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BULLETIN NO. 28.

FEBRUARY, 1891.

**AGRICULTURAL EXPERIMENT STATION,**

OF THE

**Agricultural and Mechanical College,**

**AUBURN, ALA.**

— o —

*DAIRYING and BREEDING.*

*Report of Alabama Weather Service.*

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The Bulletins of this Station will be sent Free to any citizen of the State on application to the Director.

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R. J. Rice, Job Printer and Stationer, Auburn, Ala.

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## Dairying and Breeding.

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[ISAAC ROSS, IN CHARGE OF LIVE STOCK AND DAIRY.]

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This Bulletin is not intended to make every land owner and cotton raiser an exclusive dairyman, nor is it presumed in its presentation to attempt to cover the wide and important field of dairying. Its object is mainly to throw out a few suggestions for the careful consideration of the farmers of the State, as well as to give some practical thoughts and demonstration of facts from our experience as a breeder of dairy cattle. It is exceedingly unfortunate that the masses of our farmers are so ill informed on this matter, but few of them read a dairy or stock paper of any sort, hence have no knowledge of many important facts with reference to stock breeding and its management. It is with the hope of instructing this class of farmers that we propose to send out this bulletin.

Let me beg you not to conclude because you do not own a fine herd of Jersey or other pure bred dairy cattle, that this is of no interest to you. If you own only one cow it will pay to inform yourself as how best to manage and feed her, and if together with securing this information you will procure at reasonable cost recently improved appliances for butter making, your wife, who generally has the bulk of the work to do in this department, will rise up and call you blessed. So then subscribe at once for some good stock and dairy paper and learn from the practical experience of others how to feed and manage your cows, and the best process of making butter with the least cost and labor.

The great majority of farmers of Alabama own from six to eight milch cows, others own many more, and a few none. It is frequently the case that a man milking five cows does not make a pound of butter for sale. The first trouble is, the most of cotton producers own too many cattle. Sell off all of your non-paying and worthless cows and reinvest this money in more feed, if you have not already a sufficient quantity on hand, a good comfortable stable for the cow, and a few at least of the many important dairy implements. An important step for the farmer who decides to improve his cattle is

#### THE PURCHASE OF A BULL.

Grading up your herd in the right way is of the first importance, and do not cherish for one moment the thought that you own in one of your native cows one that is superior to all others for milk, butter and beef, "a general purpose cow," and propose to raise and use in your herd a bull calf from her. You do not own such a cow nor ever will.

If you want butter, buy a Jersey or Guernsey; if milk, Holstein or Ayrshire; beef, Shorthorn or Hereford. There are other breeds worthy of note. These are used by way of illustration, as they have been bred for a specific purpose for a long time, and the buyer when he gets a representative animal of either breed, knows what he is getting before he pays his money. Once in awhile there will appear a phenomenal butter cow of the milk and beef breeds, a phenomenal milker of the butter breeds. Pay no attention to this, it is the breed you are after, backed by indisputable performance both at the pail and the churn.

There are plenty of reliable breeders of the different breeds that will sell you a bull at a reasonable figure. Fifty dollars will buy a very good bull, one hundred dollars a much better one. It may be that you cannot afford this outlay as you have but few cows; in this case your neighbors can join you. Co-operate, use your order, the Alliance. First, decide on the breed; next buy as near home as you can, thus avoiding acclimating fever. If you cannot find what you want in your own State then go out of it. Get the best. The bull is half the herd, and under no circumstances use a grade.

## TEST YOUR COWS.

Get your natives in good condition and test each cow by the churn. The cow giving the largest flow of milk does not always make the most butter—quite often the very reverse is true. Continue along to weed out, keeping the best until you breed a model dairy cow.

## WHAT IS A MODEL DAIRY COW?

One of medium size, small head, full and placed eyes, neck long, thin and clean, broad hips, and back of great breadth at the loins, large, roomy stomach, short legs, large udder, medium sized well placed teats, tortuous milk veins. The escutcheon, like the solid floor, is thought to be desirable by some, but many good dairy cows have first-class escutcheons and others equally as good have very poor ones.

The cow when well fed should, of courses, give a large quantity of good rich milk.

## COLOR.

Do not be a "stickler" on color or size, or decide to let a cow remain in your herd because she has a good escutcheon and pretty horns. If she only weighs 600lbs., is as black as a crow, and has neither escutcheon nor horns but yields the butter, keep her. You want the cow that will produce the most butter at the least cost.

## IN AND IN BREEDING.

Beware of it, perhaps you have already paid dearly for it. With perfect animals on both sides and in the hands of a skillful breeder it may do, but as now practiced it is ruinous, and why should you in-breed so much? There is no necessity for it. Breed to the winner, and it is not out of place to say that this Experiment Station has been practicing in-and-in breeding for a number of years with a small herd of Jersey cattle, the ill effects of which can be seen by any practical breeder. The old cows are still the best, and one of the last heifers that came in milk young and which is intensely in-bred, had no fore udder at all. The foundation stock is deficient here. The experiment has proven conclusively, both in form and at the churn, that unless you have perfect animals on both sides to start with and you are

skilled, it is best not to undertake it.

#### THE BARN.

If you have no barn, and the means to build one, make a shed, plank up the north and west sides, have separate stalls or fastenings for each cow, either stanchion or halter, and do not allow them to run all over your "cow-pen" as practiced by most farmers. Take your calves away from the cows at four to six weeks old. Feed your cows well. The most costly thing on a dairy farm is a poor cow. Milk and feed regularly, make them comfortable (this word implies a great deal) and with kind treatment they are certain to respond.

Feed-tables are sometimes given to show you how much feed to use. Remember that it requires more than a maintenance ration, and that you cannot get good results from raw cotton seed and shucks for instance.

#### RAISING THE CALF.

Many farmers have asked, "how do you raise your calves?" We practice here the following plan: The first milk from the cow's udder acts as a physic and the calf should be allowed to take it. When the calf is four days old, separate from its mother; after 12 hours of fasting, take a couple of quarts of its mother's milk, warm from the cow, dip the fore and middle fingers into the milk and insert into the calf's mouth. If it is very unruly, back into corner of the stable and get straddle of the calf's neck. Repeat this until the calf sucks the fingers and do not lose your patience. As it is certain to throw up its head, lower it until the mouth comes in contact with the milk in the pail, and when it begins to drink the milk, gradually withdraw the fingers from the mouth. The calf will continue to throw up its head many times, but with patience repeat the process until the calf continues to drink the milk after the fingers are withdrawn. It will generally do this at the third or fourth trial. Two quarts of milk three or four times a day is all that it will take for the first three weeks. At the end of this time add a gill of sweet skimmed milk heated to blood heat (98°) to each feed twice per day and 12 hours apart until the quantity is increased to 3 quarts. Continue this for 10 days then decrease the new milk one gill at a feed until no new milk

is given; at the same time increase the warm skimmed milk half a pint at a feed until it reaches a gallon. Skim the milk after it sets 12 hours, and always feed it blood warm and while it is perfectly sweet. The great object in thus changing so gradually from new to skimmed milk is to avoid the "scours." Bright hay or fodder should always be accessible after a few weeks old. Corn and oats mixed, may be put in the feed trough; the calf will soon learn to eat and chew its cud. Keep the calves in a dry, clean stable with plenty of pure water and salt when a few months old. At seven months, take the milk entirely away and continue to feed and let them run on good pastures. Breed at 18 months old. We use linseed meal here with the milk to raise our calves, knowing how few cotton raisers would put themselves to the trouble of procuring the meal we have omitted it here.

#### MILKING AT THE STATION.

At present the cows are fed at 5:30 a. m. and 4:30 p. m. The first thing in the morning is to clean and sweep the stables; the cows are then fed and groomed, udders brushed carefully, and with a clean rag and bucket of tepid water, washed and wiped dry with a clean towel. The milker is now ready for business and with clean hands and short finger nails, he goes at his job with both hands quickly and quietly. The milk is weighed from each cow and a record kept; it is then strained through a wire and cloth strainer into a ten gallon can and carted to the dairy. The details of our method have been given in order to show that good butter making *must* begin at the barn.

When no experiments are being carried on, we feed on ensilage and one third each of corn meal, ground oats and bran, giving what the cows will eat clean.

#### BUTTER MAKING.

It may be of interest to many farmers that we give in a short, plain and simple way how we make butter. We have the facilities for making good butter, viz, a good dairy hand-power separator, cooling creamer, ripening vat, butter worker, print, etc., besides John Boyd's automatic fermenting can and automatic ripening vat, and a good well of pure water, though not cold.

After the milk is carried to the dairy it is run through a hand

power DeLaval separator. The cream is at once cooled down to 55°, placed in a Cooley creamer and kept sweet until enough cream is gathered for a churning. It is then poured into a cream vat to ripen, kept at a temperature of 70°, and well stirred during the ripening period. As soon as it is slightly acid, it is ready for churning. Cool down to 62°, scald out the churn well and pour in the cream. When the granules of butter are the size of wheat grains, the churn is stopped and rinsed down with a gallon of cold water (56°). A few swings of the churn and the butter-milk is ready to be drawn off. Wash the butter with about the same quantity of cold water as you have butter-milk; in two washings the water is clear. Tilt the churn to one side and let the butter drain thoroughly. It is then taken up and placed on a butter tray, weighed and salted, one ounce to the pound, put on the worker and worked only enough to distribute the salt, printed into one pound prints, wrapped with paraffin paper and forwarded to the consumer. When making butter in this way, we stir the cream; when using Boyd's method (which we like better) string is unnecessary.

Never mix sweet and sour cream.

Ice is necessary in summer.

#### WHAT TO DO WITH THE MILK.

This is an important question, and one you must decide for yourself. There is more money lost by the farmers of Alabama between the milk pail and the churn through ignorance and carelessness than they are aware of. You fail to get money out of your cows by improper feeding and handling, then after you get the milk, a large per cent. is lost by bad manipulation, by having only few if any of the improved dairy implements and no dairy proper. This is to be expected. Stop and reflect whether you can afford to do this any longer. You say that a dairy is costly, and it generally is, but this not the kind that most cotton raisers need. Buy the right sort of dairy goods and a cheap structure will answer your purposes. Boyd's automatic fermenting can and cream ripening vat is what you need. We have tried them both to churn the cream and the milk. Is not your milk carried now from the "cow-pen" to the house cold and the cream on top strain



ed into jars and set away to turn, the weather continues cold and the jars are transferred from your faulty cellar or shed room to the family room or kitchen, there to remain two, three, and some times four days? Your wife turns the jar to the fire often during the day and the milk will not turn, all the while it is getting spoiled. She gets disgusted and attempts to churn it, and with a dash churn begins. Generally she knows what to expect. Not having a thermometer, the boiling water is poured in, and something that you call butter is taken out. The fermenting can and cream ripening vat will do away with this, and if you will visit this Station, as you should, we will convince you on this point. A little money expended for dairy goods will furnish you the means for making a good article of butter and will be a great relief to your over-worked wife.

The actual cost of feeding will vary in different portions of the State. Each farmer knows what he can grow in the section in which he lives. Barley, rye, corn, millet, sorghum, peas, cotton seed and in many sections of our State, the clovers and grasses grow to perfection. Those farmers who intend to increase the number of dairy cattle to 20 to 25 milch cows should by all means build a silo. Corn and pea-vine ensilage is the most nutritious and cheapest feed we have. Try it.

The attention of farmers is called to the following maxims, derived from my own experience and that of other practical dairymen:

Feed your cows twice per day at regular intervals, and have pure water and salt always accessible.

You do not need a dog to drive up dairy cattle.

A dairy cow does not need as much exercise as a trotting horse.

A cow with a good escutcheon and nothing else should be butchered.

A yellow skin we like to see, but it is not always a true index to the color of the butter. The butter from a pale-skin cow is very often yellow.

Your "scrub" cows are averaging you not more than 100 to 125 lbs. of butter per year. You should try to double this yield.

The cow likes a variety of food; gratify her taste as often as

you can.

The winter dairy pays best, therefore breed the most of your cows in December and January and they will be fresh in September and October following.

Decide on the breed and stick to it.

There are many worthless cows in every breed.

The cow is a machine for the manufacture of milk and butter, and the stomach is the best laboratory in the world for this purpose.

There are many ways to test the richness of a cow's milk besides the churn; and every dairyman should have Dr. Babcock's or some other milk test. The farmer can use the churn if he prefers to do so.

In ordering your dairy goods, the first thing to be put on your list is a thermometer. It is more reliable than your wife's forefinger.

One ounce of salt to the pound of butter is our rule, but always try to salt to please your customers.

It is much better to wash the milk out of the butter while in the churn than to work it out on the worker.

It is impossible for you to be too clean either at the barn or dairy.

Keep your milk out of the kitchen, it absorbs all the bad odors and your customers will complain of the flavor.

Set aside your old dash churn and buy a barrel, swing, or box churn.

Churn your cream when slightly acid, and do not put it off to suit your convenience. Here is where you lose money.

Churning temperature 62° in summer, 64° in winter. If you feed much cotton seed in winter you can go to 68° or 70° and it will do no harm. The lower the better.

You cannot make a first-class article of butter by feeding cottonseed alone. They spoil the flavor.

Cotton seed meal, or well steamed cotton seeds, fed in limited quantities in connection with other feed, will do no harm.

The farmers of Alabama can have a succession of green crops almost from one end of the year to the other. Add to this, cotton

seed meal, raw cotton seed, and hulls, with good ensilage, they can make butter very cheap.

Raw cotton seed is like the sweet potato, it can be served in many ways. Place a high value on it and learn to feed it the right way, but never to excess.

When the patent butter maker comes around do not let his persuasive tongue induce you to buy a county right to manufacture his butter. He is a fraud, let him alone.

Milk your cows ten months in the year.

Rich food will decrease the quantity of milk, but will increase the amount of butter.

The dairy business is a renovator, a restorer of worn out lands, and an educator of those who engage in it.

#### BOYD METHOD.

Mr. John Boyd, 199, Lake st., Chicago, Ill., patentee of Boyd process of ripening cream or milk, says: "It consists of making a lactic ferment from sweet skimmed milk taken from a fresh cow or cows, the milk divested of its butter fat, is treated to a warm water bath and brought to a certain required temperature when it is placed in the fermenting can and the vessel closed tightly. In a given time the lactic ferment is ready for use. A small per centage of this ferment is placed in the cream at a required temperature and the cream vat is closed in the same manner as the fermenting can. In so many hours the result is ripe cream, that is, cream of one chemical condition, the operation is uniform, as also is the result. If the rules are strictly obeyed, the operator is at all seasons master of the situation, he has perfect control over the conditions, consequently his work is all done to rule, nothing being left to chance or good luck." I am in no wise interested in the sale of Mr. Boyd's goods. Come to the Station and see them tried before buying.

REPORT  
—OF THE—  
ALABAMA WEATHER SERVICE,

Co-operating with the U. S. Signal Service.

*February, 1891.*

STATE POLYTECHNIC INSTITUTE,  
Auburn, Ala., March 15th, 1891.

Rain was of frequent occurrence during the month of February and very few days were even fair. The weather was very damp and disagreeable and the farming operations were much retarded by the unfavorable condition of the soil for planting.

The average rainfall for the State was 3.91 inches above the normal.

The lowest range of the temperature recorded by the observers was 17°, at Valley Head, and this cool snap passed over the State on the 26th and 27th. There were a number of warm days, the thermometer recording as high as 80° at several stations, and under the warming influence of the air on those days many trees and other plants put forth flowers and the buds on many more were greatly swollen ready to break forth into leaves and flowers when the cool spell of the 27th stopped their growth and seriously injured some. The average temperature was unusually high, and was 5°.3 above the normal. A light fall of snow occurred on the 26th but melted as fast as it came in contact with the ground.

A low pressure hung over the State most of the month and the atmosphere was often in a condition favorable for violent storms, but the storm tendencies were dissipated as fast as they formed and no violent winds were reported from any quarter of the State,

J. M. QUARLES,  
Assistant.

P. H. MELL,  
Director.

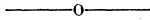
## MONTHLY SUMMARY.

ATMOSPHERIC PRESSURE (*in inches*).—Monthly mean, 30 .122; maximum observed, 30 .528, at Chattanooga on the 5th; minimum observed, 29 .586, at Montgomery on the 25th; range for the State .942.

TEMPERATURE (*Degrees F.*)—Monthly mean, 54 .5; highest monthly mean, 61 .7 at Citronelle; lowest monthly mean, 47.8, at Valley Head; maximum observed, 83, at Montgomery on the 19th; minimum observed, 17, at Valley Head on the 26th and 27th; range for the State, 66; greatest local monthly range; 60.5, at Jasper; least local monthly range, 48, at Chepultepec.

PRECIPITATION—INCLUDING MELTING SNOW (*in inches*).—Average for the State, 8 .58; greatest, 11 .20, at Auburn; least, 4 .54, at Mobile.

WIND.—Prevailing direction, south; miles traveled, 6530, at Mobile; 5004, at Montgomery; 5374, at Chattanooga; 2990, for 18 days, at Auburn. Mean relative humidity, 77, at Auburn; 84, at Valley Head; 75, at Uniontown.



## NOTES FROM OBSERVERS.

*Bessemer.* (W. H. Swan).—We had some snow to fall on the 26th, but it melted as fast as it fell. The first snowfall during the winter.

*Greensboro.* (M. H. Yerby).—The great amount of rainy, disagreeable weather was the prevailing feature of the month. There has been no weather for the past two months suitable for farming operations. No plowing of any consequence has been done up to date, or any garden vegetables planted. All out door work has been practically at a standstill.

*Jasper.* (Howard Lamar).—Plum blossoms on February 16th. February 26th snow fell from 7 a. m. until noon — 0 01 inches melted snow fell.

*Livingston.* (J. W. A. Wright). The amount of rain this

February, 6 .68 inches, is greater than any February since 1873, when we had in this part of Alabama, 7 .87 inches. In 1884 we had within .20 inches of the rainfall of this February. Added to the rainfall for January, (7 .46 inches) this makes a total of 14 .14 inches since January 1st. This is the heaviest rainfall for January and February for 22 years past, except in 1886, 1884, 1883, and 1869. In each of these years we had about 15 inches of rain in January and February, except in 1884, when the amount was 14 .24 inches.

Though a comparatively warm month, being 5° above the normal, yet it gave us the coldest hour of the winter, 23½° on the 27th. We had ice one-fourth of an inch thick on the 27th as well as on the 4th, the temperature on the latter date falling to 28°.

The cold on the 27th nipped tender vegetation that was beginning to appear, but did nothing like the damage to fruit trees that was done by the extreme cold on March the 2nd, 1890.

A light snow on the 26th, melting as fast as it fell.

*Tuscumbia.* (L. B. Thornton).—On the 2nd about 11 o'clock at night a thunder cloud with lightning and heavy rain; 1 .78 inches fell. On the 4th the ground was frozen hard and there was plenty of ice. Commenced raining on the 12th at 9 p.m. and discontinued at 9:40 a. m.; rainfall, 1 .35 inches. Thunder cloud at night on the 20th; 26th snow fell but melted as fast as it fell; 28th hailed at 7 a. m.; heavy rain during the day.

## TABLE OF SOIL TEMPERATURES—FEBRUARY, 1891.

(The observations for this table were taken at Auburn, Ala.)

A. M. LLOYD, Observer.

NOTE.—There are three sets of themometers. On the 1st of January they were arranged as follows: One set ranging from 1 inch to 96 inches was placed in clay soil on the College campus for the purpose of determining the “frost line” among other problems that will require several years of continued observations. The other two sets were left in their former positions, viz.;—One on the hill and the other in the bottom. They were left there to determine the effect produced upon the temperature of the roots of plants by stirring the soil over one set, and permitting the soil to cake over the other.

DEPTH IN INCHES.	SET No. 1 ON HILL.	SET No. 2 ON CAMPUS.	SET No. 3 IN BOTTOM.
1	57 .0°	57 .7°	57 .7°
3	56 .5	57 .1	*
6	56 .4	57 .1	*
9	55 .7	56 .2	54 .9
12	55 .6	55 .9	56 .1
24	56 .3	56 .2	56 .3
36	55 .5	55 .9	55 .8
48	55 .5	56 .3	56 .6
60	55 .1	*	55 .9
72		56 .2	
84		56 .7	
96		57 .5	

\* Instruments were broken.

Monthly Summary of Meteorological Reports of the Alabama Weather Service, February, 1891.

Stations.	Counties.	Altitudes	Latitude N	Longitude w.	BAROMETER.				TEMPERATURE.								Prevailing wind	Names of Observers.										
					Monthly Mean	MAX.		MIN.		Monthly Mean	Mean of Max.	Mean of Min.	Degrees	MAX.		MIN.			Monthly Range	Me'n Daily Range	Total Precipitation.	Clear days	Fair days	Cloudy days	Days of Rain			
						Height	Date	Height	Date					Date	Degrees	Date												
Valley Head..	DeKalb.....	1031	34 34	85 37					47 8	56 5	39	76	19	17	26—27	59	17 5	9 58	11	9	8	9	S E	E. P. Nicholson				
Florence.....	Lauderdale...	...	34 48	87 37					...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S	C. W. Ashcraft			
Chattanooga..	Tennessee...	783	33 03	85 30	30 137	30 528	5	29 653	25	50	58 3	41 2	76	17	21	27	55	17 1	1030	5	14	9	19	S	* L. M. Pinckh			
Montgomery..	Montgomery	219	32 23	86 23	30 192	30 432	27	29 586	25	58 5	66 2	50 7	83	19	27	27	56	15 6	8 43	3	5	20	16	E	* L. Dunne			
Union Spr'gs	Bullock.....	516	32 12	85 39																								
Bermuda.....	Monroe.....		31 48	87 12					58 6	...	...	80	19	25	27	53	...	8 20	...	...	...	...	...	13			R. J. Grady	
Mobile.....	Mobile.....	30	30 41	88 20	30 090	30 433	27	29 662	25	59	65 6	52 4	76	25	30	27	56	13 2	4 54	3	10	15	19	S	* A. Pritchard			
Carrollton...	Pickens.....																											M. L. Stansel
Auburn.....	Lee.....	826	32 40	85 30	30 131	30 525	5	29 644	25	56	64 2	47 8	77	19	25	27	53	6 4	1120	6	7	15	13	E	J. M. Quarles			
Livingston...	Sumter.....	150	32 34	88 08	30 140	30 430	4	29 770	7-23	56 6	64 6	47 7	80 5	19	23 5	27	57	16 9	6 68	4	6	18	19	N W	J. W. A. Wright			
Greensboro...	Hale.....	230	32 4	87 36					57	...	...	78	19	24	27	54	...	8 15	...	...	...	...	...	...			M. H. Yerby	
Mt. Willing...	Lowndes.....		32 07	86 45														9 05	...	...	...	...	...	...			W. M. Garrett	
Uniontown...	Perry.....	273	32 28	86 48	30 050	30 480	4	29 633	25	55 6	66 2	45 1	79	19	24	27	55	21 1	9 91	...	...	...	13	S	W. H. Newman			
Citronelle...	Mobile.....	352	31 03	87 30					61 7	71 5	52	82	18	24	27	58	19	8 20	9	4	15	16	...	...			J. G. Michael	
Fayette C. H.	Fayette.....		33 43	83 12																							Daniel Collier	
Guntersville..	Marshall...	655	34 24	86 18																								A. J. Baker
Chepultepec...	Blount.....	890	33 53	86 36					49 6	50 5	48 6	80	17	32	...	11	48	2	7 78	...	...	...	7	...			W. B. Allgood	
Columbiana...	Shelby.....	560	33 15	86 38					53 8	63 8	43 8	80	19—20	18	27	62	20	8 31	...	...	...	12	...	...			W. D. Lovett	
Centre.....	Cherokee...	728	34 10	85 42																								Thos. Bradford
Double Spr'gs	Winston...		34 08	85 35					52	...	44 9	70	17—20	19	27	51	...	1033	9	...	...	19	14	...			A. M. Weller	
Butler.....	Choctaw.....		32 05	87 24																								B. F. Gilder
Jasper.....	Walker.....	310	33 49	88 12					50 9	60 6	41 2	78 5	19	18	27	60 5	19 4	8 72	5	11	12	14	S	...			Howard Lamar	
Brewton.....	Escambia...			87 38					56 5	62 5	51 2	81	18	25	27	56	11 15	61	...	...	...	11	11	S W	...		W. J. Holland	
Tuscumbia...	Colbert.....		34 42						50 2	...	...	77	19	22	27	55	...	9 30	6	...	...	19	11	S W	...		L. B. Thornton	
Bessemer.....	Jefferson...								53 6	61 3	46	80	19	23	27	58	15 3	1010	...	...	...	16	...	...			W. H. Swan	
Mt. Home.....	Lawrence...																											A. J. Weaver
Wiggins.....	Covington...																											M. D. Jones
Averages		.....	.....	.....	30 122	.....	.....	.....	54 5	62 4	46 5	.....	.....	.....	.....	55 7	15 7	8 58	6	7	15	14	S	.....				

\*Sergeants of the United States Signal Corps.