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NEW SERIES.

REPORT

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Agricultural Experiment Station.

Agricultural and Mechanical College,

AUBURN, ALA.

OCTOBER, 1888.

REPORT

OF

Agricultural Experiment Station,

Agricultural and Mechanical College,

AUBURN, ALA., OCTOBER, 1888.

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Report of the Director.

The equipment of the Agricultural department of the station having been very much improved during the present year, its future work will be more in accordance with a proper conception of experimental investigation than has hitherto been practicable. Experiments with stock have not been attempted on account of the absence of the necessary conditions of success. Barns, machinery, a silo, dairy and ice house, with stalls constructed expressly for feeding experiments, and the necessary help having been provided, experiments looking to the encouragement and improvement of the stock and dairy industry of the State, will be undertaken during the approaching winter.

Having no adequate storage room in the past, and being dependent upon a custom gin, all past reports of cotton experiments had to be made in seed cotton, which, though very unsatisfactory, was the best that could be done without room for storing the product of each experiment separately, and the means of ginning each separately. In future, results will be given in *lint*, instead of *seed* cotton.

Another difficulty with which this department has contended has been the frequent change of assistants. So great has been the demand for trained experts in experiment work, that so fast as young men have become especially efficient, they have been offered better positions at other stations. Three of our graduates have been thus taken from us within the last fifteen months. This is detrimental to the work of the station, since much of the details of planting and gathering experiments, as well as the periodical observations upon them, must, of necessity, be entrusted to assistants. The result has been that much valuable time has been expended in training men for the benefit of other stations.

EXPERIMENTS WITH WHEAT.

The question as to the proper depth to plant small grain, has received much attention in the columns of the Agricultural press of the country.

In order to test this accurately, plats of equal area were planted at depths ranging from half inch to six inches, 25th November, 1887. The soil was evenly prepared, and rows merely marked with a line one foot apart. Two grains of carefully selected

wheat were then dropped every six inches in the row, and carefully pressed in with a large dibble, which had previously been accurately marked in half-inch divisions. The number of grains which vegetated were carefully counted upon each plat, and the percentage of the whole number planted calculated with results as shown in the tabulated statement. In order to ascertain the extent to which the stand was supplemented by tillering, on the plats on which only a small per cent. of the seed vegetated, the number of heads to each stool was counted. The wheat from each plat was rubbed out by hand and weighed, with results shown in the table. The wheat rusted on both blades and stalk, upon all of the plats; all plats were cultivated.

RESULTS.

VARIETY.	Depth Planted.	Per Cent. Germinated.	Number of Heads to Stool.	Weight of Wheat.
Purple straw.....	$\frac{1}{2}$ inch	77	11.5	$1\frac{1}{4}$ lbs.
Purple straw.....	1 "	77	9.7	$1\frac{1}{4}$ "
Purple straw.....	$1\frac{1}{2}$ "	69	11.8	1 "
Purple straw.....	2 "	70	12.1	1 "
Purple straw.....	$2\frac{1}{2}$ "	65	14.5	$\frac{3}{4}$ "
Purple straw.....	3 "	34	16.2	$\frac{1}{2}$ "
Purple straw.....	$3\frac{1}{2}$ "	62	12.1	1 "
Purple straw.....	4 "	31	19.2	1 "
Purple straw.....	$4\frac{1}{2}$ "	26	19.9	1 "
Purple straw.....	5 "	37	13.6	$\frac{3}{4}$ "
Purple straw.....	$5\frac{1}{2}$ "	29	19.5	$\frac{1}{2}$ "
Purple straw.....	6 "	18	24.4	$\frac{3}{4}$ "

Equal areas were also planted at the same date in the following varieties, all of which grew under identical circumstances:

RESULTS.

VARIETY.	Seed From.	Rusted.	Weight Per Plat.
La Huerta Mexico.....	Dept. Agricult're.	Badly on blades.	$1\frac{1}{4}$ Pounds.
Wolf Mexico.....	"	"	1 "
Juaniro Mexico.....	"	"	1 "
Jopuerto Mexico.....	"	"	1 "
Ahuchettan Mexico.....	"	"	1 "
Cologa Mexico.....	"	"	$\frac{3}{4}$ "
Fulcaster.....	"	None	$\frac{1}{2}$ "
Colorado Multiple head.....	R. E. Collier.	Rusted.	$\frac{1}{2}$ "
Name unknown.....	Dept. Agricult're.	None.	$\frac{1}{2}$ "
Purple Straw.....	Moore, Auburn.	Rusted.	$1\frac{1}{2}$ "

Two plats of highly fertilized soil were planted in wheat in

drills, twelve inches apart. One of these was carefully cultivated while the other was not, for the purpose of observing the effect of such cultivation. The soil, as was that of the other experiments, deep sand, with no clay within a foot of the surface. At no stage of the growth of the plants could any difference in appearance be discovered. The seed of the Purple Straw wheat grown in the neighborhood was used.

That cultivated produced 39 4-5 bushels per acre; that not cultivated produced $36\frac{3}{4}$ bushels per acre. The difference was not enough to pay the cost of cultivation.

Mr. Francis, of Calhoun county, Alabama, presented two bushels of wheat, of a new variety, claimed to have originated in Calhoun county, to the Commissioner of Agriculture, with the request that one bushel be experimented with at the experiment station at Auburn, and one at the Canebroke station.

The bushel presented to this station was sown upon one acre of thin, sandy soil, fertilized with twelve bushels of green cotton seed, and two hundred pounds of cotton seed meal and acid phosphate mixed in equal quantities—100 pounds of each per acre. When the wheat headed, it was found to be badly mixed with the Purple Straw variety. Much waste occurred in separating the latter, after which a yield of $12\frac{1}{2}$ bushels was measured from the acre.

The wheat stood in shocks in the field until the first of September, and thus sustained another serious loss. Much of it was ripe on the 10th of May. It was harvested May 14th. There was no rust upon the stalk, but some upon the last leaf. Five grains to the mesh were not uncommon in this wheat, and occasionally seven were found. It is a smooth-headed, velvet chaff variety, presenting a very peculiar appearance when ripe. It has a plump red berry. Its milling properties have not yet been tested. I neglected to state that this wheat was jointed 20th March, when the mercury registered 29° fahr., and many of the stalks were bursted by being frozen. Earliness and productiveness are two desirable qualities possessed by this variety. As it came to me without name, I have christened it "Early Velvet Chaff." It is ten days earlier than the Purple Straw.

VARIETIES OF CABBAGE.

The following varieties of cabbage were planted under identical circumstances for the purpose of comparing their earliness, productiveness, and heading qualities. They were planted too late to attain respectable weights. They were injured by both

drouth and heat, which diminished the size of the heads. Best results are obtained with cabbage in this climate by very early planting. Some of the varieties here reported were transplanted early in February for domestic use, and produced heads weighing from five to ten pounds each. The cabbage endures a reasonably low degree of temperature with less injury than excessive heat.

It will be observed that the percentage of plants that headed under the unfavorable circumstances under which they were grown, gives evidence of well bred seed. The date of heading was noted when a number of plants of a variety had formed hard, marketable heads. The weights were obtained after stripping all loose leaves, leaving only those suitable for cooking. Only the firm, merchantable heads were counted in determining the percentage headed.

RESULTS.

NAME OF VARIETY.	Seedsmen.	Time of Heading.	Average Weight in lbs.	Per cent. that Headed.
All Seasons	Ferry.	June 26.	0.94	62½
All Seasons.....	Thorburn.	June 22.	1.00	75
Bloomsdale Brunswick.....	Landreth.	June 23.	2.22	80
Bloomsdale Bullock Heart.....	"	June 23.	2.67	77
Bloomsdale Early Market.....	"	June 21.	1.95	70
Buncombe.....	U. S. Dept.	Too Late.		
Canon Ball.....	Dreer.	June 21.	1.52	96
Dreer's Large Early York	"	June 22.	1.35	54
Early Cone	Landreth.	June 13.	2.06	100
Early Drumhead	Dreer.	June 20.	1.02	100
Early Dwarf Flat Dutch.....	Landreth.	June 23.	2.07	83
Early Dwarf Savoy.....	Thorburn.	June 29.	0.90	83
Early Flat Dutch.....	Landreth.	June 29.	0.41	46
Early French Ox Heart.....	Dreer.	June 26.	0.62	50
Early Improved Flat Brunswick.....	Dreer.	June 22.	1.89	75
Early Jersey Wakefield.....	Dreer.	June 13.	1.55	79
Early Jersey Wakefield.....	Ferry.	June 22.	1.35	71
Early Mammoth Bulgaria.....	Thorburn.	June 25.	1.73	87
Early Paris Market.....	Dreer.	June 25.	1.05	46
Early Sugar Loaf.....	Landreth.	June 22.	0.50	77
Early Ulm Savoy.....	Thorburn.	June 23.	1.00	70
Early Winningstadt.....	Dreer.	June 23.	1.55	87
Ferry's Early York.....	Ferry.	June 22.	1.43	54
Ferry's Green Glazed.....	Ferry.	Failure.		0
Henderson's Early Sunrise.....	Dreer.	June 20.	1.70	92
Improved Early Summer.....	Thorburn.	June 13.	1.39	71
Landreth's Earliest.....	Landreth.	June 9.	1.77	83
Landreth's Early Summer.....	"	June 22.	1.56	66
Landreth's Large York.....	"	June 22.	1.57	83
Large Early Jersey Wakefield.....	Dreer.	June 21.	1.24	87
Large Jersey Wakefield.....	Landreth.	June 18.	2.15	96
Large Late Flat Dutch.....	Dreer.	June 21.	1.66	92
Late Drumhead Savoy.....	Thorburn.	June 26.	1.50	75
Late Flat Dutch.....	Ferry.	June 26.	1.06	67
New York Early Summer.....	Landreth.	June 18.	1.85	100
Reedland Early Drumhead.....	"	June 22.	1.73	92
Select very early Jersey Wakefield.....	"	June 21.	1.45	87½
Winningstadt.....	"	June 25.	1.58	75

TOMATOES.

A list of seeds of choice varieties of Tomatoes were purchased from J. M. Thorburn, New York, D. Landreth & Sons, Philadelphia. D. M. Ferry & Co., Detroit, Michigan, presented the station with an assortment of seed for experimental testing, and A. W. Livingston & Sons, of Columbus, Ohio, presented a number of their choice varieties which they originated. A number of our best varieties of Tomatoes have been originated by the Livingstons.

In addition to the varieties tabulated, the yellow pear shaped and Landreth's Peach Tomatoe were cultivated. The former is a small, very prolific variety of best quality—excellent for table use, and especially adapted to preserving and pickling. The Peach is a small variety, resembling a peach in form and color, desirable only as a curiosity. Like Vick's Criterion and the small seedling Tomato, it has a decided core to which the seed are attached, and a thin flexible pulp, between which and the seed is a decided cavity. The seed of all these varieties were planted in the green house February 20th, and transplanted April 7th. In productiveness, size, appearance and quality, these varieties of Tomatoes presented a picture, when in full bearing, that was exceedingly attractive. The utmost care and accuracy were observed in the classification of the varieties; the waste was ascertained by weighing a number of specimens of each variety, then cutting from the stem end just so much as would be removed and discarded in an economical preparation of the tomatoes for the table. The specimens were then weighed, and the difference divided between the number of specimens employed. This gave the average waste per specimen; several weighings were made, and the average taken. The size of the specimens is indicated by the diameter, which was the measurement of a section through the largest part at right angle to the axis.

VARIETIES OF TOMATOES.

NAME OF VARIETY.	Seedsmen.	Time of Ripening	Average Weight in Ounces.	Form.	Color.	Cavity around the Seed.	Core.	Average Waste in Ounces.	Flavor.	Corrugations.	Diameter in Inches.	Remarks.
Acme	Livingston.	June 22.	6	Round smooth.	Pinkish red.	None.	None.	0. 3/4	Best	None.	3 3/8	
Beauty	Landreth.	July 7.	6 1/4	Roundish.	Red.	None.	None.	0.	Poor.	None.	2 7/8	
Bermuda ex. Early.	Landreth.	July 9.	5 5/8	Flat.	Bright red.	Very large.	None.	0. 3/4	Very good.	Very deep.	3 1/8	Irregular in form and soft.
Bronze Foliage	Livingston.	July 5.	10 2/3	Irregular.	Red.	None.	None.	0. 2/3	Good.	Very marked.	3 3/4	
Cincinnati Purple...	Ferry.	July 16.	10 2/3	Irregular.	Red.	None.	None.	0. 2/3	Very good.	Slight.	3 3/4	Large and firm, but irreg.
Conqueror	Thorburn.	June 22.	5	Flat.	Red.	None.	None.	0. 3/8	Very good.	Distinct.	3 3/4	
Essex Hybrid	Thorburn.	June 26.	6 1/4	Round Flatish.	Deep red.	None.	None.	0. 3/4	Very good.	None.	3 3/8	
Early Conqueror	Ferry.	June 21.	5 5/8	Flat.	Bright red.	None.	Decided	0.	Good.	Distinct.	3 1/4	Quite irregular.
Early Jersey	Landreth.	July 10.	7 2/3	Flatish round.	Red.	None.	None.	0. 2/3	Good.	Slight.	3 1/4	
Early Advance	Thorburn.	July 9.	6 7/8	Round.	Red.	None.	Slight.	0. 1/2	Very good.	None.	3 3/8	Small, but very choice.
Essex Early Hybrid.	Ferry.	June 29.	6	Round.	Dark red.	None.	None.	0.	Best.	None.	2 8/8	
Feger Island	Landreth	.....	11	Very irregular.	Pinkish red.	Medium.	Large.	0. 3/4	Good.	Deep and distinct.	3	Streaks—irregular in form.
Fulton Market .....	.....	July 10.	8 3/4	Very irregular.	Red.	None.	None.	0. 3/4	Best.	Distinct.	4	
Golden Queen	Livingston.	July 2.	6 2/3	Roundish Flat.	Golden yellow.	Very slight.	None.	0. 7/8	Best.	None.	3 3/4	
Golden Queen	Ferry.	July 7.	7 2/3	Round.	Yellow.	None.	None.	0. 7/8	Best.	None.	3 3/8	Tinged with red.
Golden Queen	Thorburn.	June 16.	7 3/4	Round.	Yellow.	None.	None.	0. 1/2	Best.	None.	3 3/8	
Golden Trophy	Landreth.	July 9.	6	Flat & irregular.	Yellow.	None.	Decided	0. 1/2	Very good.	Medium.	3 3/8	
Impr'v'd Large Yel.	Thorburn.	July 9.	2 3/4	Flat.	Dark yellow.	Slight.	Slight	0. 1/3	Poor.	Very distinct.	2 1/4	
Improved Green	Thorburn.	July 5.	8	Flat.	Red.	None.	None.	0. 2/3	Very good.	Distinct.	3 3/8	Light hard streaks.
Livingston's Favorite	Landreth.	June 23	6 1/3	Round smooth.	Red.	None.	None.	0. 2/3	Good.	None.	3 3/4	
" Perfection	Livingston.	June 25.	7	Flatish round.	Bright red.	None.	None.	0. 2/3	Very good.	Slight.	3 3/8	
"	Livingston.	June 28.	5 2/3	Roundish.	Dark red.	None.	None.	0.	Best.	None.	3 3/4	A perfect Tomato.
Mikado	Thorburn.	June 22.	10 1/3	Irregular.	Pinkish red.	None.	None.	0.	Very good.	Distinct.	4 3/8	
New Beauty	Livingston.	July 2.	7	Roundish.	Red.	None.	None.	1. 1/8	Best.	None.	3 1/2	
New Jersey	Thorburn.	June 23.	8 3/4	Round flatish.	Deep red.	None.	None.	0. 1/2	Very good.	None.	3 3/8	
Paragon	Livingston.	July 28.	7 1/2	Round flatish.	Deep red.	None.	None.	0. 2/3	Good.	Very slight.	3 1/4	Hard streaks in seed cavity.
Potato Leaf	Livingston.	June 30.	6	Round.	Dark red.	None.	None.	0. 1/2	Best.	None.	3	A perfect Tomato.
Prize Belle	Thorburn.	July 2.	7	Flat.	Red.	Very slight.	None.	0. 1/2	Poor.	Very marked.	3 1/2	
Trophy	Livingston.	June 21.	6 3/8	Roundish flat.	Red.	None.	None.	0. 1/3	Best.	Slight.	3 1/2	
Trophy	Thorburn.	July 17.	8 3/8	Round flattened.	Red.	Very small.	None.	1. 1/3	Very good.	Slight.	3 1/2	Not fully ripe.
White Apple	Ferry.	July 11.	1 1/2	Round.	Light yellow.	None.	None.	0.	Best	None.	1 1/4	Small but very prolific.

NOTES ON VARIETIES OF CANTALOUPEs.

NAME OF VARIETY.	Seedsmen	Average Weight. in Pounds.	Netting.	Form.	Thickness of Rind		Cavity.	Color of Flesh.	Flavor or Quality.	Remarks. Planted March 24, 1888.
Acme Citron.....	Landreth.	2-5	Very Good	Oblong.....	$\frac{3}{8}$	1-2-8	Very Small.	Yellowish green	Very good....	A beautiful melon; sweet and good.
Baltimore.....	Dept Ala.	1-8-9	Perfect....	Round.....	$\frac{2}{8}$	$\frac{7}{8}$	Small.....	Light green...	Very good....	A superior melon.
Baltimore.....	Ferry...	1-3-5	Good.....	Oblong.....	$\frac{2}{8}$	$\frac{7}{8}$	Very Small.	Light green...	Very good....	.....
Bay View.....	Dept Ala.	$4\frac{1}{2}$	Poor.....	Very Obl'ng	$4-3$	$8-3$	Very Large.	Pale green....	Good.....	Sun-scaled.
Pineapple.....	Auburn St	$2-2-1\frac{1}{2}$	Very Good	Oblong.....	$3-3$	$8-8$	Very Small	Pale green....	Good.....	A perfect melon.
Casaba.....	Dept Ala.	2	Very Poor.	Oblong.....	$3-3$	$8-8$	Very Large.	Sickly yellow.	None.....	Too tender and always sun-scaled.
Casaba.....	Dreer...	$4\frac{3}{4}$	Poor.....	Very Obl'ng	$\frac{3}{8}$	$\frac{7}{8}$	Medium.....	Sickly green...	Inspid.....	Sun-scaled.
California yellow flesh Citron.....	Landreth.	$1\frac{7}{8}$	Good.....	Oblong.....	$2-3$	$4-8$	Very Small.	Green.....	Very good....	Failure.
Extra early Citron Melon.....	Landreth.	$2-5-18$	Good.....	Oblong.....	$2-3$	$4-8$	Very Small.	Light green...	Very good....	A very fine melon.
Green Citron Nutmeg.....	Dept Ala.	$3\frac{1}{2}$	Good.....	Round.....	$4-8$	$6-8$	Large.....	Green.....	Good.....	.....
Golden Jersey.....	Dreer...	$1\frac{1}{4}$	Very Good	Roundish...	$3-8$	$\frac{7}{8}$	Large.....	Green.....	Good.....	.....
Hackensack.....	Ferry...	$3-18$	Very Poor.	Round.....	$\frac{3}{8}$	$\frac{7}{8}$	Very Large.	Pale green....	Good.....	.....
Hackensack.....	Dreer...	$3-25$	Good.....	Round.....	$\frac{3}{8}$	$8-8$	Medium.....	Pale green....	Good.....	.....
Improved Cantaloupe.....	Dept Ala.	$3-68$	Good.....	Round.....	$4-3$	$8-8$	Small.....	Sickly green...	Very poor....	Failure.
Improved Orange Christina.....	Thorburn	$2-41$	None.....	Round.....	$\frac{3}{8}$	$8-8$	Small.....	Yellow.....	Good.....	.....
Improved Citron Nutmeg.....	Ferry...	$2\frac{1}{2}$	Good.....	Round.....	$4-3$	$6-5$	Large.....	Light green...	Very good....	Had only one melon to test.
Jenny Lind.....	Ferry...	.....	.....	.....	.....	.....	.....	Pale green....	Poor.....	Failure.
Montreal Market.....	Ferry...	$3\frac{3}{4}$	Good.....	Round.....	$2-8$	$8-8$	Medium...	Pale green....	Poor.....	An inferior melon.
Montreal.....	Dreer...	$4\frac{1}{2}$	Good.....	Roundish...	$4-8$	$14-8$	Very Small.	Pale green....	Poor.....	.....
Netted Pineapple.....	Dreer...	$2-22$	Good.....	Oblong.....	$4-8$	$6-8$	Very Large.	Pale green....	Good.....	.....
Prolific Nutmeg.....	Dept Ala.	$2-93$	None.....	Round.....	$\frac{3}{8}$	$6-8$	Very Large.	Sickly yellow.	Poor.....	An inferior melon; had only one to test.
Prescott.....	Dreer...	4	Poor.....	Oblong.....	$\frac{3}{8}$	$\frac{7}{8}$	Very Large.	Sickly green...	Poor.....	Badly sun-scaled.
Reedland's Giant Citron.....	Landreth.	4	Poor.....	Oblong.....	$2-8$	$8-8$	Medium...	Yellowish green	Poor.....	.....
Surprise.....	Ferry...	$2\frac{3}{4}$	None.....	Round.....	$2-8$	$\frac{7}{8}$	Very Large.	Sickly yellow...	Good.....	Like a musk melon.
Woods' Nectar.....	Thorburn	2	Was not te	sted. Had	on	ly o	ne melon.	.....	.....	.....

VARIETIES OF WATERMELONS.

The following varieties of melons were planted as nearly as practicable, under identical circumstances, four hills of each variety. The following notes will convey some information as to the productiveness, character and quality of the varieties :

NOTES ON WATERMELONS.

NAME OF VARIETY.	Seedsman	Total Weight.	Average Weight.	Color of Rind.	Form.	Corugations	Thickness of Rind in Inches.	Color of Flesh.	Color of Seed.	Cavity.	Quality.	Remarks.
Black Spanish.....	Ferry	102 $\frac{3}{4}$	20.3-20	Deep green...	Round	Very distinct	6-8	Pale red..	Black	None.	Poor...	Deep green, hard streaks.
Cuban Queen.....	Dreer	221 $\frac{3}{4}$	24.7-3 $\frac{1}{2}$	Light green stripe.	Round	Very distinct	8-8	Sickly red	Black	None.	Good .....	.....
Early Mountain Sprout	Thorburn	117	14.6-8	Green.....	Round	Distinct	$\frac{7}{8}$	Pink.....	Black	None.	V'y insip.	Very inferior
Extra Early	Landreth.	103	12. $\frac{3}{8}$	Mottled	Oblong	Very slight..	$\frac{7}{8}$	Red	White, bl'ck edges	None.	Good	Flesh stringy.
Ferry's Peerless	Ferry	91	13.	Green	Round	Slight	$\frac{7}{8}$	Deep red	Small and white..	None.	Very good	Grain fine and tender.
Florida Favorite.....	Thorburn	131	21.5-6	Green stripe	Oblong	Slight	$\frac{7}{8}$	Deep red	White	None.	Best	Grain fine,tender; choice melon
Goodwin's Imperial..	Thorburn	108	13.1	Light green	Round	Very distinct	8-8	Pale red.	Black	None.	Good	Superior
Improved Rattlesnake	Thorburn	248	17.5-7	Striped green.....	Very Obl'g.	Wide, irr'glar	1 $\frac{1}{4}$	Red	White, black tips.	None.	Very good	Flesh tender—good.
Iceing	Thorburn	79 $\frac{3}{4}$	19 $\frac{3}{4}$	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ice Cream	Thorburn	144 $\frac{3}{4}$	16. $\frac{3}{4}$	Green	Round	Distinct	1 $\frac{1}{4}$	Red	Black	None.	Very good	.....
Johnson's Christina	Ala. Dept	105	15.	.....	.....	.....	.....	.....	.....	.....	.....	.....
Thorburn	Thorburn	136 $\frac{3}{4}$	22.1-12	Light grey	Oblong	None	$\frac{3}{4}$	Deep red.	White	None.	Best .....	.....
Jordan's Gray M'n'ch.	Thorburn	136 $\frac{3}{4}$	22.1-12	Light grey	Oblong	None	$\frac{3}{4}$	Deep red.	White	None.	Best .....	.....
Kolb Gem	Ferry	251	19.4-13	Striped	Round	None	6-8	Red	Black	None.	Very good	Meat tough, and stringy.
Landreth l'ng lig't ri'd	Landreth	105 $\frac{3}{4}$	17. $\frac{1}{4}$	Light grey	Oblong	Slight	1 $\frac{1}{8}$	Red	White	None.	Good .....	.....
Landreth's Boss	Landreth.	66 $\frac{3}{4}$	13.4-20	Dark green	Oblong	Distinct	$\frac{7}{8}$	Red	Black	None.	Good .....	.....
Mammoth Iron Clad.	Thorburn	186 $\frac{3}{4}$	23. $\frac{3}{4}$	Strip'd or Rattles'k	Oblong	Very slight..	8-8	Red	Yellowish brown..	None.	Poor	Very much like rattlesnake.
Mountain Sweet	Dreer	179 $\frac{3}{4}$	16.1-44	Dark Green	Oblong	Slight	6-8	Pale red.	Black	None.	Good .....	.....
New Round Excelsior	Thorburn	102	20.3-5	Like Kolb Gem	Round	Distinct	8-8	Pale red.	Black	None.	Good	Same as Kolb Gem.
Orange	Dreer	28 $\frac{3}{4}$	9.1-12	Dark green	Sli'tly obl'g.	Slight	4-8	Red	Brown	None.	Very good	.....
Pride of Georgia	Dreer	171 $\frac{3}{4}$	15.5-10	Deep green	Round	Distinct	4-8	Deep red.	White, bl'k border	Solid.	Very good	Very good melon; sweet,tender
Phinney's Early	Ferry	79 $\frac{3}{4}$	13.4-10	Mottled	Oblong	None	6-8	Pale red.	White, bl'k border	None.	Poor	Mottled grey with slight lines
Peerless	Dept Ala.	48	34.	Dark green	Very oblong	None	8-8	Red	White	None.	Very good	A very good melon.
Scaly Bark	Dept Ala.	146	34.5-10	Mottled green.....	Oblong	Wide, distinct	6-8	Red	Light brown..	None.	Poor	Flesh stringy and course.
White Seed'd Ice-cr'm	Thorburn	145 $\frac{3}{4}$	29. $\frac{1}{4}$	Mottled	Round	Distinct	1 $\frac{1}{4}$	Red	White	Small	Good.....	.....

Report of N. T. Lupton, Chemist.

During the quarter ending October 1st, fifteen specimens of fertilizers, containing Nitrogen and Potash, besides Phosphoric Acid, usually denominated "*Complete Fertilizers*," have been analyzed in the Chemical Laboratory ; also, one containing Potash, five Acid Phosphates, and four specimens of Natural Phosphates from Geneva, Alabama. In addition to these, nine specimens of Irish Potatoes raised on the Experimental Farm, ten soils and sub-soils from various parts of the State, and several other substances have been analyzed, the details of which are as follows :

PHOSPHATES WITH NITROGEN AND POTASH.

Station No.	NAME OF FERTILIZER.	BY WHOM SENT.	Phosphoric Acid.				Commercial Value.	
			Nitrogen.	Water Soluble.	Citrate Soluble.	Acid Soluble.		
1005	Scott's Animal Am. Guano	G. W. Riley & Son, Echo, Ala.	1.02	10.20	4.04	2.37	1.50	\$27.96 1/2
1006	"Fertilizer"	H. B. Wilson, Grove Oak, Ala.	0.53	0.53	0.12	0.23	0.45	3.48 1/2
1007	McLaurin's Am. Lime Phosphate	Jasper Smith, Guntersville, Ala.	0.00	0.00	0.08	0.17	0.22	2.64
1008	No. 1. Fertilizer	A. B. Windham, Georgiana, Ala.	2.45	6.81	2.13	2.17	1.50	24.40
1009	No. 2. Fertilizer	A. B. Windham, Georgiana, Ala.	0.98	0.10	4.50	1.84	0.44	24.79
1010	Svan Island Guano	I. O. Mathewson & Co., Augusta, Ga.	c.42	0.35	15.17	8.28	0.96	.....
1011	McLaurin's Am. Lime Phosphate	W. N. Winfrey & Co., Woodland Mills, Ala.	0.42	.....	.....	0.55	0.28	.....
1012	Kotonu Guano	Rome Oil Mills, Rome, Ga.	1.75	8.35	3.73	2.04	1.16	25.05
1013	McLaurin's Am. Lime Phosphate	Porter & Foster, Town Creek, Ala.	0.52	.....	0.17	0.40	0.24	2.52
1033	Am. Super-phosphate	Etiwan Phos. Co., Charleston, S. C.	1.40	6.50	3.68	4.20	1.50	23.23
1036	Flow Brand Rowbone Super-phosphate.	" " " " " "	2.24	4.78	4.26	3.99	2.37	24.66
1038	Etiwan Am. Dis. Bone	" " " " " "	1.26	6.60	3.08	3.21	1.84	22.72
1039	Am. Dis. Bone	" " " " " "	1.33	6.02	2.43	3.11	1.83	20.31
1040	Reliance Am. Super-phosphate	" " " " " "	1.33	6.14	3.80	3.15	2.41	22.83
1041	Etiwan Guano	" " " " " "	1.82	4.64	6.05	3.36	1.71	24.83

ACID PHOSPHATES.

Station No.	NAMES OF FERTILIZER.	BY WHOM SENT.	Phosphoric Acid.				Commercial Value.
			Water Soluble.	Citrate Soluble.	Acid Soluble.	Potash.	
1011	Acid Phosphate	Marvyn Alliance, Marvyn, Ala.	13.32	1.00	1.08	.....	\$22.83
1015	Svan Island Guano	I. O. Mathewson & Co., Augusta Ga.	0.37	18.38	6.17	.....	.....
1034	X X Acid Phosphate	Etiwan Phos. Co., Charleston, S. C.	10.54	3.06	2.24	.....	20.40
1035	Soluble Bone	" " " " " "	10.31	3.30	2.35	.....	20.41
1036	Etiwan Acid Phosphate	" " " " " "	8.96	4.02	2.10	.....	22.13
1042	Etiwan Dis. Bone	" " " " " "	9.79	5.00	2.07	.....	22.18

Special attention is called to Nos. 1,006, 1,007 and 1012. The first mentioned was labeled "Fertilizer," the other two, "McLaurin's Ammoniated Lime Phosphate," and are practically worthless to the planter as fertilizers. They are not, properly speaking, "phosphates," nor are they "ammoniated." The chief constituent is carbonate of lime.

MISCELLANEOUS SUBSTANCES.

Station No. 1014. Mineral water from James Petite, Kennedy Ala.

This sample of water was examined qualitatively and found to contain 12.13 grains of solid matter in one U. S. gallon. This consists of oxide of iron and salts of lime and magnesia, in the form of chlorides, sulphates, and a little carbonate. The water may be classed as chalybeate, and will doubtless act as a mild tonic.

Station No. 1016. Red clay, supposed to be suitable for use in painting.

Insoluble matter (silica and white clay.) 83.70 per cent.
Oxide of iron 7.04 " "

The remainder consists of water of combination, a little lime and magnesia. It has too much clay for a good pigment.

Station Nos. 1018, 1019, 1020, 1021. Natural phosphates from J. C. McDougald, Geneva, Ala. In these phosphates, phosphoric acid alone was determined with the following results:

No. 1018 Phosphoric acid 19.17 per cent.
No. 1019 " " 20.46 " "
No. 1020 " " 0.74 " "
No. 1021 " " 0.48 " "

Two of the above were fragments of fossil bones, the others were fossil shells and rotten limestone.

Station No. 1022. Iron ore, limonite from Messrs. McCall and Paine, Calera, Ala.

Moisture 1.40 per cent.
Water of combination 10.40 " "
Silica 7.50 " "
*Oxide of iron 74.50 " "
Oxide of aluminium 1.92 " "
† Phosphoric acid 2.96 " "
Sulphur a trace.

*Equiv. lent to metallic iron 52.15 per cent.
† " " phosphorus 1.29 " "

Analyses of nine varieties of Irish potatoes raised at the Experiment Station gave the following results:

Station Nos. 1043-1051:

No.	Varieties.	Moisture	Ash	Fat.	Fibre	Albuminoids	Carbo-hydrates
1	Early Rose	74.63	0.76	1.17	0.98	2.68	19.78
2	New Giant	83.59	0.91	1.36	0.98	2.84	10.33
3	Sunlit Star	81.39	1.15	0.92	0.87	1.96	13.71
4	White Star	75.18	0.89	1.04	0.78	2.62	18.59
5	Pearl of Savoy	78.46	0.96	0.88	0.77	3.06	15.87
6	Morning Star	80.17	1.10	0.83	0.56	3.06	14.28
7	Thorburn	75.11	0.84	0.57	0.70	2.62	20.14
8	Great Eastern	80.56	0.86	0.98	0.80	2.03	14.77
9	Garfield	81.08	0.34	1.04	0.82	1.97	14.75

By reference to the last Bulletin, the yield per acre in bushels of the above varieties, under identical circumstances, can be seen. The order, beginning with the highest, is as follows: Great Eastern, New Giant, Garfield, White Star, Morning Star, Thornburn, Early Rose, Sunlit Star, and Pearl of Savoy.

RESULTS OF ANALYSES OF AIR-DRIED SOILS AND SUB-SOILS.

Locality.....	Near Mobile.			Sumter Co.		Marengo Co.		Dadeville.		Dadeville.		
	Sandy Gray Loam			Soil 4 (a)	Sub-soil 4(b)	Soil 5(a)	Sub-soil 5(b)	Soil 6(a)	Sub-soil 6(b)	Soil 7(a)	Sub-soil 7(b)	
Variety.....	Soil 3 (a)	Sub-soil 3(b)	1023	1024	1025	1026	1027	1028	1029	1030	1031	1039
Soil Marked.....	3 (a)	3(b)			4 (a)	4(b)	5(a)	5(b)	6(a)	6(b)	7(a)	7(b)
Station Number.....	1023	1024			1025	1026	1027	1028	1029	1030	1031	1039
Moisture.....	1.297	1.127			2.397	1.494	7.468	8.833	3.530	1.753	3.676	2.699
Insoluble Silica.....	87.644	81.926			80.628	84.958	39.437	36.585	72.576	84.954	62.896	61.959
Hydrated Silica.....	2.964	5.958			4.591	4.338	19.784	22.374	4.570	3.019	8.272	10.283
Soluble Silica.....	0.062	0.080			0.126	0.084	0.062	0.311	0.236	0.116	0.115	0.323
Sesquioxide of iron F 2 O 3.....	1.075	2.031			1.012	2.175	5.448	6.857	1.792	1.744	7.168	7.769
Alumina Al 2 O 3.....	2.568	5.877			4.128	4.183	12.158	15.981	4.007	3.978	8.393	10.753
Phosphoric Acid P 2 O 5.....	0.037	0.027			0.106	0.158	0.267	0.152	0.050	0.050	0.052	0.085
Lime Ca O.....	0.066	0.073			0.386	0.158	3.742	1.256	0.186	0.116	0.517	0.056
Magnesia Mg O.....	0.005	0.018			0.014	0.017	0.212	0.621	0.009	0.115	0.362	0.154
Potash K 2 O.....	0.130	0.158			0.183	0.171	0.866	0.671	0.232	0.233	0.348	0.389
Soda Na 2 O.....	0.254	0.273			0.393	0.375	0.909	0.876	0.447	0.443	0.769	0.593
Sulphuric Acid So 3.....	0.038	0.029			0.089	0.033	0.120	0.069	0.053	0.051	0.066	0.122
Chlorine.....	0.009	0.012			0.021	0.011	0.015	0.020	0.006	0.124	0.006	0.017
Carbonic Acid C O 2.....	0.136	0.044			0.044	0.134	1.938	0.213	0.249	0.075	0.214	0.140
Volatile and organic mat.....	3.792	2.330			4.942	1.856	7.345	5.466	12.053	3.759	7.248	4.149
Total.....	100.077	99.963	100.061	100.122	99.771	100.253	100.002	100.220	100.132	99.751	0.260	0.195
Nitrogen.....	0.295	0.294			0.195	0.087	0.282	0.087	0.245	0.087	0.260	0.195
Air-dried soil contains.....	2.229	1.373			4.539	3.903	.....	.....	11.412	11.906	20.849	13.407
Coarse gravel.....	97.771	98.627			95.461	96.097	100.000	100.000	88.588	88.094	79.151	86.593
Fine material.....												

By the time of the issuance of our next report, the analyses of soils collected from various parts of the state will have been completed, and a discussion of the results will then be given.

Department of Botany.

WOODS OF ALABAMA.

P. H. MELL.

A number of persons looking out on an extended forest are not impressed alike with its usefulness and value. The majority look upon it as a great waste of land that might be yielding cotton and grain; some few consider the view as a beautiful landscape, pleasing to the eye; while a still smaller number have made in their minds an estimate of the number of cubic feet of lumber the trees will yield, and the amount of money the lumber will produce when placed on the market. The forests of Alabama therefore furnish us a subject worthy of serious consideration, particularly when they are being so rapidly destroyed.

There are few countries richer in natural resources than Alabama. According to statistics this State has about 15,000,000 acres of cleared land, or about fifteen acres to each man, woman and child. In forests there are about 17,000,000 acres, or something over one-half the area of the State in woodlands. Of all the States in the union Alabama stands third in the acreage of forests. This is a handsome showing, it is true; but the question arises, How long a time will elapse before these woods will be destroyed? The annual clearing is very great, and it may be reasonably asked also, What is the necessity of clearing any more land for agricultural purposes when we have acres of land already denuded of forests sufficient to cultivate all the plants necessary for food and raiment that the people of the State require? The inroads made upon the forests by the saw mills and railroads are great enough without this additional destruction that seems so unnecessary.

There are numerous benefits belonging to a well timbered country, among which may be mentioned: The purification of the atmosphere that has been vitiated by breathing animals. The trees counteract the baneful effects of a hot summer's sun, and ward off the winter's cold blast. A well timbered country is also supposed to be a preventive of drought. It has been found that each leaf that expands in the air emits quantities of watery vapor, and that a well grown, well developed tree will evaporate from its leafy surface tons of water per month. Of the large variety of woody plants in Alabama, about one third are suitable for lumber and building purposes, and a large number furnish the finest

varieties of variegated and ornamental woods, well adapted for inlaid work.

The list that is given in this article includes only those woods that have been collected in the neighborhood of the college during the past six or eight months, as well as also some fine specimens donated to the institution by Dr. Charles Mohr, of Mobile, and Mr. James Clayton, of Opelika. This list will be largely added to during the coming year, and a larger area of the State will be represented.

As far as possible we will discuss in these bulletins the useful qualities of the woods mentioned in the lists. It is also our intention to experiment with those woods that are now unknown in the arts to determine whether or no demands may not be created for them also.

For the convenience of reference the woods have been arranged alphabetically and not according to Botanical order.

COMMON NAMES.

1. Ailanthus—Tree of Heaven.
2. Ash, white.
3. Ash, red.
4. Ash, green.
5. Ash, swamp or water.
6. Alder.
7. Bass wood.
8. Buckeye.
9. Button Bush.
10. Buckthorn.
11. Bay, red.
12. Black walnut.
13. Butter nut.
14. Beech.
15. Birch, black—River Birch.
16. Birch, cherry.
17. China tree—Pride of India.
False Sycamore—Holy tree.
Bead tree.
18. Cherry, wild.
19. Crab-apple.
20. Crossvine.
21. Catalpa.
22. Chestnut.
23. Chinquapin.
24. Cedar, red—Virginia Cedar.
25. Cedar, white—Juniper.
26. Cypress.
27. Dogwood.
28. Dogwood, swamp.
29. Devil wood.
30. Elder, box-Ash-leaved Maple.
31. Elm, red—or Slippery Elm.
32. Elm, American—White Elm.
33. Elm, water—Whahoo.
34. Grape, frost.
35. Grape, Muscadine, Bullace.
36. Gum, tupelo.
37. Gum, black—Sour gum.
38. Haw, apple—red haw.
39. Haw, summer.
40. Haw, swamp—white rode.
41. Haw, black.
42. Huckleberry, blue.
43. Honeysuckle.
44. Holly.
45. Hickory, bitter pecan.
46. Hickory, shellbark—shagbark.
47. Hickory, common—white heart.
48. Hickory, pignut—broom.
49. Hickory, bitternut—swamp.
50. Hickory, pecan nut.
51. Ivey bush—calico bush.
52. Laurel, sheep.
53. Iron wood.
54. Locust.
55. Locust, honey.
56. Magnolia.
57. Magnolia, umbrella tree.
58. Magnolia, swamp—Bay.
59. Magnolia, great-leaved.

SCIENTIFIC NAMES.

- Ailanthus grandulosus*, Desf.
Fraxinus Americana, L.
Fraxinus pubescens, Lam.
Fraxinus viridis, Mx.
Fraxinus platycarpa, Mx.
Alnus Serrulata, Ait.
Tilia Americana, L.
Aesculus pavia, L.
Cephalanthus occidentalis, L.
Bumelia lanuginosa, Pers.
Persea Carolinensis, Nees.
Juglans nigra, L.
Juglans cinerea, Mich.
Fagus ferruginea, Ait.
Betula nigra, L.
Betula lenta, L.
- Melia Azederach*, L.
Prunus serotina, Ehrh
Pyrus coronaria, L.
Bignonia Capreolata, L.
Catalpa bignonioides, Walt.
Castanea vesca, L.
Castanea pumila, Mx.
Juniperus Virginiana, L.
Cupressus thuyoides, L.
Taxodium distichum, Rich.
Cornus Florida, L.
Cornus stricta, Lam.
Olea Americana, L.
Negundo aceroides, Mch.
Ulmus fulna, Mx.
Ulmus Americana, L.
Ulmus alata, Mx.
Vitis cordifolia, Mx.
Vitis vulpina, L.
Nyssa uniflora, Walt.
Nyssa multiflora, Wang.
Crataegus aestivalis, F. & Gr.
Crataegus flava, Ait.
Vibernum nudum, L.
Vibernum prunifolium, L.
Vaccinium crassifolium, Andr.
Azalea viscosa, L.
Ilex opaca, Ait.
Carya aquatica, Nutt.
Carya alba, Nutt.
Carya tomentosa, Nutt.
Carya glabra, var. *porcina*, Nutt.
Carya amara, Nutt.
Carya olivaeformis, Nutt.
Kalmia latifolia, L.
Kalmia angustifolia, L.
Carpinus Americana, Mx.
Robinia pseudacacia, L.
Gleditchia triacanthus, L.
Magnolia grandiflora, L.
Magnolia umbrella, Lam
Magnolia glauca, L.
Magnolia macrophylla, Mx.

COMMON NAMES.	SCIENTIFIC NAMES.
60. Magnolia, Cucumber tree.	Magnolia acuminata, L.
61. Maple, red-scarlet-swamp.	Acer rubrum, L.
62. Maple, silver—white.	Acer dasycarpum, Ehr.
63. Maple, sugar—hard.	Acer saccharium, Wang.
64. Mulberry.	Morus rubra, L.
65. Old Man's Beard—fringe tree.	Chionanthus Virginica, L.
66. Osage orange—bow wood.	Maclura aurantiaca, Nutt.
67. Oak, willow.	Quercus phellos, L.
68. Oak, Chinquapin—dwarf Chestnut Oak.	Quercus prinoides, Wild.
69. Oak, turkey—barren.	Quercus catesbaei, Mx.
70. Oak, black—yellow bark.	Quercus tinctoria, Bart.
71. Oak, live.	Quercus virens, L.
72. Oak, water.	Quercus aquatica, Cates.
73. Oak, black jack.	Quercus nigra, L.
74. Oak, scarlet.	Quercus coccinea, Wang.
75. Oak, red.	Quercus rubra, L.
76. Oak, Spanish.	Quercus falcata, Mx.
77. Oak, post.	Quercus alba, L.
78. Oak, swamp chestnut.	Quercus prinus, L.
79. Oak, chestnut.	Quercus castanea, Wild.
80. Papaw.	Asimina triloba, Dun.
81. Persimmon.	Diospyros Virginiana, L.
82. Poplar, water.	Populus angulata, Ait.
83. Poplar, cotton wood.	Populus monilifera, Ait.
84. Pine, scrub.	Pinus inops, Ait.
85. Pine, red.	Pinus rubra, Mx.-P. resinosa, Ait.
86. Pine, old field—loblolly.	Pinus taedo, L.
87. Pine, mountain.	Pinus pungens, Mx.
88. Pine, short-leaved.	Pinus mitis, Mx.
89. Pine, long-leaved—yellow.	Pinus australis, Mx.
90. Pine, swamp—pond.	Pinus serotina, Mx.
91. Red Bud—Judas tree.	Cercis Canadensis, L.
92. Sumach.	Rhus capallina, L.
93. Sumach, poison oak or ivy.	Rhus toxicodendron, L.
94. Sumach, poison dogwood.	Rhus venenata, D. C.
95. Sumach.	Rhus cotinoides, Nutt.
96. Seven bark.	Hydrangia quercifolia, Bart.
97. Sweet gum.	Liquidambar styraciflua, L.
98. Sour wood, sorrel tree.	Oxydendrum arboreum, D. C.
99. Snow drop tree.	Halesia diptera, L.
100. Silver bell tree, o'possum tree.	Halesia tetraptera, L.
101. Sassafras.	Sassafras officinale, Nees.
102. Spice-bush, Fever-bush.	Benzoin odoriferum, Nees.
103. Sycamore.	Platanus occidentalis, L.
104. Trumpet flower, creeper.	Tecoma radicans, Juss.
105. Willow.	Salix nigra, M.
106. Witch hazel.	Hamamelis Virginica, L.
107. Yellow Jessamine.	Gelsemium Sempervirens,

Magnolia. There are several species of this genus found in Alabama. Some make beautiful ornamental trees when properly trained, but the woods are generally very soft and not well adapted for cabinet work. The wood of the *acuminata* is sometimes used for pump logs and for the manufacture of wooden bowls. The flowers of the *glauca* are very fragrant and in the neighborhood of large cities, they are readily sold at the flower stands because of this fragrance and the showiness of the flowers. When carefully trained in a space where plenty of room is given in which to ex-

pand, this tree grows into a graceful form and becomes very attractive to the eye. A tincture made of the bark or cones while green, before the volatile matter escapes, possesses medicinal properties and is sometimes used with success in chronic rheumatism and especially in fever and ague.

Tilia Americana. (Bass Wood.) The inner bark of this tree is sometimes used for cordage and also by nurserymen for surrounding buds during the propagating season. The bark contains a large per cent. of mucilage. The wood is white, soft and light and is very well adapted for certain kinds of inside work. It makes good material for carvers in wood and is also largely used in the manufacture of musical instruments. The tree grows to the height of sixty or eighty feet and is very handsome.

Ailanthus grandulosus, Desf—(Tree of Heaven.) Grows to a height of fifty or sixty feet and furnishes a beautiful yellow wood, that takes a very good polish and is much prized by cabinet makers. Within recent years it has been found that a certain species of silk worm eats with relish the leaves of this tree and some attention is being given to it by silk manufacturers.

Melia Azederach, L. (China tree.) The wood makes excellent furniture and if it is true as claimed that insects seldom attack it, chests made of the wood will serve admirably for packing away clothing. "A decoction of leaves or bark is cathartic and emetic. Taken in large doses it produces narcotic effects. Robins are rendered partially insensible when eating the fruit, but recover within a few hours." The fresh bark, leaves and fruit are vermifuges.

Acer rubrum, L. (Red maple.) Supplies a beautiful wood for cabinets, known as "curled birdseye." When this tree is properly cultivated it produces a pleasing effect upon lawns and in parks on account of its rounded and graceful top. It will thrive in moderately dry soils.

Acer dasycarpum, Ehr. (Silver Maple.) This is a rapid growing tree and will succeed well in a variety of soils. The wood is white, fine grained, will take a moderate polish and is suited for that character of work that does not require hard woods. The tree grows to a height of eighty feet.

Acer saccharium, Wang. (Sugar Maple.) This tree belongs to the variety *nigrum* or black sugar maple and is found sparingly in middle and north Alabama. It grows to a large tree, reaching a height of sixty or eighty feet, with a trunk three or four feet in diameter. The wood is fine grained, very hard, will take a high polish and is valuable for inside work in houses.

Negundo aceroides, Mch. (Box Elder.) The wood is moderately fine grained. The tree is small, attaining a height of twenty or thirty feet. Not used much in the arts.

Locusts. There are two or three species of this tree growing in the State, each producing trees of considerable growth. They are found from the sea board to the mountains. The wood grades from white to greenish yellow and is very hard and fine grained. It is also very durable for posts. There is a borer, however, that is very fond of the wood, and the trees are rapidly destroyed in some sections by this insect. The honey locust (*Gleditsia triacanthus*, L.) seems to be free from the attacks of insects, with the exception possibly of the fruit. The wood, however, is coarse grained.

Cercis Canadensis, L., (Red Bud.) The wood is hard and compact, and yields, when polished, beautiful slabs with black, green and yellow spots on a gray ground. It is, therefore, well adapted for inlaid work.

Prunus serotina, Ehrt. (Wild Cherry.) The wood of this tree is a light red that deepens with age. It is close grained and is well known among cabinet makers and furniture manufacturers. The tree grows to a height of sixty feet, with a trunk about three feet in diameter. The medicinal properties of the bark and roots are well known, its chief value being in reducing irritation and diminishing nervousness. When largely taken, however, the action of the heart is retarded.

Cornus Florida, L., (Dogwood.) This is a small tree quite common in oak woods. The flowers are very showy, and coming out so early before the forests are well clothed with leaves, make this tree quite attractive. If it was not so common it would be more prized for ornamental purposes. It is a slow growth and the wood is hard and tough. On account of the small size of the tree the wood is only used for tool handles. The bark is used as a tonic and astringent for intermittent fevers.

Nyssa uniflora and multiflora, (Tupelo Gum and Black Gum.) The first mentioned has soft wood frequently used for corks, while the wood of the latter is close grained and difficult to split because the fibre crosses at various angles through the stem, and for this reason it is frequently used for hubs of wheels. The growth is rapid, attaining a height of thirty to sixty feet.

Ilex opaca, Ait. (Holly.) About forty species of this genus are known. Six or eight belong to the South. The only tree of any considerable size is the *opaca*, that grows to the height of thirty or forty feet. It is an evergreen and is well suited for lawn and

hedge purposes. It attains its largest size in a rich, sandy soil, but it will thrive in almost any kind of good soil, provided it is not overcharged with moisture. The holly may be propagated by seeds, grafting, cutting or budding. No plant requires less care than the holly when it is once established; hence it makes one of the best hedges for the farm and park. When transplanted for a hedge, and it is desirable that the growth should be rapid, the ground ought to be trenched to the depth of three or four feet and the earth replaced must be raised at least a foot above the surrounding surface, to allow for settling. Along this ridge the plants should be placed one foot or eighteen inches apart. The wood of the holly is of almost an ivory whiteness, except near the center of old trunks, where it is of a brownish hue. It is hard and compact, with fine grain and susceptible of a high polish. It should be well dried and seasoned before use, as it is very retentive of its sap. It readily takes a durable color of almost any shade, and is therefore, adapted for cabinet purposes. When stained black, its color and lustre are little inferior to that of ebony. It may be applied to a great many purposes, and, next to the box and pear tree, the holly is the best wood for engraving, as it is compact and stands the tools well.

(Continued in next Bulletin.)

MEAN TEMPERATURE OF SOIL AT DIFFERENT DEPTHS,
FOR JULY, AUGUST AND SEPTEMBER, 1888.

Set 1. (On Top of Hill.)				Set 2. (On Top of Hill.)				Set 3. (On Top of Hill.)			
DEPTH.	J'ly	Aug	Sep	DEPTH.	J'ly	Aug	Sep	DEPTH.	J'ly	Aug	Sep
1 inch.....	85.5	85	76	1 inch.....	85	83	74.5	1 inch.....	84.5	83	74.5
3 ".....	85.5	84	76	3 ".....	84.5	83	75	3 ".....	84	82.5	75
6 ".....	84.5	83.5	75.5	6 ".....	85	82	75.5	6 ".....	83	81.5	75
9 ".....	83.5	82	75	9 ".....	84	82.5	74.5	9 ".....	81.5	80	74.5
12 ".....	82.5	82	74.5	12 ".....	82.5	81.5	74	12 ".....	81	80	74
24 ".....	83	81.5	76	24 ".....	80	80.5	75	24 ".....	77.5	77.5	74.5
36 ".....	79	80	75.5	36 ".....	77.5	79.5	75	36 ".....	75.5	76.5	74
48 ".....	76.5	80	75.5	48 ".....	76	78.5	75.5	48 ".....	75	76	74.5
60 ".....	75	78	75.5	60 ".....	74.5	77	75	60 ".....	73	74.5	73.5
.....	.....	.....	.....	.....	73	76	74.5	.....	.....	.....	.....
.....	.....	.....	.....	.....	72	75	74.5	.....	.....	.....	.....
.....	.....	.....	.....	.....	71	73.5	73.5	.....	.....	.....	.....
.....	.....	.....	.....	.....	96	.....	.....	.....	.....	.....	.....

METEOROLOGICAL REPORT.

P. H. MELL.

Mean Temperatures at some Towns in Alabama.

Stations.	Jan.	Feb.	March	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Ann'l	Max.	Min.	No. Years
Auburn.....	42.4	49.2	53.3	63.4	70.8	76.8	78.4	78.4	74.9	64.3	54.7	44.4	62.5	99	5	11
Carlowville.....	47.3	52.6	57.3	65.7	72.7	79.7	82.4	47.1	49.0	65.0	50.4	48.9	60.3	103	8	16
Coatopa.....	47.3	52.3	56.4	62.8	70.2	77.2	80.6	82.0	73.4	66.2	52.4	43.8	61.7	98	11	2
Greensboro.....	46.3	50.6	56.3	62.1	70.6	77.2	79.5	78.5	72.5	62.2	52.7	47.5	62.9	98	8	8
Green Springs.....	44.6	49.5	55.8	62.8	70.8	76.8	80.4	79.0	73.8	62.7	52.2	47.9	62.9	103	4	30
Huntsville.....	41.7	44.6	50.1	59.2	70.2	78.7	80.9	78.0	71.0	58.8	50.0	42.9	60.5	.....	.....	5
Mobile.....	53.5	56.0	62.8	68.5	75.8	81.0	82.4	81.8	77.1	68.0	59.1	53.5	65.9	.....	.....	20
Monroeville.....	47.9	56.4	62.8	65.6	73.5	78.3	80.0	80.2	76.1	69.5	56.4	52.7	66.6	.....	.....	4
Moulton.....	40.4	48.4	52.4	62.2	68.8	75.0	77.9	77.4	70.7	59.2	48.4	42.9	60.0	92	11	9
Mt. Vernon.....	52.5	54.1	59.9	66.9	74.3	78.6	80.2	79.8	76.2	66.0	56.8	51.3	66.2	104	9	21
Opelika.....	45.8	50.7	56.9	62.8	68.9	77.7	80.2	78.4	74.8	62.3	52.1	46.9	63.1	105	11	3
Selma.....	49.3	52.0	55.8	64.0	73.5	79.0	82.0	81.0	74.4	66.6	55.7	49.3	65.7	98	14	5
Troy.....	46.9	51.3	58.3	65.2	74.4	80.5	82.2	80.4	76.6	65.5	57.1	48.5	68.0	.....	.....	5