county.
52 Brown stone pipe, ornamented, from Michigan.
53 Black stone pipe from Michigan.
54 Black stone pipe from Michigan.
55 Grey stone pipe from Michigan.
56 Small stone pipe from Michigan.
57 Small stone pipe from Wayne county.

RECEIVED FROM S. B. MANN, LENAWEE COUNTY.

58 Stone celt from Lenawee county.

RECEIVED FROM FRED. A. BEARD OF RUBY, ST. CLAIR CO., MICH.

59 Stone celt from town of Kenosha, Michigan.
60 Stone celt from town of Clyde, Michigan.
61 Stone celt from town of Clyde, Michigan.
62 Stone celt from town of Clyde, Michigan.
63 Stone celt from town of Clyde, Michigan.
64 Stone celt from Sanilac county, Michigan.
65 Stone lance head from town of Clyde, Michigan.
66 Stone celt from town of Clyde, Michigan.
67 Stone celt from town of Clyde, Michigan.
68 Stone celt from town of Clyde, Michigan.
69 Stone celt from town of Clyde, Michigan.
70 Stone celt from town of Clyde, Michigan.
71 Stone axe from town of Clyde, Michigan.
72 Stone axe from town of Clyde, Michigan.

No.

73 Stone axe from town of Clyde, Michigan.
74 Stone hammer from town of Clyde, Michigan.
75 to 104, both inclusive. Stone arrow heads, found in plowed fields, in the town of Clyde, St. Clair county, Michigan.
105 Stone ornament from town of Clyde, Michigan.
106 Stone ornament from town of Clyde, Michigan.
107 Stone lance head, not known where found.
108 Stone celt, not known where found.

RECEIVED FROM THE BOARD OF EDUCATION OF CORUNNA, H. C. BAGGERLY, SUP'T. OF UNION SCHOOLS.

109 Stone pestle, plowed up one mile north of Corunna.
110 Stone axe, plowed up in town of Vienna, Shiawassee county.

FROM THE COLLECTION OF THE DETROIT SCIENTIFIC ASSOCIATION.

111 Large stone celt from Michigan.
112 Small stone celt from Michigan.
113 Small stone hammer from Michigan.
114 Coarse stone implement from Michigan.
115 Stone plumb bob from Michigan.
116 Stone war hatchet from Michigan.
117 Fine stone ornament from Michigan.
118 Stone spear point from Michigan.
119 Stone spear point from Michigan.
120 Stone spear point from Michigan.
121 to 140, both inclusive. Stone arrow heads from Michigan.
141 Stone gimlet from Michigan.
142 Indian etching and painting on stone from Brownstown, Michigan.
1 perforated Indian skull.
1 perforated Indian skull from Bela Hubbard.
1 deformed Indian skull from School Board of Flint.

RECEIVED FROM J. A. BAILEY OF DETROIT.

142½ Large stone implement from a mound at Fort Gratiot.

RECEIVED FROM COL. W. P. NORRIS, OF NORRIS, MICH.

143 Stone hatchet from Michigan.
144 Stone hatchet from Michigan.
145 Stone hatchet from Michigan.
146 Stone skull cracker from Michigan.
147 Stone skull cracker from Michigan.
148 Stone celt from Michigan.
149 Stone celt from Michigan.
150 Stone celt from Michigan.
151 Stone celt from Michigan.
152 Stone ornament from Michigan.
153 Stone ornament from Michigan.
154 Stone ornament from Michigan.
155 Sling stone from Michigan.
156 Stone spear point from Michigan.

No.
157 Copper ornament from Michigan.
158 1 ornamented stone pipe (red) from Michigan.
159 1 ornamented white stone pipe from Michigan.
160 1 Indian paint bag from Michigan.

RECEIVED FROM GEORGE J. WARD, ST. CLAIR, MICH.

161 Stone celt from St. Clair county.
162 Stone celt from St. Clair county.
163 Stone celt from St. Clair county.
164 Stone celt from St. Clair county.
165 Stone celt from St. Clair county.
166 Stone celt from St. Clair county.
167 to 185, both inclusive. Stone arrow heads found in Washtenaw county.

RECEIVED FROM BELA HUBBARD OF DETROIT.

186 to 222, both inclusive. Stone arrow heads, spear points and knives from Michigan, and a few from Ohio.
223 Large stone celt from Wayne county.

RECEIVED FROM NOBLE & BRADY, DETROIT.

224 Stone hammer from Lake Superior.

RECEIVED FROM THE SCHOOL BOARD OF FLINT, MICH.

225 Indian war club.
226 Indian axe.
227 Indian axe.
228 Indian toy axe.
229 Indian chisel.
230 Indian axe.
231 Indian skinner.
232 Indian rude axe.
233 Indian chisel.
234 Indian spear head.
235 Indian axe.
236 Indian long pointed spear head.
237 Indian shuttle.
238 Indian long pointed arrow head.
239 Indian spear head with fossil shell on one side.
240 Indian broken fish spear head.

RECEIVED FROM KENT SCIENTIFIC INSTITUTE, GRAND RAPIDS, MICH.

This Institute has been in existence for about 20 years, has a very valuable collection of minerals, birds, etc., and numbers among its members many of the most learned and best citizens, and is doing a valuable work in educating our youth in an important part of education too much neglected in our country.

ARROW HEADS.

Nos. 1 to 60 inclusive, all on glass tablets.

COPPER ARTICLES.

No.

61. Awl and file, on glass tablets (4-inch).
62. Awl, on glass tablets (4-inch).
63. Awl or needle, in bone handle, on glass tablets (2-inch).
64. Awl or needle, on glass tablets (2-inch).
65. Spear head (8-inch).
66. Spear head, in deer-horn handle (thick), (10-inch).
67. Copper knife (12-inch).
68. Copper spade (without shank), (3½-inch.)
69. Copper spade (with shank), (6½-inch).
70. Copper axe (8½-inch).
71. Copper head, Charlevoix.
72. Copper knife (6-inch).
73. Perforated oval stone (cord stretcher?).
74. Fibula, hæmatite (4½-inch).
75. Fibula, pottery, sandstone (6½-inch).
76. Pipe, green stone (Dr. Parker).
77. Pipe, red pipestone (Mr. Spoon).
78. Dog's head (broken).
79. Totem, quartzite (sheep head?).
80. Cord-gauge, slate.
81. Cord-gauge, slate, large.
82. Cord-gauge, ribboned slate.
83. Cord-gauge, oval.
84. Cord-gauge, three holes.
85. Cord-gauge.
86. Cord-gauge.
87. Cord-gauge.
88. Head spear of bone.
89. Two serrated fish spears, Kendall's add., deer's horn.
90. Two bone stilettos.
91. Arrow-heads, Grand Rapids.
92. Flesher, Nunica, Ottawa Co.
93. Flesher, Spoonville, Ottawa Co.
94. Hatchet, Grand Rapids.
95. Skinning knife, Grand Rapids.
96. Axe, Kent Co., Mich.
97. Axe, Kent Co., Mich.
98. Flesher, Kent Co., Mich.
99. Flesher, Kent Co., Mich.
100. Adz, Kent Co., Mich.
101. Gouge, Kent Co., Mich.
102. Pestle, Kent Co., Mich.
103. Pestle, Kent Co., Mich.
104. Flesher, Kent Co., Mich.
105. Copper spear, Kent Co., Mich.
106. Two arrows and two spear-heads, Kent Co., Mich.
107. Spear or lance, Kent Co., Mich.
108. Arrow-heads, Ottawa Co., Mich.

NO.

109. Drill and arrow-heads, Kent Co., Mich.
110. Four arrow-heads, Kent Co., Mich.
111. Vase, mound, Grand Rapids.
112. Vase, mound, Grand Rapids.
113. Shell, mound, Grand Rapids.
114. Shell, mound, Grand Rapids.
115. Maul, Michigan.
116. Worn axe, Michigan.
117. Axe, Michigan.
118. Totem of ribboned slate.
119. Totem or pipe.
120. Totem or pipe.
121. Pipe, fossil coral.
122. Pipe.
123. Pipe.
124. Pipe, catlinite.
125. Pipe, Michigan.
126. Pipe, Michigan.
127. Modern Indian pipe, Fox Indians.
128. Totem, Southern Michigan.
129. Totem, Michigan.
130. Pipe, Panama.

BELA HUBBARD,
J. C. HOLMES,
B. F. BUSH,
Committee Detroit Scientific Association.

MANUSCRIPT REPORTS

OF GRADED SCHOOLS, COLLEGES, STATE INSTITUTIONS, CHURCHES PUBLIC LAW AND GOVERNMENT, SECRET SOCIETIES, ART GALLERIES.

	Vols.		Vols.
Grand Rapids	3	Methodist Church	1
East Saginaw	11	Dutch Reformed	1
Bay City	5	Roman Catholic	1
Saginaw City	3	Presbyterian Church	1
Flint	1	Protestant Episcopal Church	1
Pontiac	1	State Public School	1
Ypsilanti	1	State Reform School	1
Ann Arbor	1	State Deaf and Dumb	1
Howell	1	Insane Asylum	1
Lansing	1	Agricultural College	
St. Johns	1	State Prison	
Battle Creek	1	Michigan University	
Niles	1	State Normal School	
Benton Harbor	1	Detroit Medical College	
Coldwater	1	House of Correction	
Calumet	1	Royal Arch Chapter	
Brooklin	1	Commandery K. T.	
Detroit	4	Free and Accepted Masons	
Hillsdale		Counsel R. A. M.	
Ionia		Good Templar	
Jackson		Art Gallery, Coldwater	
Adrian College	1	Scientific Association	
Olivet College	1	Commercial College, Detroit	
Kalamazoo College	1	Mayhew Com. College	
Albion College	1	Kalamazoo Com. College	
Hillsdale College	1	Superintendent Pub. Instruction	
Baptist Church	1