BULLETIN No. 1.

NEW SERIES.

REPORT OF

AGRICULTURAL EXPERIMENT STATION.

AGRICULTURAL AND MECHANICAL COLLEGE, AUBURN, ALA.,

JULY 1888.

REPORT OF AGRICULTURAL

EXPERIMENT STATION,

AGRICULTURAL AND MECHANICAL COLLEGE,

AUBURN, ALA., JULY, 1888.

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————.....Biologist.†

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* Prof. Mell has also charge of Meteorological observations.
† To be filled.

REPORT OF J. S. NEWMAN, DIRECTOR.

OUTLINE OF WORK.

The experiment station of the A. & M. College was established under State law in the summer of 1883.

An exhausted farm of 226 acres was purchased to be used for the purpose. Much of it was turned out on the commons; the buildings and fences on the remainder were in a very dilapidated condition. A large portion of the land had been abandoned for cultivation on account of its poverty and gullied condition.

Under these circumstances, with only one official connected with the Station, the Director, who was also prof. of Agriculure, progress in development was slow, especially since the funds appropriated to the Station were small in amount Notwithstanding these difficulties, considerable progress has been made in some departments of the work,—especially is this true of the Horticultural department.

Field experiments have been conducted each year, and bulletins furnished the Department of Agriculture for publication, as required by law.

The equipment, so far as machinery and improved impliments are concerned, has been, until now, inferior to that of an ordinary well conducted, private farm.

Much time and labor have been expended in clearing up pine thickets, filling gullies, building fences, and arranging for a supply of water under pressure.

The only experiment, so far, conducted with cattle, has been that of intense inbreeding with thoroughbred Jerseys—This has been continued for four years, under careful supervision, with apparently favorable results.

Besides experiments already completed, a large number are now in progress in field, orchard, vineyard, and garden.

The cotton plant has been made a subject of special inquiry, both as to its development above ground, and its root growth.

Similar inquiries have been made with regard to the corn plant

In both, varieties have been compared, inquiries made as to the fertilizers best adapted to their growth upon the soil of this Station, and with the additional facilities which will now be sup-

plied through the Congressional appropriation, inquiries will be multiplied and carried to much greater detail.

The experiment work upon the Station is divided into two general classes:

First, The demonstration of facts already known to the advanced agriculturist, but not generally disseminated.

Second, Original investigation having for its object the discovery of truth. So far as the study of plants is concerned, investigations will be made first upon the most useful and generally cultivated plants in the Southern States.

Feeding experiments will be principally confined to inquiries looking to determining the nutritive value of peculiarly southern crops, and their digestibility. Besides the experiments reported on the following pages, inquiries are in progress with reference to cotton, corn, sweet potatoes, tobacco, forage plants, ground-peas, sorghum, wheat, and in the orchard, pears, apples, plums, peaches, figs, quinces and cherries.

All of these have been planted in considerable variety for the purpose of ascertaining which varieties are best adapted to this soil and climate, as well as to record the characteristics, both as to vegetation and reproduction of varieties.

The diseases affecting the different species of fruits and vines, as well as their enemies amongst birds and insects will be subjects of special investigation.

Fifty-eight varieties of grapes are being fruited and propagated, sixty varieties of strawberries, and twenty-nine of raspberries.

The soil of the Station is principally either sandy or pebble drift, mostly with clay sub-soil generally beyond the reach of the plow. There is, however, sufficient area of clay subsoil within reach of the plow to vary the investigation so far as soil is concerned.

The soils of the Station, therefore, represent a large area of the State of Alabama; a portion of which lies above the prairie region extending nearly across the State, but a still larger area lying between the prairie belt and the gulf.

In order to investigate the properties, physical and chemical, and the needs of typical soils throughout the State, ten such soils have been collected from the virgin forests, keeping the soil and subsoil separate and replacing them in their natural relative position in bins prepared for the purpose and placed under identical circumstances. Each soil and subsoil is being subjected to chem-

ical and mechanical analysis in the laboratory, and plant analysis in the field.

Each soil and sub-soil is divided into eight parcels and placed in as many bins.

The cotton plant is growing in each bin. To these has been applied different elements and combinations of elements of plant food for the purpose of inquiring which of these elements are needed by each particular soil. This will be repeated from year to year until a sufficient number of tests have been made to eliminate the variable factor of climatic influences resulting from difference in seasons.

Additional barns, silos, offices and working rooms are being supplied, and a complete outfit of improved machinery and farm implements has been purchased.

It is proposed to test by the Dynamometer the draft of different tools and machines, and manufacturers will be invited, at a stated period each year, to send to the Station specimens of their implements, plows especially, to be carefully and accurately tested, and the results reported in the Station Bulletins.

A new and complete laboratory building is now thoroughly equipped for work in the chemical department.

A complete meteorological outfit has been purchased, and microscopes ordered for thorough work in investigation of the secrets of animal and vegetable life especially the fungi injurious to useful vegetation, as well as the habits of insects, friendly or, injurious to vegetation.

A Creamery will be equipped during the present year, with the best modern appliances by means of which the most approved methods of handling milk and butter will be demonstrated, and, in connection with that department, feeding experiments with special reference to milk and butter production will be conducted.

The Experiment Station being in immediate connection with the college grounds, the members of the agricultural classes have exceptional opportunities for acquiring familiarity with its work and of becoming acquainted with methods of scientific investigation.

The Station was re-organized under the act, known as the "Hatch Bill," to take effect the fiirst of April. It came too late for the inauguration of new experiments in the field or garden.

The following results are from experiments commenced under the old organization and completed since April 1st:

EXPERIMENTS WITH TABLE CORN.—

Object—To compare earliness of varieties.

Planted March 7th, except Hickory King, White Pearl and Perry's Hybrid, which were planted March 22nd.

RESULTS.

NAME OF VARIETY.	Seedman.	First Tassel.	Time Edible.
1. Early Minnesota	Ferry	May 9	May 30
2. Old Colony	"	" 31	June 18
3. Cory	"	" 8	May 28
4. Black Mexican	"	" 18	June 1
5. Crosby's Ex. Early Sweet	"	" 12	" 2
6. Early Southern	"	" 15	" 5
7. Leets' Early	"	" 14	" 1
8. Excelsior Sweet	"	" 21	" 18
9. Perry's Hybrid	"	" 14	" 4
10. Boynton's Early	"	" 12	" 2
11. Landreth's Sugar	Landreth	" 25	" 18
12. Hudson's Bay (field)	"	" 12	" 1
13. Old Cabin Home	"	June 5	" 22
14. 2d 1st Early Landreth's Market	"	May 11.	May 30
15. Golden Beauty	U. S. Dep.	" 29	June 21
16. Clark's Flour Corn	" " "	June 15	July 2
17. Stabler's Early	" " "	May 16	June 9
18. Egyptian	" " "	" 28	" 15
19. Cory	" " "	" 10	May 29
20. White Giant Normandy	" " "	June 1	June 18
21. Improved Evergreen	" " "	May 28	" 15
22. Livingston's Evergreen Sugar	Livingston	" 23	" 18
23. Adam's Early	Exp't St'n	" 11	" 5
24. Evergreen Sweet	" "	" 25	" 20
25. New Hickory King	" "	June 2	" 22
26. Champion Early White Pearl	" "	" 4	" 28
27. Perry's Hybrid	" "	May 27	" 22

EXPERIMENT WITH ENGLISH PEAS.

Object—To compare earliness and continuance in bearing of different varieties.—Planted February 9th and 10th.

RESULTS.

Name of Variety.	Seedman.	First Blossom.	Time Edible.	Finished Blossoming.	First Ripe.	Last Edible.
1. Ferry's Earliest of all	Ferry	April 2	April 18	May 2	May 5	May 9
2. Minimum	"	" 5	" 21	April 30	" 7	" 9
3. First and Best	"	" 2	" 18	May 10	" 5	" 12
4. Champion of England	"	" 15	May 4	June 7	" 19	June 11
5. Yorkshire Hero	"	" 16	" 4	May 18	" 21	May 22
6. Bliss' American Wonder	"	" 3	April 18	" 1	" 7	" 9
7. Dreer's Eureka Extra Early	Dreer	" 2	" 18	" 2	" 5	" 9
8. Kentish Invicta	"	" 2	" 18	" 2	" 5	" 9
9. Rural New Yorker	"	" 2	" 18	" 3	" 5	" 9
10. Dwarf Blue Imperial	"	" 15	May 8	" 25	" 22	" 29
11. Bliss' Abundance	"	" 15	" 5	" 22	" 19	" 24
12. Champion of England	"	" 15	" 7	" 28	" 21	June 7
13. American Wonder	"	" 3	April 18	" 2	" 7	May 9
14. McLean's Little Gem	"	" 4	" 19	" 3	" 7	" 9
15. Extra Early Premium Gem	"	" 3	" 24	" 10	" 7	" 16
16. Philadelphia Ex. Early	"	" 2	" 19	" 10	" 7	" 18
17. Telephone	"	" 19	May 14	June 2	" 26	June 6
18. Carter's Telephone	Thorburn	" 10	" 3	May 14	" 14	May 15
19. Abundance	"	" 10	" 4	" 11	" 17	" 19
20. Champion of England	"	" 9	" 1	" 31	" 16	June 1
21. Carter's Strategem	"	" 15	" 4	" 14	" 18	May 23
22. Premium Gem	"	" 2	April 19	" 2	" 5	" 9
23. Alaska	"	" 2	" 19	" 7	" 5	" 9
24. Bishop's Long Pod	"	" 15	May 5	" 14	" 16	" 2

25. First and Best	"	Mar. 30	April 18	" 4	" 5	" 10
26. Saxton's Earliest of all	"	" 31	" 19	" 5	" 5	" 10
27. White Marrowfat	"	April 24	May 11	" 29	" 25	June 2
28. Extra Early Alpha	"	" 3	April 19	" 11	" 9	May 21
29. Small's Early French	"	" 2	" 18	" 11	" 9	" 21
30. Prince of Wales	"	" 11	May 4	" 19	" 19	" 24
31. Saxton's Minimum	"	" 3	April 20	" 1	" 5	" 9
32. Pride of the Market	"	" 15	May 3	" 19	" 19	" 21
33. Day's Early Sunrise	"	" 4	" 1	" 14	" 14	" 21
34. Rural New Yorker	"	Mar. 31	April 18	" 3	" 5	" 9
35. Thorburn's Extra Early Market	"	" 31	" 18	" 5	" 5	" 9
36. Culyerwell's Telegraph	"	April 15	May 2	" 19	" 16	" 23
37. Everbearing	"	" 18	" 4	" 14	" 22	" 23
38. American Wonder	"	" 2	April 18	" 3	" 5	" 9

EXPERIMENT WITH IRISH POTATOES.

Object--To compare the yield per acre in bushels of different varieties under identical circumstances.

RESULTS.

No. Plat	Name of Variety.	From Whom	Choice.	Medium.	Culls.	Scabby.	Total.	Remarks.
1.	Beauty of Hebron	Thorburn	15 75	45 50	18 37	14 87	94 49	Earliest—Few Rotted
2.	Chas. Downing	"	50 75	107 62	35 00	7 00	200 37	
3.	Clarke's No. 1	"	29 75	25 37	28 87	19 25	103 24	
4.	Dictator	"	73 50	87 50	23 62	28 00	212 62	
5.	Early Albino	"	28 00	12 22	14 87	6 12	61 21	2nd Earliest—Few Rotted
6.	Early Sunrise	"	28 00	53 35	38 50	7 00	126 85	
7.	Early Rose	Auburn M'kt	56 00	33 25	42 00	16 62	147 87	Few Rotted
8.	Empire State	Thorb.	133 00	15 75	54 25	14 00	217 00	Few Rotted
9.	Garfield	Thorburn	79 62	95 37	42 00	9 62	226 61	
10.	Great Eastern	"	53 37	143 50	25 37	13 12	235 36	
11.	May Flower	"	0 00	57 75	31 50	2 62	91 87	
12.	Morning Star	"	46 37	106 75	22 75	16 62	192 49	
13.	New Giant	"	129 50	77 00	25 37	0 87	232 74	3d Earliest
14.	Pearl of Savoy	"	20 12	33 25	33 25	14 87	101 49	
15.	Rose's Beauty of Beauties	"	55 12	96 25	35 87	24 50	211 74	
16.	Rose's Wild Rose	"	56 87	71 75	22 75	3 50	154 87	Few Rotted
17.	Sunlit Star	"	23 62	42 00	15 75	21 87	103 24	
18.	The Thorburn	"	3 50	39 37	22 75	3 50	69 12	
19	Thorburn's Late Rose	"	39 37	94 50	25 37	1 75	160 99	
20.	White Elephant	"	37 62	127 75	35 00	7 00	207 37	
21.	White Star	"	49 87	122 50	31 50	16 62	220 49	

VARIETIES.	Growth of Plants.	Size of Fruit.	Form of Fruit.	Color of Fruit.	Quality of Fruit.	Productiveness.	Use F & M	Date of Ripening.	Type.
Brandywine	Vigorous	Medium	Roundish	Redish	Good	Not Prolific	F & M	May 8	Red Cap.
Caroline	N't Vig's.	Small	"	Black	Good	Prolific	M	" 4	Black Cap
Crimson Beauty	" "	Medium	"	Deep Red	Poor	Not Prolific		" 23	Red Cap.
Cuthbert	Vigorous	Large	Oblong	Red	Very Good	Prolific	F & M	" 12	" "
Doolittle	"	Medium	Round	Rlack	" "	Prolific	M	" 4	Black Cap
Davidson's Thornless	N't Vig's	Small	"	Black	Poor	Not Prolific		" 14	" "
Early Prolific	Vigorous	Medium	"	Purple	Very Good	Prolific	F	" 7	Red Cap.
Florence	"	"	"	Yellow	" "	Prolific	F & M	" 8	"
Gregg	"	"	"	Black	Good	Not Prolific	M	" 17	Black Cap
Golden Queen	"	Large	Oblong	Yellow	Best	Prolific	F & M	" 15	Red Cap.
Hopkins	N't Vig's	Medium	Ronudish	Black	"	"	F & M	" 12	Black Cap
Highland Hardy	" "	"	Round	Red	"	Not Prolific	F	" 21	Red Cap.
Hansell	" "	Large	Roundish	Red	Good	" "	M	" 11	" "
Mammoth Cluster	" "	Medium	Round	Black	Very Good	" "	F	" 21	Black Cap
Marlboro	" "	Large	"	Red	Poor	" "		" 29	Red Cap.
New Rochell	Vigorous	Medium	"	Crimson	Good	" "	M	" 8	" "
Ohio	"	Small	"	Black	Good	Prolific	F	" 11	Black Cap
Rancocas	N't Vig's	Small	"	Red	Poor	Not Prolific		" 18	Red Cap.
Reliance	" "	Medium	"	Red	Good	" "	F	" 11	" "
Sauhegan	Vigorous	Small	"	Black	Very Good	Prolific	F & M	" 5	Black Cap
Shafer's Colossal	"	Large	"	Crimson	Good	"	M	" 23	Black Cap
Superb	N't Vig.s	"	"	Red	Poor	"		" 15	Red Cap.
Tyler	Vigorous	Medium	"	Black	Very Good	"	F & M	" 5	Black Cap
Thompson's Early Prolific	not ripes'								
" " Pride	not vigor'us								
Welch	N't Vig's	Medium	Round	Red	Good	Not Prolific	F	" 8	Red Cap.

VARIETIES.	Growth of Plants.	Size of Fruit.	Form of Fruit.	Color of Fruit.	Quality of Fruit.	Productiveness.	Texture of Fruit.	First Ripe Berries.
Atlantic	Not Vig's.	Me'dium	Conical.	Deep Red.	Good.....	Prolific.....	Firm .	April 25
Agriculturist	Vigorous..	"	"	Red.....	Best.....	"	"	" 23
Bidwell	"	"	Oblong..	"	Good.....	"	"	" 24
Boyden's No. 30	Not Vig's.	"	Round ..	"	"	Not Prolific.	Soft	" 24
Big Bob	Vigorous..	No test....	.....	.....	.....	.....	.....	" 27
Champion	"	No sample.	.....	.....	.....	.....	.....	May 31
Chas. Downing	Not Vig's.	Small.....	Round .	Deep Red.	Best	Not Prolific.	Soft ..	April 10
Captain Jack	" "	"	"	" "	Good.....	" "	Soft...	" 18
Cornelia	" "	"	Oblong..	Light Red	"	" "	Firm..	May 21
Continental	Vigorous...	"	"	Red.....	"	" "	"	April 6
Crescent	"	Medium...	Conical .	"	"	Prolific	"	" 21
Crystal City	Not Vig's.	Small.....	Round...	"	"	Not Prolific.	"	" 18
Cumberland Triumph	Vigorous...	Medium...	Round...	Light Red	"	" "	Soft..	" 27
Dan Boone	Not Vig's.	"	Oblong..	Deep Red.	"	" "	Soft..	" 26
Early Canada	Vigorous..	Large.....	Round...	"	"	Prolific.	Soft...	" 24
Finch's Seedling	Not Vig's.	Small.....	"	Light Red	"	"	Firm..	" 19
Glendale	" "	"	Conical .	Red.	"	Not Prolific.	"	" 26
Golden Defiance	" "	"	"	Deep Red.	"	" "	Soft...	" 21
Harris' Mammoth	Vigerous.	"	Oblong..	Deep Red	"	" "	"	" 28
Henderson	Not Vig's.	Medium . .	Round ..	Light Red.	Best.....	" "	Firm..	" 24
Indiana	Vigorous..	"	"	" "	Good..	" "	Soft ..	" 30
James Vick	"	Small.....	Oblong..	Red	"	" "	Firm..	" 25
Jersey Queen	Not Vig's	no sample.	.....	.....	.....	.....	.....	May 8

Jewell	Vigorous	" "						"	11
Jucunda	Not Vig's	Small	Round	Deep Red	Very Good	Not Prolific	Soft	"	2
Jumbo	Vigorous	Large	"	Light Red	Good	Prolific	Firm	April	28
Kentucky	Not Vig's.	Medium	"	Deep Red	Very Good	Not Prolific	Soft	"	24
Lacon	Vigorous	Small	"	"	Good	" "	Firm	"	27
Legal Tender	Not Vig's.	Medium	"	"	Very Good	" "	Soft	"	20
Longfellow	Not Vig's.	"	Conical	"	Very Good	" "	"	"	25
May King	Vigorous.	Small	Oblong	Light R.	Good	" "	Firm	"	18
Manchester	"	Large	Round	" "	Very Good	Prolific	"	"	26
Miners	Not Vig's.	Medium	"	Deep Red.	Good	"	Soft	"	26
Monarch of the West	Vigorous.	"	"	Light Red	Good	Not Prolific	Firm	"	21
Mt. Vernon	Not Vig's.	Small	"	Deep Red	Very Good	Prolific	Soft	"	25
Mrs. Garfield	Vigorous.	Large	"	Red	Good	"	Firm	"	28
Nig's Superb	Vigorous.	Medium	Oblong	Red	Very Good	Not Prolific	Soft	"	23
Old Iron Clad	Not Vig's.	no sample						"	23
Parry	Vigorous.	Medium	Oblong	Light Red	Good	Not Prolific	Soft	"	23
Piper's Seedling	"	"	Oblong	Red	Good	Prolific	Soft	"	25
President Lincoln	"	no test				Not Prolific		May	1
Primo	"	medium	Conical	Light Red	Very Good	Not Prolific	Firm	April	25
Prince of Berries	"	Small	Round	"	Good	Not Prolific	Soft	"	33
Sharpless	"	Large	Oblong	"	Very Good	Not Prolific	Soft	"	23
Triumph de Gand	"	Medium	Round	Deep Red.	Good	Not Prolific	Soft	"	27
Vineland Seedling	"	"	Oblong	Light Red	Good	Prolific	Soft	"	25
Warren	Not Vig's	no test				Not Prolific		"	21
Wilson	Vigorous.	Medium	Round	Red	Very Good	Prolific	Firm	"	23
Windsor Chief	"	"	"	Deep Red.	Good	Not Prolific	Soft	"	30
Wonderful	"	no test				Not Prolific		"	28

MULCHED AND UNMULCHED STRAWBERRIES.

To compare the production of mulched with that of unmulched plants. In the early spring of 1887 two hundred plants of the Sharpless variety of strawberries were planted in fertile, pebbly drift.

One hundred of the plants were mulched with oat straw and one hundred left unmulched.

During the spring of '87 the flower stalks were pulled from 50 of the mulched and fifty of the unmulched plants for the purpose of ascertaining the effect of this treatment upon the production the next year.

During the fall of 1887 eleven of the unmulched plants died while only one of the mulched perished.

These were carefully replaced with plants of the same age from an adjacent bed in order that the final test of productiveness might be made upon equal number of plants in each case.

Last spring the following notes were made: viz. The unmulched plants commenced ripening their fruit April 18th, and the mulched April 24th.

The mulching therefore had the effect of retarding the ripening of the berries six days.

The patch was divided into four plats as follows:

1st. Fifty plants, unmulched which were allowed to ripen their fruit in 1887, the first season after planting.

2d. Fifty plants, mulched which bore fruit the first season.

3d. Fifty plants, unmulched from which the fruit stalks were removed the first season.

4. Fifty plants, mulched from which the fruit stalks were removed.

Plat No.	Results.	No. of quarts.	Largest yield at one picking.	
1.	50 plants unmulched allowed to fruit in 1887.....	8 3/8	3	Qts
2.	50 " mulched " " " " "	16 1/4	4	"
3.	50 " unmulched not" " " " "	10 3/8	2 3/4	"
4.	50 " mulched not " " " " "	14 1/4	4	"

Mulching increased the yield several quarts from fifty plants, nearly doubling the yield.

Removing the fruit stalks the first season did not pay.

Twenty-five selected berries from these plats weighed upon the scales in the chemical lobaratory, one pound; and 22 of them filled a quart measure.

The unmulched being earlier than the mulched plats, sustained grearter loss from late frosts. The extent of this could not be ascertained.

REPORT OF N. T. LUPTON, CHEMIST.

During the year ending July 1st, a large amount of work has been done in the Laboratory by the chemist in charge and his assistants, Messrs. L. W. Wilkinson and B. S. Burton. Since the 1st of April, Dr. J. T. Anderson has been employed as First Assistant Chemist of the Agricultural Station, and has been engaged on the analysis of representative soils of the state.

The work of the year has been mainly in connection with the State Department of Agriculture, of which the Professor of Chemistry in the Agricultural and Mechanical College is made by law, "the official chemist." He is required "on the application of the Commissioner to analyze and certify the analysis of all fertilizers, samples of which are furnished him," also, of such other materials as the Commissioner may direct.

The Director of the Agricultural Experiment station is also authorized to have such analyses made as may be necessary to carry on the experimental work under his supervision.

The variety and extent of this work can be seen from the following tabular statement of the number and character of the quantitive analyses made during the past four years. It is scarcely necessary to state that in the analysis of fertilizers, only those constituents have been determined which are required under the law, viz: Water soluble, citrate soluble and acid soluble phosphoric acid, nitrogen and potash.

NUMBER AND CHARACTER OF QUANTATIVE ANALYSIS MADE IN THE STATE LABORATORY DURING THE PAST FOUR YEARS, UNDER THE GENERAL SUPERVISION OF THE COMMISSIONER OF AGRICULTURE AND THE DIRECTOR OF EXPERIMENT STATION.

	Number of Analyses.			
	1884-85.	1885-86.	1886-87.	1887-88.
Acid phosphates with nitrogen and potash	13	24	79	65
Acid phosphates with potash				3
Acid phosphates	6	18	41	52
Natural guanos	3	3	11	8
Phosphatic rocks and deposits	103	27		3
Marls and calcareous rocks	12	19	5	9
Mucks	3	4	1	2
Cotton seed meal				3
Cotton seed hull ash				1
Cave earths				3
Composts		5	3	
Kainit and potash salts	2	4	6	6
Feed stuffs		2	5	3
Nitrogenous material				5
Wheat			10	
Cane juice and begasse		6	7	
Coal		1	2	4
Iron ores	4	4	1	2
Clays				10
Waters		2		3
Soils		12	4	4
	146	131	175	186

In addition to the above, a considerable number of minealogical specimens, such as pyrites, limestones, marles, etc., were determined qualitatively; and some other work done not properly belonging to the Department of Agriculture or Ex. Station.

The details of the analysis of fertilizers are as follows:

RESULTS OF ANALYSES OF FERTILIZERS REPORTED BY DR. N. T. LUPTON, STATE CHEMIST, FROM SAMPLES FURNISHED BY MANUFACTURERS AND OTHERS, FOR SEASON OF 1887-88—SEPTEMBER TO JULY.

Station No.	Name of Fertilizer or Chemical.	By whom reported.		Nitrogen.	Water Soluble.	Citrate Soluble.	Acid Soluble.	Potash.	COMMERCIAL VALUE	
		Name.	Address.						$	Cts
826	Acid phosphate	Ga. Chem. W'ks	Augusta, Ga.		15 41	1 45	0 47		25	29
842	Palmetto Acid Phosphate	J. Steiner & Son	Greenville, Ala		13 15	1 61	0 60		22	14
851	Ga. State Standard Acid Phosphate	Ham'd, H. & Co	Savannah, Ga		11 04	1 52	2 62		18	84
856	Furman's Acid Phosphate	Adair, Bros.& Co	Atlanta, Ga.		10 75	3 56	0 76		21	52
857	Adair's Acid Phosphate	" "	" "		10 94	3 66	0 76		21	90
864	Acid Phosphate No. 1	Ala. Fertil. Co.	Montg'ry, Ala.		13 44	0 57	1 15		21	00
865	Acid Phosphate No. 2	" "	" "		13 05	1 09	1 12		21	21
866	High Grade Phosphate	Troy Fertl. Co.	Troy, Ala.		15 64	1 20	0 44		25	26
875	Ashepoo Acid Phosphate	Ashepoo, Ph. Co	Charlest'n, S.C		14 20	0 97	0 38		22	75
876	Eutaw Acid Phosphate	" "	" "		14 78	1 12	0 32		23	85
879	Acid Phosphate	Marks & Gayle	Montg'ry, Ala.		11 80	1 93	0 38		20	59
881	Royal Phosphate	Troy Fertl. Co.	Troy, Ala.		12 67	3 23	1 66		23	85
889	Magnet Acid Phosphate	Davis, Mar.& Co	Mobile, Ala.		10 75	4 96	1 66		23	56
893	Stonewall Acid Phosphate	Com. Guano Co	Savannah, Ga.		13 82	1 31	0 99		22	69
894	Chatham Acid Phosphate	" " "	" "		13 34	1 44	0 96		22	17
895	Dissolved Bone	" " "	" "		12 19	1 63	1 02		20	73
896	Pomana Acid Phosphate	" " "	" "		12 09	2 78	1 16		22	30
897	Patapsco Acid Phosphate	W. F. Beard	Troy, Ala.		14 88	0 07	1 08		22	42
900	Soluble Bone	Columb's Fer Co	Columbus, Ga.		12 86	2 52	0 54		23	07
902	Etiwan Dissolved Bone	Etiwan Ph. Co.	Charlest'n, S.C		11 42	2 70	2 06		21	18
908	Stern's Dissolved Bone	Malone & Col'ns	Geneva, Ala.		13 72	1 42	0 22		22	71

910	Stern's Acid Phosphate	Malone & Colins	Geneva, Ala.	12 92	1 23	0 25		21	22
917	X X Acid Phosphate No. 1	Vandiver & Co.	Montg'y, Ala.	13 05	1 88	1 77		22	39
918	X X Acid Phosphate No. 2	" "	" "	12 67	2 52	1 47		22	72
919	Phosphate	Troy Fertl. Co	Troy, Ala.	12 86	1 06	0 28		20	88
920	Sunny South Acid Phosphate	Pike Co. Gu. Co.	" "	13 52	2 49	0 20		24	01
922	Wando Acid Phosphate	N. W. E. Long.	Hurtsboro, Ala	12 28	3 03	3 23		22	96
924	Lister's Plain Dissolved Bone	D. L. Roberts.	Savannah, Ga.	13 90	1 07	0 19		22	45
938	"Ammoniate Phosphate"	A. C, Williams	Talladega, Ala	4 03	6 72	5 76		16	12
939	Grand Imperial Acid Phosphate	Pike Co. Gu. Co	Troy, Ala.	4 03	9 50	4 13		20	30
947	Southern Acid Phosphate	So. Ac. Ph. Co	Atlanta, Ga.	10 17	5 03	5 53		22	80
948	Sunny South Acid Phosphate	R. S. Williams.	Wet'mpka, Ala	2 20	9 13	4 69		16	99
950	Acid Phosphate	O. W. C., & Co	Oxford, Ala.	12 47	4 17	2 56		24	96
951	Wando Acid Phosphate	L. W. Lawler.	Montg'ry, Ala.	9 02	5 54	3 10		21	84
952	Grand Imperial Acid Phosphate	Pike Co. Gu. Co	Troy, Ala.	4 03	10 01	4 96		21	06
959	Acid Phosphate	Ham'd H. & Co.	Savannah, Ga.	11 90	3 45	0 29		23	02
958	"Fertilizer" (Phosphate)	D. K. Thomas.	Clayton Ala.	4 99	3 04	0 22		12	04
961	"Fertilizer" (Phosphate)	Folmer & Sons.	Troy, Ala.	10 75	2 86	2 14		20	41
962	Scott's High Grade Phosphate	Freeman & D.	Alexand'a Ala	10 36	3 92	3 00		21	42
965	High Grade Eng. Acid Phosphate	Folmer & Sons.	Troy, Ala.	11 82	2 65	2 04		21	70
966	Sunny South Acid Phosphate	H.C M., S.C.D., Z.F.	Opelika, "	3 45	6 72	4 69		15	25
969	Phosphate	A. F. Pruett.	Guerryt'n "	4 60	12 94	3 96		26	31
970	Bradley's Patent Acid Phosphate	J. M. Hurt.	Auburn, "	12 67	3 23	1 76		23	85
972	Acid Phosphate	O. H. Henderson	Bingham, "	10 56	3 56	2 84		21	18
977	Eutaw Acid Phosphate	A. Mc Int yre.	Waverly, "	9 02	2 98	2 11		18	44
978	"Fertilizer"	Mc Queen Smith	Pratville, "	9 98	5 83	2 43		23	71
990	English Acid Phosphate	J. S. Newman.	Ag. Stat'n "	12 17	2 58	0 26		22	12½
*991	Eng acid. phosp. reverted	" "	" " "	0.00	9 55	2 35		..	..
994	Acid Phosphate	N. Levy.	Coatopa, "	.....	6 12	8 28		9	18

*Same as 990 with adddition of one-fourth its weight of lime.

Phosphates With Potash

858	Farish Furman Formula	Adair Bros & Co	Atlanta, Ga.	9 79	0 54	1 47	4 13	19	62
884	Farish Furman Formula	" "	" "	9 40	2 13	1 23	4 13	21	42

Phosphates With Nitrogen and Potash.

Station No.	Name of Fertilizer or Chemical.	BY WHOM REPORTED.		Nitrogen.	Water Soluble.	Citrate Soluble.	Acid Soluble.	Potash	COMMERCIAL VALUE	
		Name.	Address.							
828	Port Royal Cotton Fertilizer	.....	Columbia, Ala	1 68	8 92	0 97	1 72	2 99	24	37
830	Ammoniated Guano	Rasin Fert. Co.	Baltimore, Md	2 24	6 43	4 57	2 44	1 69	26	92
838	Ga. State Grange	Baldwin Fert Co	Savannah, Ga	2 17	9 02	2 37	1 85	2 08	27	31
843	B. D. Sea Fowl Guano	J. Steiner & Sons	Greenville, Ala	2 52	9 69	3 00	1 80	1 23	27	28
844	"Bradley's Patent Phosphate"	" "	" "	2 17	8 83	2 32	2 48	1 89	27	08
850	Farmer's Ammoniated Dis. Bone	Hm'd, Hull & Co.	Savanah, Ga.	1 86	8 05	2 25	1 12	1 52	24	22
852	Ga. State Standard and Supr-phosphate	" "	" "	1 79	8 83	0 42	2 36	2 59	23	44
853	H. H. & Co's Pure Am. Bone H. G. Veg. Ft.	" "	" "	6 02	6 81	1 15	1 06	6 60	42	01
859	Adair's Am. Dis. Bone	Adair Bros & Co	Atlanta, Ga.	2 45	9 60	1 09	0 44	0 40	25	98
	.....									
860	Furman's Amd. Soluble Bone,	" "	" "	1 08	9 60	0 61	1 79	2 41	21	93
861	Buffalo Bone Guano	" "	" "	1 86	7 10	1 73	2 30	3 57	24	06
862	Planter's Soluble Guano	" "	Atlanta, Ga.	1 82	5 95	3 12	5 37	2 65	23	34
863	Homestead Guano,	" "		2 24	10 27	0 61	0 25	0 55	25	60
867	Perfect Guano	Troy Fertl'r Co	Troy, Ala.	2 38	9 79	1 03	0 31	1 47	26	98
868	Furman's High Grade Guano	Adair Bros & Co	Atlanta, Ga.	2 52	9 60	2 24	1 02	3 07	30	65
877	Ashepoo Fertilizer	Ashepoo phos Co	Charleston, SC	2 38	9 79	1 12	1 95	2 67	28	31
878	Eutaw Fertilizer	" "	" "	2 31	9 40	1 16	1 53	2 40	27	24
885	Buffalo Bone Guano	Adair Bros & Co	Atlanta, Ga.	1 86	7 68	2 35	0 72	3 57	25	86
886	Eddystone Soluble Guano	F. G. McElhany	Auburn, Ala.	1 89	6 04	3 74	3 85	2 60	24	04
887	Formula No. 1	N. H. Holmes.	Montgomery.	4 36	6 04	2 44	1 31	0 80	30	52
888	Formula No. 2	" "	Montgomery.	2 94	8 44	2 54	0 15	0 77	28	70
892	Home Mixture	Columbus F'r co	Columbus Ga.,	2 45	9 60	1 02	0 51	2 88	28	28
898	Magnet Soluble Guano,	Davis, Mar'll co.	Mobile, Ala.	3 15	7 39	0 80	0 25	1 79	26	35
904	Bone Vegetable Grower	Currie Fertz'r co	Louisville, Ky.	1 55	7 10	3 17	1 05	3 25	24	65

906	No. 1 Stern's Amd. Raw Bone Superphosp'te	Malone & Col'ns	Geneva, Ala...	1 89	0 78	5 62	3 77	1 16	18	13
907	Crown Guano.....	Treadw'll, A.&co	Atlanta, Ga...	2 73	6 72	3 84	3 45	1 25	27	73
909	No. 2. Stern's Amd. Raw Bone Superphosp'te	Malone & Col'ns	Geneva, Ala.	1 86	7 06	2 43	1 03	1 27	22	75
912	Georgia State Grange Fertilizer.....	" " "	" "	2 10	7 68	2 47	1 37	3 10	26	54
913	Soluble Pacific Guano.....	" " "	" "	1 65	7 68	2 40	1 82	2 72	24	27
914	Golden Grain Guano.....	Adair Bros & co	Atlanta, Ga...	1 68	6 91	2 48	1 31	1 37	22	00
915	"Fertilizer".....	Clayton F'r Co	Clayton, Ala..	2 15	8 44	1 60	1 28	0 90	24	34
916	"	C W Hooper &co	Selma, Ala....	2 88	6 52	3 24	0 99	1 38	26	90
925	Lister's Amd. Dis. Bone.....	D L Roberts....	Savannah, Ga.	2 22	11 75	1 95	1 66	2 02	31	25
926	Lister's Harvest Queen.....	" "	" "	1 47	9 60	3 03	1 96	2 23	26	90
927	Lister's Celebrated Ground Bone.....	" "	" "	2 94	0 41	7 08	3 07		21	69
928	Lister's Standard Phosphate.....	" "	" "	2 52	9 60	3 28	1 71	1 45	30	61
929	"High Grade".....	Coweta Frtl'r co	Newnan, Ga.	2 17	8 31	1 65	0 65	2 57	25	77
930	Aurora Fertilizer.....	" "	" "	2 24	10 17	1 22	0 70	1 71	27	52
937	Amd. Phosphate.....	" "	" "	2 13	9 03	1 86	0 80	2 48	27	11
940	Guano Co Guano.....	N H Holmes..	Montgomery..	2 10	5 76	2 59	3 74	2 33	23	04
941	L. & R. Guano.....	" "	"	1 40	7 29	1 61	3 58	1 89	20	70
942	Pike County Guano.....	A. H. Rainer..	Troy, Ala...	1 82	3 72	5 71	2 81	3 16	25	89
943	Eddystone Guano.....	A H Rainer....	" "	1 68	4 60	6 95	2 46	1 65	25	52
944	Southern Amd. Dis. Bone.....	So. acid phos co.	Atlanta, Ga...	1 82	8 53	2 32	2 78	1 35	24	71
945	Samana Guano.....	" "	" "	2 31	9 40	1 67	1 79	1 62	27	22
946	Old Dominion Guano.....	" "	" "	2 59	8 83	0 45	1 85	1 70	25	72
949	Ga. State Grange Guano.....	O W Cooper & co	Oxford, Ala..	1 82	8 06	4 13	2 65	1 90	27	37
955	Soluble Pacific Guano.....	Frank S Roberts	Mobile, Ala...	1 86	6 14	4 20	2 33	1 04	23	72
960	Old Reliable.....	Ham'd, Hull &co	Savannah, Ga.	1 89	9 40	1 39	2 84	0 92	24	47
963	L. & C. Dissolved Bone.....	Freeman& Du'g's	Alexandria, Ala	1 54	9 79	1 92	1 53	1 58	25	75
964	Scott's Animal Amd. Guano.....	" "	" "	0 98	8 16	4 45	1 31	2 51	25	24
967	Eddyston Soluble Guano.....	Murphy, D & F	Opelika, Ala..	2 10	6 14	4 16	2 56	1 88	24	82
968	Soluble Pacific Guano.....	Frank S Roberts	Mobile, Ala...	1 82	6 56	3 94	2 36	1 08	23	92
971	Hinton Fertilizer.....	W G Hinton &S	Pickensv'le Ala	0 35			0 57	1 78	3	14
974	B. D. Seafowl Guano.....	J Steiner & sons	Greenville, Ala	1 96	8 06	2 09	2 33	2 31	25	65
979	Rock City Superphosphate.....	O W Cooper..	Oxford, Ala...	2 24	8 25	1 51	1 88	2 95	26	38
981	Gossypium Phospho.....	J B Collins....	Fayette, C. H.	2 03	7 69	2 09	2 31	1 33	23	91
988	Complete Fertilizer.....	W. G. Whitman	Young'boro Ala.	1 75	6 13	3 63	0 99	1 99	23	45
989	Farmer's Standard Phosphate.....	" "	" "	1 40	8 52	1 85	0 84	2 83	24	04
992	Gossypium Phospho.....	J. S. Newman..	A. Station, Ala	2 31	5 95	3 54	1 53	1 85	25	08

Natural Guanos, Cotton Seed Meals, Marls, Etc.

Station No.	Name of Fertilizer or Chemical.	By whom reported.		Nitrogen.	Water Soluble.	Citrate Soluble	Acid Soluble.	Potash.
		Name.	Address.					
993	Cotton Seed Meal	J. S. Newman.	Ag. Station, Ala					
855	Swan Island Guano	Frank S Roberts	Mobile, Ala.	6 82½			1 15	1 93
880	" " "	" "	" "	0 42		12 65	6 49	0 92
899	" " "	" "	" "	0 42	0 32	16 67	5 66	0 41
901	" " "	" "	" "	0 58	0 51	14 02	6 78	0 57
954	" " "	" "	" "	0 38	0 25	16 14	7 32	0 30
976	" " "	" "	" "	0 28	0 30	14 90	6 88	0 37
911	Virginia Grain Fertilizer	Jno. O. Martin	Eufaula, Ala	0 49	0 97	6 94		0 30
923	Currie Bone Meal	Currie Fel'r Co.	Louisville, Ky.	0 08	0 38	0 58	0 38	0 07
982	Swan Island Guano	Frank S Roberts	Mobile, Ala.	4 27	1 01	16 08	5 18	
984	" " "	" "	" "	0 41	0 22	8 02	15 72	0 22
	Cotton Seed Hull Ash	J S Newman	Ag. Station.	0 28	0 20	7 86	17 28	0 41
995	Moisture 13.12 ; Organic matter 2.00 ; Insoluble matter (Silica) 6.88 ; Iron and Al. Oxides 14.00 ; Phosp. acid 9.60 ; Lime 2,80 ; Magnesia 6.59 ; Carbonic acid 9.56 ; Sulphuric Acid 1.71 ; Potash 25.93 ; Soda 3.86 ; Chlorine 3.00. Total 100.03.							

Natural Guanos, Cotton Seed Meals, Marles, Etc.

Station No.	Name of Fertilizer or Chemical.	By whom reported.		Insoluble Matter.	Phosphoric Acid.	Calcium Carbonate.	Magnesium Carbonate	Nitrogen.	Potash.
		Name.	Address.						
829	Marl	R. M. Parker	Coatopa ,Ala		1 05	61 95			
831	Limestone	A. A. Coleman	Greensb 'o, Ala	3 35		73 98	22 05		
833	Shell Marl	T. A. Craven	Midway, Ala	41 98	1 34	50 70			
841	Marl	S. R. Weaver	Fort G'ines, Ga	7 52	trace	85 65			
931	No. 1 Cave Earth	R. Nicholson	Collinsvlle, Ala		1 27				
932	No. 2. Cave Earth	"	" "		0 38			0 14	
933	No. 3 Cave Earth	"	" "		0 44				
854	Cotton Seed meal	So. Cotton Oil co	Montg'ery, Ala		2 24			6 79	1 78
891	Natural Phosphates (a)	F M Pennington	Troy, Ala		24 05				
891	Natural Phosphates (b)				22 14				
891	Marl				0 06				
891	Shell				0 51				
891	Shell				0 51				
905	Kainit	Malone & Colins	Geneva, Ala						13 89
975	Cotton Seed Meal	Southern Oil co.	Selma, Ala		1 34			7 00	1 37

The methods of analysis used are those adopted by the Association of Official Agricultural Chemists at their last meeting in Washington and published in pamphlet form.

In soil analysis, the methods published by the Department of Agriculture at Washington have been strictly followed, and great care has been taken to secure accurate results. While soil analysis has, of late years, fallen somewhat into disrepute, on account of hasty conclusions drawn from imperfect data, and a want of thorough study of all the conditions of plant growth, it has an important value in the scientific investigation of the productive capacity of soils and the means best adapted to restore fertility and to prevent exhaustion.

In accordance with the plan of experimentation agreed upon for the Station, representative soils with sub-soils from different portions of the State have been collected which will be analyzed ith great care, and their productive value with and without fertilizers, determined by carefully conducted and accurate experiments at the Station. Important conclusions. it is believed, will be drawn from these results, not only of general scientific value, but of practical utility to the agriculturists of Alabama and other states.

The results of soil analysis thus far completed are as follows:

RESULTS OF ANALYSES OF AIR-DRIED SOILS AND SUB-SOILS.—SOIL RECEIVED FROM AGRICULTURAL EXPERIMENT STATION.

	Virgin Soil.		Cul'd or worn s'il	
	Soil.	su	Soil.	Subso'l
Soil marked	1 (a)	1 (b)	2 (a)	2 (b)
Station number	1001	1002	1003	1004
Moisture	3 686	1 535	0 981	0 512
Insoluble Silica	82 131	88 718	89 713	91 602
Hydrated Silica	2 253	2 173	1 909	2 161
Soluble Silica	0 194	0 115	0 307	0 067
Sesquioxide of Iron, F, O 3	1 434	1 505	0 813	1 028
Alumina, Al 2, O 3	3 028	3 140	1 867	2 590
Phosphoric Acid, P 2, O 5	0 059	0 093	0 056	0 060
Lime, Ca.O	0 091	0 031	0 086	0 034
Magnesia, Mgo	0 058	0 023	0 072	0 012
Potash, K 2, O	0 062	0 090	0 034	0 092
Soda, Na. 2, O	0 184	0 718	0 440	0 281
Sulphuric Acid, S O 3	0 101	0 041	0 056	0 021
Chlorine, Cl	0 009	0 011	0 015	0 014
Carbonic Acid, C O 2	0 180	0 058	0 106	0 095
Volatile and Organic Matter	5 838	2 064	3 208	1 112
Total	99 308	100 315	99 663	99 681
Nitrogen	0 379	0 274	0 293	0 253
The Air-dried soil contains				
Coarse Gravel	31 20	22 11	26 18	18 13
Fine Material	68 80	77 89	73 82	81 87

REPORT OF P. H. MELL, BOTANIST.

So short a time has elapsed since the organization of the Experiment Station, but little can be said of the Botanical work.

An outline of some of the plans proposed, however, may not be amiss here.

The investigations in this department were intended by the laws establishing the station to cover the entire state. In other words it is contemplated to write in popular language a botany of Alabama that will be equally intelligible to the farmer and valuable to the scientific student. This will not be the work of a few months, nor will it be accomplished by one person. But it must be the work of years and through the combined efforts of the earnest farmers of Alabama and the officers of the Experiment Station.

As we look over the field before us it seems best at present to divide the work as follows:

1. The Classification and determination of the relative economic values of all wild plants useful for forage and other like agricultural purposes.
2. The classification of all noxious weeds and a discussion of the best and cheapest methods of eradicating them.
3. The medical plants of the State.
4. Trees and shrubs that are suitable for lumber and building interests.

It will also be a matter of importance to examine these wild plants while under a state of cultivation and thus prove their adaptation to the wants of the farmer.

Valuable assistance in the prosecution of this work may be rendered by the farmers of the State if they will send specimens of plants to the Station carefully collected in the following manner:

1. In the case of an herb or grass the entire plant must be sent including roots, stem, leaves, flowers and, if possible, the fruit also. Select fifteen or twenty vigorous, well grown specimens and place them between sheets of thick unsized paper, taking care to spread the leaves and adjust the flowers so that the smallest proportions of parts are not folded and bent out of shape. Place a pressure of 30 or 40 lbs on the paper and place aside to dry When the plant is too long for the size of the paper, bend the stems until reduced to proper proportions.

2. Take careful notes of the plant surroundings. The characacter of soil, whether found on up land or low land, moist or dry land, foreest or open field, time of flowering and seeding, etc., height of plants. State whether the plants are in large or small nnmbers. Are stock known to eat them, etc.

3. In case of large trees and shrubs it will be best to take sections of the trunk and collect the leaves, flowers and fruits. The sections must be cut ten inches long and the bark left on unbruised. These specimens should then be numbered and carefully packed in strong boxes and shipped by freight to the station at Auburn. Notes must be taken concerning the tree, where it is found, kind of soil, common name, if known, and if it has been used for any special purpose. Place a number on the note corresponding to that on the section. Send the notes by mail to Auburn. The leaves must be pressed between paper as already described.

4. In sending specimens through the mail or by express do not roll the papers but pack them spread out as they come from the press. Lay the sheets containing the plants one on top of the other, place at the top and bottom of the package stout paste board. Wrap all with strong paper and address to Experiment Station, Auburn, Ala., (Department of Botany.) In every shipment send notes, name and post office.

The grasses are best collected between the first of May and the first of October. Many plants mature their seeds by the first of June, and they must be collected early in the spring just as soon as the flowers are formed well.

AVERAGE PRECIPITATION, IN INCHES, FOR THE STATE OF ALABAMA.

	Jan.	Feb.	Mar	Apr	M'y	June	July	Aug	Sep	Oct.	Nov	Dec	Year	Peri'd of ob'vati'n
Auburn	4 91	4 56	5 88	4 08	3 28	5 23	4 94	4 49	3 15	2 38	4 45	6 26	53 61	11 years.
Birmingham	7 07	2 59	1151	7 76	3 06	4 28	3 07	3 84	3 40	1 72		3 40		5 "
Calera*				4 45	2 91	6 09	2 76	2 58	1 87	0 49				6 "
Carlowville	5 83	6 85	9 09	7 68	3 58	5 01	4 53	4 34	4 50	2 29	5 63	5 63	64 96	16 "
Coatopa	5 40	4 90	6 60	3 00	4 05	5 80	3 70	1 35	2 25	2 80	7 00	5 80	52 65	2 "
Carrolton	5 55	3 98	2 25	5 35	4 99	3 21	3 44	3 55	2 65	2 30	2 76	5 42	45 46	4 "
Decatur	7 28	5 08	6 37	5 00	3 41	3 45	3 58	2 42	2 13	2 45	4 53	3 31	49 01	9 "
Demopolis				6 20	1 81	7 60	4 44	5 36	1 76	2 66				2 "
Edwardsville	7 33	5 48	4 76	1 90	6 78	5 19	4 34	3 74	2 68	1 70	2 25	4 52	49 67	2 "
Elyton	3 94	4 40	8 28	1 12	1 87	4 08	3 87	4 44	3 43	3 75	3 25	4 00	46 35	2 "
Eufaula	5 94	4 64	3 15	2 46	2 13	3 27	6 97	4 34	3 25	1 88	5 08	1 12	44 23	4 "
Evergreen*				3 55	1 88	5 72	7 37	3 38	4 94	1 77				4 "
Fish River*	3 49	2 00	4 28		1 00	3 05	5 69	7 52	5 23	0 89	2 33	3 32		5 "
Florence	5 94	4 02	3 14	1 91	5 33	3 54	5 40	2 43	4 31	2 17	3 41	4 66	46 26	4 "
Fort Deposit*				9 96	4 68	3 87	3 31	2 32	2 18	1 50				4 "
Gadsden	5 77	3 77	3 47	1 80	5 84	5 22	3 76	3 52	2 48	2 40	3 51	6 44	47 98	4 "
Greensboro	5 41	5 21	4 87	4 49	3 34	3 94	3 06	5 22	7 74	2 08	4 83	4 50	50 69	20 "
Greenville*				7 83	4 64	8 89	4 66	3 30	2 33	1 51				6 "
Gum Springs	5 17	4 85	5 87	6 62	3 76	4 40	4 46	4 57	2 79	2 95	4 59	4 93	54 36	28 "
Havana	8 66	6 54	3 76	8 52	2 90	0 66	3 16	3 25	4 59	6 35	3 45	5 08	56 92	2 "
Huntsville	5 47	4 55	5 64	5 72	3 98	5 16	4 84	5 12	2 65	2 93	3 28	4 71	54 05	16 "
Livingston	3 22	4 25	1 54	5 06	7 87	3 71	3 62	3 15	1 81	5 73	2 06	6 06	48 08	4 "
Marion	2 50	5 00	5 50	8 92	3 48	2 56	4 81	4 24	2 74	3 37	2 00	2 60	47 72	6 "
Mobile	5 57	4 46	7 72	5 64	4 26	5 72	5 93	6 75	5 15	3 26	4 43	4 72	63 62	22 "
Monroeville	3 68	6 69	4 65	5 52	7 04	4 95	6 89	7 30	2 74	1 56	5 72	4 15	60 89	5 y 5 m.
Montgomery	5 40	5 57	6 22	5 77	3 83	5 00	4 06	3 44	2 68	2 56	3 91	5 77	54 21	21 y'rs.
Mt. Vernon Barracks	6 51	5 88	6 41	4 93	3 99	6 23	6 41	6 19	3 66	3 50	5 27	5 33	64 31	30 "
Mt. Willing	8 59	6 28	1 47	4 87	5 26	2 50		2 92	2 28	1 42	3 30	6 86		4 "
Moulton	3 66	4 10	5 57	6 41	3 48	3 84	3 25	2 10	3 29	2 55	2 70	2 93	43 88	10 "
Newton	7 03	4 98	3 57	4 45	4 39	2 45	3 82	8 08	2 61	1 60	3 49	5 26	51 53	4 "
Opelika*				6 48	9 08	5 20	6 97	3 93	2 52	3 30	3 14	4 44		8 "
Pine Apple*				6 13	2 67	3 46	3 86	2 44	1 24	1 33				6 "
Prattville	9 17	3 69	1 87	2 44	7 25	6 50	3 99	3 06	0 00	2 44	3 15	6 73	50 25	2 "

Selma	4 31	6 43	8 74	6 55	2 16	4 18	4 16	3 78	2 20	2 50	4 97	5 93	55 91	13	"
Scottsboro*				5 73	3 63	4 60	5 59	3 57	2 41	2 91				6	"
Talladega*				1 37	0 21	0 40	0 45	0 91	0 18	0 30				2	"
Trinity	7 28	5 98	3 99	5 38	4 60	7 02	4 37	1 99	0 95	1 68	2 06	5 78	50 88	4	"
Troy	4 77	5 68	11 14	6 36	3 57	4 95	6 35	4 80	3 55	1 80	4 19	4 68	61 85	5	"
Tuscaloosa	3 27	1 73	6 99	9 71	2 70	3 32	2 71	2 06	2 05	2 61	3 24	1 36	41 95	6	"
Tuscumbia	6 02	4 84	2 74	2 31	5 45	5 78	5 07	2 52	3 77	2 46	3 25	5 16	49 37	4	"
Uniontown*				7 73	1 97	3 93	4 80	4 50	1 16	1 38				2	"
Union Springs	3 81	4 02	5 64	4 96	3 74	6 13	4 08	3 39	2 08	1 91	3 33	3 93	46 73	19	"

*These stations comprise the cotton-belt stations and only report during the crop season.

METEOROLOGICAL OBSERVATIONS.

METEOROLOGICAL REPORT FOR THE STATE OF ALABAMA BY P. H. MELL.

AVERAGE TEMPERATURE OF EACH MONTH FOR THE STATE. COMPILED FROM ALABAMA WEATHER SERVICE REPORTS, FOR FOUR YEARS (84–88).

January	43 8 deg's.	July	81 deg's.
February	48 6 "	August	78 2 "
March	54 3 "	September	75 1 "
April	64 5 "	October	64 2 "
May	71 9 "	November	52 3 "
June	77 6 "	December	45 2 "

AVERAGE TEMPERATURE FOR THE STATE.

Spring	69 7 deg's.	Summer	78 9 "
Autumn	63 9 "	Winter	47 5 "
Average for the State			65 deg's.

AVERAGE PRECIPITATION FOR SEASONS FOR FOUR YEARS 1884–88).

Spring	4 26 inches.	Summer	3 90 inches.
Autumn	7 77 "	Winter	5 11 "

Average precipitation for North Alabama	49 56 inches.
Average precipitation for Middle Alabama	50 46 "
Average precipitation for South Alabama	54 22 "
Average precipitation for State	50 88 "
Yearly average clear days	116
" " fair days	119
" " cloudy days	126

AVERAGE BAROMETER FOR THE STATE FOR EACH YEAR. COMPILED FROM REPORTS FROM ALABAMA WEATHER SERVICE.

1884, from March 1st, 1184, to March 1st, 1885	30 089
1885, from March 1st, 1885, to March 1st, 1886	30 081
1886, beginning January 1st	30 087
1887	30 144
1888, —January 1st, to June 1st	30 130

Maximum Barometer, 30,800. Observed on 3d of January, 1887, at Livingston.
Minimum Barometer, 28.955. January 3d, 1886, at Auburn.

First killing frost in fall in North Alabama occurs between the eighteenth of October and sixteenth of November.

In Middle Alabama it occurs between the twenty-fourth of October and twenty-sixth of November. In South Alabama it occurs between November seventh and twenty-fifth.

During a period of seventeen years (1871 to 1888), the highest recorded summer temperature was 109 degrees, which occurred at Livingston on the sixth of June, 1885.

The lowest recorded temperature during the same period was seven degrees below zero at Gadsden, on the eleventh of January, 1886, making an absolute range within the seventeen years of 116 degrees. These were exceptional periods, however, because, comparing one year's average temperature with averages of other years, we find there is only a range of 2.8 degrees, thus indicating that the climate of the State is mild and uniform; no very great extremes.

SOIL TEMPERATURES.

MEAN TEMPERATURE OF SOIL, AT DIFFERENT DEPTHS, FOR UP-LAND, ON EXPERIMENT STATION, 1888.

The data in the following tables represent the averages of observations taken three times per day at 7:30 a. m, 2:30 p. m. and 6:30 p. m.

SET I.

Depth.	Months. May.	June.
1 inch	74 deg's.	81 deg's.
3 "	74 "	80 5 "
6 "	73 "	80 "
9 "	72 5 "	79 "
12 "	71 5 "	78 5 "
24 "	71 5 "	76 5 "
36 "	68 "	74 "
48 "	66 5 "	72 "
60 "	65 5 "	70 5 "

MEAN TEMPERATURE OF SOIL AT DIFFERENT DEPTHS ON UPLAND ON THE EXPERIMENT STATION, 1888.

SET II.

Depth.	Months. May.	June.
1 inch	73 deg's.	79 5 deg's.
3 "	73 "	80 "
6 "	72 5 "	79 5 "
9 "	72 "	79 "
12 "	71 "	78 "
24 "	69 "	75 5 "
36 "	67 "	73 "
48 "	66 "	71 5 "
60 "	65 "	70 "
72 "	64 "	67 5 "
84 "	63 5 "	67 5 "
96 "	62 5 "	66 5 "

MEAN TEMPERATURE OF SOIL AT DIFFERENT DEPTHS ON LOWLANDS. EXPERIMENT STATION, 1888.

SET. III.

Depth.	Months. May.	June.
1 inch	73 5 deg's	80 deg's
3 "	73 5 "	80 "
6 "	74 "	80 "
9 "	71 5 "	78 "
12 "	71 5 "	77 5 "
24 "	68 5 "	75 5 "
36' '	67 5 "	73 5 "
48' '	67 5 "	72 5 "
60' '	65 5 "	70 "