THE JERSEY HERD

AT THE

WORLD'S COLUMBIAN EXPOSITION,

CHICAGO, 1893.

REPORT OF

VALANCEY E. FULLER,

SUPERINTENDENT OF THE HERD.

AMERICAN JERSEY CATTLE CLUB

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SUPERINTENDENT OF THE HERD.

To the Members of the World's Columbian Exposition Committee, the President, Directors and Members of the American Jersey Cattle Club:

Gentlemen: I beg to state that since my previous report of April 29, 1893, I have remained continuously at work at the World's Fair dairy barns, under direction of your committee.

In the report before referred to I stated that 56 cows and one bull had been brought to the barns. After that time the herd was added to by cows to the number of nine, also eight heifers and two bulls, making a total of 76 head.

Herewith are the names of the cows, heifers and bulls so kindly contributed by the Jersey breeders for the World's Fair dairy tests:

COWS.

Sheba Rex 47429, Theodore A. Havemeyer, Mahwah, N. J.
Natasqua 65598, Theodore A. Havemeyer, Mahwah, N. J.
Gem of Mountain Side 36577, Theodore A. Havemeyer, Mahwah, N. J.
Exile's Lulu 49984, Mr. C. I. Hudson, Alexandria Bay, N. Y.
Albert's Gem 34006, Mr. F. A. Schermerhorn, Lenox, Mass.
Tristeka 28332, Mr. C. S. Taylor, Burlington, N. J.
Little Goldie 38671, Mr. C. I. Hood, Lowell, Mass.
Alteration 56436, Mr. W. E. Matthews, Huntsville, Ala.
Justa Pogis 64863, Ky. Agric. Experiment Station, Lexington, Ky.
Gay Orphan 25985, Ky. Agric. Experiment Station, Lexington, Ky.
Sayda 3d 17317, Mr. Edgar Brewer, Hockanum, Conn.
Pearl of Riverside 55659, Mr. H. A. Huntington, Higganum, Conn.
Lorita 33750, Richardson Bros., Davenport, Iowa.
Alexa 64924, Richardson Bros., Davenport, Iowa.
Flora Temple 3d 40086, Mr. Frederic Bronson, Southport, Conn.
Hilda A. 3d 16636, Mr. Frederic Bronson, Southport, Conn.
Brown Bessie 74997, Mr. Homer C. Taylor, Orfordville, Wis.
Lily Martin 49954, Mr. M. C. Campbell, Spring Hill, Tenn.
Idarella 41433, Mr. M. C. Campbell, Spring Hill, Tenn.
Annice Magnet 60256, Mr. John Boyd, Elmhurst, Ill.
Alice C. Magnet 31567, Mr. John Boyd, Elmhurst, Ill.
Hugo's Countess 68394, Mr. D. L. Heinsheimer, Glenwood, Iowa.
Ida Marigold 32615, Mr. C. A. Sweet, Buffalo, N. Y.
Sayda M. 46195, Mr. C. A. Sweet, Buffalo, N. Y.

Daisy Hinman 61537, Messrs. Ayer & McKinney, Meredith, N. Y.
Lady Matilda Pogis 36270, Messrs. Ayer & McKinney, Meredith, N. Y.
Merry Maiden 64949, Messrs. O. & C. T. Graves, Maitland, Mo.
Pretty Marchioness 62569, Mr. Walter W. Law, Whitson, N. Y.
Signal Queen 30869, Mr. Frank Eno, Pine Plains, N. Y.
Grace Pansy 2d 18764, Mr. Geo. V. Green, Hopkinsville, Ky.
Princess Honoria 62548, Frederick Billings' Estate, Woodstock, Vt.
Garella 62541, Frederick Billings' Estate, Woodstock, Vt.
Stoke Pogis' Regina 48309, Frederick Billings' Estate, Woodstock, Vt.
Baroness Argyle 40498, Mr. E. Stevens Henry, Rockville, Conn.
Hanover's Beauty 43577, Mr. A. B. Darling, Ramsey's, N. J.
Priscilla of Riverside 21826, Mr. H. A. Flint, Detroit, Mich.
Exile's Bessie 49985, Mr. P. J. Cogswell, Rochester, N. Y.
Mocha's Pet 12985, Mr. P. J. Cogswell, Rochester, N. Y.
Daltrina 33881, Mr. Townsend Sharpless, Philadelphia, Pa.
Jessaline 3d 42254, Mr. Webb C. Garth, Trenton, Ky.
Dear Keepsake 27192, Mrs. M. L. Merrell, Portage, Wis.
Lette Signal 26823, Mr. J. A. Middelton, Shelbyville, Ky.
Lady O. 83782, Mr. A. G. Herr, Lyndon, Ky.
Chelten Queen 49410, Mr. J. W. Lippincott, Jenkintown, Pa.
Lady Longfield 23524, Major Campbell Brown, Spring Hill, Tenn.
Rita of Andalusia 29414, Mr. Geo. Fox, Torresdale, Pa.
Pridalia 17249, Mr. Columbus Dixon, Gillespieville, Ohio.
Fringe 16875, imp., Mr. N. Frazier, Clark's Station, Ky.
Comanca 19389, Mr. John L. Mitchell, Milwaukee, Wis.
Romp's Princess 51185, Mr. W. Gettys, Athens, Tenn.
Islip Lenox 31703, Mr. A. P. Foster, Plainview, Minn.
Cupid's Jersey Maid 35040, Mr. C. S. Dole, Crystal Lake, Ill.
Bessie's Wonder 52248, Mr. C. S. Dole, Crystal Lake, Ill.
Katherine of Pittsford 73169, Mrs. E. F. Hawley, Pittsford, N. Y.
Caledonia Lily 54762, Messrs. W. W. Weed & Sons, Potsdam, N. Y.
Brydie's Darling 57223, Douglass Jersey Cattle Co., Pevely, Mo.
Dora Binkley 48626, Douglass Jersey Cattle Co., Pevely, Mo.
Belle of Oxford 38203, Mr. M. L. Frink, Oxford, Mich.
Signal's Lily Flagg 31035, Messrs. W. E. Matthews & S. H. Moore, Huntsville, Ala.
Eurotisama 29668, Mr. D. F. Appleton, Ipswich, Mass.
Koffee's Lady 37263, Mr. C. G. Peters, East Williston, N. Y.
Champion's Gem 2d 47785, Mr. F. M. Wilson, Selma, Ohio.
Lady of Ridgewood 47787, Mr. F. M. Wilson, Selma, Ohio.
Maid of Monte 43629, Mr. L. A. Martin, Belton, Mo.
Proctor's Alma Dolores 47107, Mr. T. R. Proctor, Utica, N. Y.

HEIFERS.

Pedro's Pretty Flower 88542, Mr. T. S. Cooper, Coopersburgh, Pa.
Elturia 80701, Richardson Bros., Davenport, Iowa.
Campania 88474, Richardson Bros., Davenport, Iowa.
Lily Garfield 79819, Est. of Frederick Billings, Woodstock, Vt.

Woodstock Mystery 77746, Est. of Frederick Billings, Woodstock, Vt.
Woodstock Lady 80619, Est. of Frederick Billings, Woodstock, Vt.
Iola F. 85529, Mr. E. W. Fairman, Brodhead, Wis.
Jeannette of Pittsford 73185, Mr. A. O. Auten, Jerseyville, Ill.

BULLS.

Little Harry 8808, Messrs. S. H. Moore, Huntsville, Ala., and S. N. Warren, Spring Hill, Tenn.
Chromo 26113, Richardson Bros., Davenport, Iowa.
Exile's St. John 20202, Mr. A. D. Baker, Aurelius, N. Y.

The following cows were selected for Test No. 1:

No. 1. Sheba Rex 47429.
" 2. Natasqua 65598.
" 3. Exile's Lulu 49984.
" 4. Albert's Gem 34006
" 5. Tristeka 28332.
" 6. Little Goldie 38671.
" 7. Alteration 56436.
" 8. Justa Pogis 64863.
" 9. Gay Orphan 25985.
" 10. Sayda 3d 17317.
" 11. Pearl of Riverside 55659.
" 12. Lorita 33750.
" 13. Flora Temple 3d 40086.
No. 14. Brown Bessie 74997.
" 15. Lily Martin 49954.
" 16. Annice Magnet 60256.
" 17. Hugo's Countess 68394.
" 18. Ida Marigold 32615.
" 19. Daisy Hinman 61537.
" 20. Merry Maiden 64949.
" 21. Pretty Marchioness 62569.
" 22. Signal Queen 30869.
" 23. Grace Pansy 2d 18764.
" 24. Princess Honoria 62548.
" 25. Baroness Argyle 40498.

The following cows were selected for Test No. 2:

No. 1. Sheba Rex 47429.
" 2. Natasqua 65598.
" 3. Exile's Lulu 49984.
" 4. Albert's Gem 34006.
" 5. Islip Lenox 31703.
" 6. Little Goldie 38671.
" 7. Alteration 56436.
" 8. Justa Pogis 64863.
" 9. Gay Orphan 25985.
" 10. Sayda 3d 17317.
" 11. Pearl of Riverside 55659.
" 12. Lorita 33750.
" 13. Flora Temple 3d 40086.
No. 14. Brown Bessie 74997.
" 15. Lily Martin 49954.
" 16. Annice Magnet 60256.
" 17. Hugo's Countess 68394.
" 18. Ida Marigold 32615.
" 19 Daisy Hinman 61537.
" 20. Merry Maiden 64949.
" 21 Romp's Princess 51185.
" 22. Signal Queen 30869.
" 23. Grace Pansy 2d 18764.
" 24. Princess Honoria 62548.
" 25. Baroness Argyle 40498.

The following cows were selected for Test No. 3:

No. 1. Ida Marigold 32615.
" 2. Islip Lenox 31703.
" 3. Brown Bessie 74997.
" 4. Sayda 3d 17317.
" 5. Baroness Argyle 40498.
" 6. Flora Temple 3d 40086.
" 7. Signal Queen 30869.
" 8. Sheba Rex 47429.
No. 9. Exile's Lulu 49984.
" 10. Merry Maiden 64949.
" 11. Cupid's Jersey Maid 35040.
" 12. Stoke Pogis' Regina 48309.
" 13. Katherine of Pittsford 73169.
" 14. Hugo's Countess 68394.
" 15. Romp's Princess 51185.

The following heifers were selected for Test No. 4 :

No. 1. Elturia 80701.
" 2. Campania 88475.
" 3. Lily Garfield 79819.
" 4. Iola F. 85529.
No. 5. Woodstock Mystery 77746.
" 6. Woodstock Lady 80619.
" 7. Jeannette of Pittsford 73185.

The following cows calved at the barns on the dates given :

Proctor's Alma Dolores 47107 *en route* to grounds (prematurely)
Daisy Hinman 61537 (prematurely)---Jan. 4
Hilda A. 3d 16636---Feb. 4
Alice C. Magnet 31567---" 4
Eurotisama 29668---" 4
Lady Matilda Pogis 36270---" 17
Sheba Rex 47429---" 22
Lorita 33750---" 28
Natasqua 65598---March 1
Grace Pansy 2d 18764---" 5
Hugo's Countess 68394---" 7
Pretty Marchioness 62569---" 7
Idarella 41433---" 9
Lette Signal 26823---" 10
Sayda 3d 17317---" 13
Annice Magnet 60256---" 14
Gem of Mountain Side 36577---" 15
Pearl of Riverside 55659---" 23
Koffee's Lady 37263---" 24
Lady O. 83782---" 26
Priscilla of Riverside 21826---" 28
Tristeka 28332---" 29
Alteration 56436---" 30
Caledonia Lily 54762---" 31
Chelten Queen 49410---April 1
Flora Temple 3d 40086---" 1
Justa Pogis 64863---" 1
Signal Queen 30869---" 4
Daltrina 33881---" 5
Lily Martin 49954---" 7
Belle of Oxford 38203---" 9
Lady Longfield 23524---" 9
Little Goldie 38671---" 10
Albert's Gem 34006---" 11
Dora Binkley 48626---" 12
Exile's Lulu 49984---" 15
Merry Maiden 64949---" 15
Romp's Princess 51185---" 17
Baroness Argyle 40498---" 21
Brown Bessie 74997---" 21
Princess Honoria 62548---" 26
Ida Marigold 32615---" 29
Rita of Andalusia 29414 (prematurely)---May 1
Fringe 16875---" 7
Islip Lenox 31703---" 17
Comanca 19389---June 16
Jessaline 3d 42254---" 18
Garella 62541---July 13

MILK FEVER.

In my previous report I stated the death of Gem of Mountain Side 36577. Garella 62541 was the only other cow that died subsequent to calving. Her death occurred during excessively hot weather. The second day after calving she had been doing well, and, besides nursing her calf through the night, had given at six o'clock in the morning 17½ lbs. of milk. At eight o'clock the same morning, when I saw her, she appeared perfectly well. At nine o'clock she was reported to me as sick. At half-past nine she was unconscious. We removed her from the box-stall to the open floor of the stable, and revived her by stimulants ; but she remained unconscious, and later on passed into milk fever, from which she never recovered, although every effort was made to save her. The remedies which I had used previously in other cases of milk fever seemed to act upon her beneficially, and she apparently responded to the treatment ; but we were never able to recover her from the comatose condition into which she had lapsed before she passed into milk fever. From her condition at eight o'clock in the morning, and from the quantity of milk which she gave then, and also from her temperature during the night preceding and that morning, I am inclined to think that she would not have been stricken with milk fever were it not for the excessive heat which first prostrated her, and from which she passed into milk fever.

The following cows had milk fever, but were successfully carried through same, and recovered therefrom : Eurotisama, Pretty Marchioness and Signal Queen. Of all the cows calving at the barn, Garella was the only cow whose death was caused by milk fever. As is usual in such cases, it was the best that was taken. She was a magnificent animal, and had come in with this, her second calf, carrying a tremendous udder and giving an enormous flow of milk, and promised to have been one of our best cows.

TESTING COWS FOR SELECTION FOR TEST NO. 1.

As promised in my first report, each cow that had calved previous to the test received one or more tests by the churn of a day's milk. These tests were conducted by me personally. I was present at the milking, weighed the milk, placed it in a can, sealed the same, retained it under seal until broken by me and placed in the churn. I remained constantly present during the churning, saw the butter made, worked and weighed in my presence, and then made record of the same. In addition to this, I also took an "oil determination" of each cow for each milking of one day, a "composite oil test" for a single day's milking, and a "composite oil test" for each cow of seven consecutive days' milkings. In the last case the cows were all taken on the same seven days. I was present at each milking, saw these samples taken, and supervised the determination of the fat contained therein by the Babcock oil test machine. The jars in which the samples were retained were initialed, and I carried the key to same myself. These tests formed the basis upon which the cows were selected for Test No. 1, regard being had to the staying qualities of the cows, as far as one could ascertain them, and the distance from calving of the cows under consideration.

Your committee, by resolution, decided that neither Eurotisama nor Signal's Lily Flagg should be included in the herd, as it was thought desirable that phenomenal cows should be excluded therefrom.

Discarding all past records, and basing my judgment solely upon the performance of the cows in my hands at Jackson Park, I recommended to your committee for Test No. 1 the cows herein set out as those selected, of which your committee approved, and they accordingly formed the herd for Test No. 1.

I continued to keep accurate record of the performance of the other cows in the stable which had calved, for the purpose of determining what changes, if any, should be made in the herd for Test No. 2, based upon the actual work performed by them here.

CHANGE OF COWS FOR TEST NO. 2.

Pretty Marchioness had, previous to and during the continuance of Test No. 1, developed garget in one quarter of her udder, and I was fearful that, if she continued through the ninety days' test, the feeding necessary to secure good performance from her would tend to increase the difficulty referred to, and for that reason she was dropped at the beginning of Test No. 2 and Romp's Princess substituted in her place. Islip Lenox, which was not in Test No. 1, and which had calved late, was showing uncommonly good work, and it was thought desirable to have her included in the herd for Test No. 2. She was accordingly substituted in the place of Tristeka.

I continued to keep records of the cows not in the test, other than Eurotisama and Signal's Lily Flagg, for some considerable time after the beginning of Test No. 2, and made analyses of the fat in the milk by the oil test, and it was very gratifying to find that the selection of the cows as embraced in the herd for Test No. 2 proved to be the correct selection.

RULES GOVERNING TESTS.

The Testing Committee was composed of Prof. M. A. Scovell, of the Kentucky Experiment Station, chairman ; Profs. S. M. Babcock, Wisconsin Experiment Station ; I. P. Roberts, Cornell University, N. Y.; H. P. Armsby, State College of Pennsylvania (the four named having been appointed by the Association of Agricultural Colleges and Experiment Stations); and Prof. W. H. Caldwell, representing

the American Guernsey Cattle Club, H. H. Hinds the American Short-Horn Association, and myself the American Jersey Cattle Club, as superintendents of the breeds named.

The rules governing the tests were formulated and assented to at various meetings called by the Hon. W. I. Buchanan, Chief of Agriculture of the World's Columbian Exposition, and were in process of formation and amendment for at least a year and a half previous to their being adopted. The following associations or cattle clubs were represented at these meetings, and assented to the rules: American Jersey Cattle Club, American Guernsey Cattle Club, American Short-Horn Breeders' Association, Holstein-Friesian Association, American Devon Cattle Club, Red Polled Cattle Association, Brown Swiss Cattle Association, and American Ayrshire Association.

Upon the Testing Committee devolved the duty of carrying out the details of the tests, as provided for in such rules, subject at all times to the approval and consent of Chief Buchanan. The rules as formulated prior to the beginning of the tests were adhered to, save in some minor details. Meetings of the Testing Committee were held every day from the beginning of the tests to the end of the same, save on Sundays, and I was present at almost every meeting.

WEIGHING OF COWS.

The rules provided that for the first five days of each test the cows should be weighed, to ascertain the average weight during those five days, and also the five days immediately preceding the termination of each test; so that, except in Test No. 3, the herd should receive credit, or should be debited, with the increase or decrease in the weight of each cow, and consequently of the herd, at the rate of 4½ cents per pound. A study of the tables of the weighing of each cow from day to day during these five days demonstrates a great variation in the weight, at times amounting to as much as 50 lbs., and the wisdom of extending it to five days was amply demonstrated.

TEST NO. 1—CHEESE (FIFTEEN DAYS).

For this test the following associations had each pledged twenty-five cows: American Jersey Cattle Club, American Guernsey Cattle Club, and American Short-Horn Association. All of the other breeds enumerated had originally pledged cows, but failed to enter, although barns had been built for them by the World's Fair authorities.

The price of feed was fixed by Chief Buchanan prior to the test, and was based upon the price in open markets in New York City, Buffalo and Chicago at that time, as was also the value of cheese, and in Tests Nos. 2 and 3, the value of butter. The following are the prices of feed per ton for this test:

Hay (timothy)	$11.50	Cotton-Seed Meal	$26.00
Silage	4.00	Middlings	13.00
Corn-Hearts	13.50	Linseed Oil Meal	22.00
Bran	12.50	Grano-Gluten	14.75
Ground Oats	23.00	Cream Gluten	17.50
Corn Meal	22.00		

The result of this test was most gratifying to Jersey breeders, as they obtained a complete victory in every way. While a few believed the Jersey cow was, *par excellence*, not only the best butter cow, but also the best cheese cow, it was not generally conceded that this was the case; and it remained for this test to prove, in the most conclusive way, that she was not only the queen of the churn, but of the cheese-vat. As was demonstrated, the Jersey herd not only gave more milk than either of the other breeds, exceeding the Guernseys in the fifteen days by 2357.8 lbs., and the Short-Horns by 1109.5 lbs., but the milk contained not only more fat, but also more solids other than butter fat, so that the milk made more cheese per hundred pounds than that of either of the other breeds. The quantity of cheese produced by the Jerseys exceeded that of the Guernseys by 321.14 lbs., and the Short-Horns by 374.16 lbs.

SCORES OF CHEESE.

During the first four days cheese was not made, owing to the appliances in the dairy not being ready to make good cheese ; also on the 20th of May cheese was not made, as the milk of that day went sour. But for the ten days in which cheese was made the average scores adjudged by competent and impartial judges were as follows :

	Flavor.	Texture.	Keeping Quality.	Color.	Total.
For Jerseys	49.8	23.2	13.5	4.2	90.7
" Guernseys	48.9	21.8	12.3	4.2	87.2
" Short-Horns	50.4	22.3	13.4	4.4	90.5

The amount of cheese credited to the breeds on the four days in which cheese was not made was obtained in the following manner : As the average pounds of fat and solids in the ten days in which cheese was actually made is to the pounds of cheese produced therefrom, so the total pounds of fat and solids in each day is to the cheese of those days credited to each herd and to the individual cows composing the same. The credited cheese from the milk of the 20th of May was ascertained by taking the average of cheese for the two days immediately preceding and the two days immediately following that day.

NET PROFITS.

The net profit of the Jersey herd for this test (fifteen days) was $119.82, and exceeded the Guernseys by $31.52, equal to an excess net profit per cow per day of 8 4/25 cents, and the Short-Horns by $38.46, equal to an excess net profit per cow per day of 10 6/25 cents.

AWARDS.

Five awards were given by the World's Columbian Exposition as follows : " (*a*) For the individual cow in each breed competing which yielded the greatest net profit during the test." The Jersey Ida Marigold 32615 was champion of the Jerseys, yielding net $6.97. The Guernsey Sweet Ada was their champion, with a net profit of $5.27, and the Short-Horn Nora, with a net profit of $6.27, headed the Short-Horns. Until the increase of live weight was taken into consideration, Merry Maiden 64949 led all the cows, the Jerseys included, by a few cents, but inasmuch as Ida Marigold gained in live weight in excess of Merry Maiden, the former was the champion cheese cow of the herd.

The next award is : " (*b*) For the individual cow in any breed competing which yielded the greatest net profit during the test," and this was the Jersey Ida Marigold, winning by a very strong lead.

The next award is : " (*c*) For the five cows in each breed competing which yielded the greatest net profit during the test." They were the cows

Ida Marigold 32615, first, with a net profit of	$6.97
Merry Maiden 64949, second, " " " " "	6.56
Lily Martin 49954, third, " " " " "	6.34
Signal Queen 30869, fourth, " " " " "	6.34
Baroness Argyle 40498, fifth, " " " " "	6.12
Average per cow	$6.46.

It will be noticed that Lily Martin and Signal Queen tie each other. Where this is the case, that one " which produces at least cost " is declared winner by the rules.

The best five cows of the Guernseys showed the following net profit : $5.27, $5.06, $4.82, $4.79, $4.66. The leading Guernsey stands fourteenth in order of merit of the 75 cows competing, the second being the seventeenth, and the other three eighteenth, nineteenth and twenty-first respectively. The average net profit for the Guernseys per cow was $4.92.

The best five Short-Horn cows showed the following net profit : $6.27, $5.63, $5.28, $4,52, $4.07 ;

average net profit per cow, $5.15; and they stood in the following order of merit among the 75 cows: fifth, tenth, thirteenth, twenty-fourth and twenty-seventh.

The next award was: "(*d*) For the five cows in *any* breed competing which yielded the greatest net profit during the test," and was awarded as follows:

No. 1,	Jersey,	Ida Marigold 32615,	net profit		$6.97
" 2,	"	Merry Maiden 64949,	"	"	6.56
" 3,	"	Lily Martin 49954,	"	"	6.34
" 4,	"	Signal Queen 30869,	"	"	6.34
" 5,	Short-Horn,	Nora,	"	"	6.27

It will be noticed that, with the exception of No. 5, every one of the cows is a Jersey, and the Short-Horn is placed in this position from the fact that the value of her increase in live weight is $2.52. Otherwise she would have stood very much lower.

The last award, the most important of all, is: "(*e*) For the breed which yielded the greatest net profit during the test," and again the Jerseys are declared the victors. A more sweeping or more decisive victory for the Jersey breed could hardly have been wished for, as they won at every point in this test, with a large margin to spare. They gave the most milk, containing the greatest percentage of fat and solids, and consequently the greatest amount of cheese. They gave a net profit per cow over the other breeds which of itself would constitute a fair profit to the ordinary dairyman. Out of the 75 competing cows the Jerseys have 14 in the first 25 with an average net profit per cow of $5.75 2/7; the Guernseys 7, average net profit per cow, $4.79; and the Short-Horns 4, average net profit per cow, $5.42½.

The lowest Jersey in profit out of the 75 is fifty-third, with a net profit of $3.11. The Guernseys have eight lower, ranging down to a net profit of $1.91, and the Short-Horns fourteen lower, ranging down to a net profit of $1.08.

MILK REQUIRED TO POUND OF CHEESE.

The quantity of milk required to make a pound of cheese was as follows: Jerseys, 9.16 lbs.; Guernseys, 9.67 lbs.; Short-Horns, 11.31 lbs.

FEED AND MILKING.

While the feed given the Jerseys was in excess of that given the Guernseys, it showed uncommonly good net increased profit in return. The average milk given by each cow per day in the Jersey herd was 35.456 lbs., that of the Short-Horns 32.495 lbs., and that of the Guernseys 29.169 lbs.

In this test, as also in Tests Nos. 2 and 4, the quantity of milk formed an important factor, as in reaching the net result credit was given in the cheese test, not only for the cheese made, but also for the solids contained in the whey; and in the case of Tests Nos. 2 and 4, for the value of the butter, and also for the value of the solids other than butter fat contained in the skimmed milk. In this particular, Tests Nos. 1, 2 and 4 differed materially from Test No. 3, for in the last nothing but the value of the butter itself was credited, and the quantity of milk given by the cows was not a factor. Consultation with the tables of Tests Nos. 1, 2 and 4 will demonstrate that the Jersey cows led in the quantity of milk in each of these three tests, as well as in every other important factor that went to make up the net profit, except increase in live weight.

FIVE DAYS PRELIMINARY TO TEST NO. 2.

An interval of five days elapsed between Test No. 1 (cheese) and Test No. 2 (90 days), during which time there was no contest, but the feed of the cows in the test was as accurately weighed out as during the cheese test, the same restrictions as to feeding maintained, the milk weighed, the samples preserved under seal and sent to the laboratory, and an analysis made of the same for the purpose of

keeping an exact record of the quantity of milk given by the cows, and the composition of same. All this was done under the direct supervision of the Testing Committee. The result is set out in the table appended hereto, as without it no complete record could be given of the cows that remained in all three tests. No churning was made of the milk during this time, but by taking the quantity of fat ascertained in the milk and multiplying it by 125, we ascertain the quantity of butter that I have credited to the cows as 80 per cent butter, being as approximately near the quantity of butter as can be ascertained, except by the churn. It is but fair to state that this estimated butter, as credited to the cows, is slightly in excess of what would be actually obtained from the churn, as there would be a loss in skimming the milk, as also in the fat that would escape in the butter-milk in churning.

CHANGES IN FEED.

Some material changes were made in the character of the feed given to the Jersey cows in these five days, because I appreciated that in the 90 days' test about to be entered upon we had a long race, one that was inevitably bound to test the merits of the cows, their staying qualities, their constitution, and the patience and skill of the feeder; and while, to obtain immediate results in large quantities of butter, it might have been advisable to have fed feed of a more nitrogenous character, what is generally known as "rich feed," it would inevitably have resulted later on in lessening the flow of milk of the cows to a more appreciable extent than was the case with the feed given them, and would have tended to have produced more sickness than was the case with the cows under my charge. I have no doubt that, in the earlier part of this test, had I fed corn meal, pea meal, heavier of cotton-seed meal, and other food of a like character, the cows could have produced a very much increased quantity of butter in the earlier days of this test; but my judgment was, and the results have confirmed it, that it would have been done at the expense of a very material shrinkage towards the end of the test, as compared with that which we were able to produce from the cows.

The herd entered upon this test in the early part of the summer, in reality the spring in Chicago; passed from that to the heat of summer; remained on dry floors and on practically dry feed; were beset by hordes of flies, which the character of the soil, being dry sand, had a tendency to produce, and which were augmented largely later on by the exhibits of live stock. They passed through the heat of summer, with all the visitors that were constantly in to see them, and the other disturbing elements by which they were surrounded and beset, and remained in the test till the beginning of fall, with all the climatic changes for which Chicago is noted. They showed, nevertheless, but a small decrease to the herd, both in milk and butter, being an average of 4.26 lbs. per head per day for milk for the last fifteen days of the ninety days, as compared with the cheese test, including cows that had been sick. From the beginning of the cheese test to the end of the 90 days' test embraced 110 days. The shrinkage in butter per head per day was 17/100 lb., judged by eight days of the last ten days of the 90 days' test, as compared with the first ten days of the same test. Two of the last ten days are omitted, as Little Goldie was "off the test." When the above facts are considered, I am satisfied the choice of feed given the cows, and the way it was fed were judicious, and calculated to produce prolongation of flow of milk and maintenance in quantity of butter. If corroboration of this were wanting, it would be found in the fact that the superintendents of the other two herds largely followed in the wake of the Jersey system of feeding towards the latter end of the test, and the superintendent of one of the breeds also adopted our system of wetting and dampening the feed with hot water, with very beneficial results to the production of his herd.

TEST NO. 2 (NINETY DAYS).

This test was for ninety days, from May 31 to August 28, both inclusive. The herds competing were 25 Jerseys, 25 Guernseys and 25 Short-Horns. By the rules, as amended, each of the breeds had a right, before the beginning of Test No. 1 (May 11), to nominate three cows as substitutes for Test No. 2,

with the option of placing them in the latter test. Each breed nominated three, but only two Jerseys were substituted, Islip Lenox for Tristeka, and Romp's Princess for Pretty Marchioness, the former taking the place of No. 5 in the test, and the latter the place of No. 21. All the other cows retained the same numbers in this test as in the previous one. The Guernseys substituted two cows, and the Short-Horns three. No. 24 of the Short-Horns had not calved at the beginning of the test, but did so shortly afterwards. She did not survive the ordeal, and died before giving any milk. Strictly by the rules, she should have been charged for the balance of the time of the test with the average daily feed consumed by her previous to her death, and credited with the value of her product given previous to her death; but inasmuch as she had given no product, it was manifestly unfair to charge her with her feed when she would have no credit, and, by a unanimous vote of the Testing Committee, the feed which had been charged up to her, according to the strict reading of the rules, was deducted from the total feed charged to the Short-Horn herd. So that in reality the Short-Horn herd was not charged with the feed given this cow, but they were under the misfortune of competing with 24 cows, as against 25 Jerseys and 25 Guernseys. In making any comparisons between the three herds, this fact must be borne in mind, and in striking averages, in the case of the Short-Horns I have in every instance done it upon the basis of 24 cows of this herd to 25 of the Guernseys and 25 of the Jerseys.

The same precautions were taken in this as in former and other tests to insure accuracy in weighing of the milk; in regard to samples of milk sent for analysis; in sending the milk to the dairy; in retaining it there intact under seal until taken out in the presence of Prof. Babcock or Roberts; in having the cream separated from the milk; and in preventing any feed being given to the cows except when weighed out and fed in the presence of a representative of the Testing Committee.

SYSTEM OF WEIGHING AND SAMPLING MILK, WEIGHING AND FEEDING FEED.

It may not be out of place to explain this system. The Jersey cows were fed three times a day, at half-past four in the morning, half-past ten or eleven A. M., and half-past four P. M. The feed to be given the cows at the second morning, the afternoon and succeeding morning feedings was weighed out for each cow in the presence of a representative of the Testing Committee. Her feed was placed in a bag with her number, and put upon a hook in the wall of the feed-room in the Jersey barn corresponding to her number in the herd. The representative weighing the feed then entered upon a form the quantity of feed so weighed out to each cow, and, when completed, gave a carbon copy of such form to me as superintendent. Upon examining same at the next meeting of the Testing Committee, generally the same day, I certified to the correctness of it, and it was then ready to be placed upon the file as a matter of record. As soon as the feed was weighed out we took the quantity of feed required for the half-past ten feeding, placed it in an iron pail in the presence of a representative of the Testing Committee, and steamed it as best we could by pouring hot water over it. When this was done the room was securely locked, containing, as it did, the feed weighed out for the next twenty-four hours, part of which was in the pail steaming. This room was then sealed by the representative of the Testing Committee. Before any cows could be fed it was necessary to send for such representative, and he was present at each feeding. No food was allowed to be brought into the barn except when a representative of the committee was present, and with his full knowledge. There were guards on the barns day and night, who were changed constantly, and who were instructed by Chief Buchanan to report if any cow was given any feed at any time in the absence of a member of the Testing Committee. Inadvertently this happened on more than one occasion in each barn. The matter was reported promptly to the Testing Committee, who investigated, and, being satisfied in each case that it was an accident and not done by design, a record was made of the fact in the minutes of the committee, and the defaulting party excused. Inasmuch as the east side of our barn was pretty full of cattle not in the test, but being held there as a supplemental herd or on trial for some succeeding test, at the instance of one of the competing breeds a wire screen was put up the full length of our barn,

under Chief Buchanan's direction, for the purpose of preventing any possibility of any feed being smuggled from one side of the barn to the other. I need hardly say that I heartily co-operated with Chief Buchanan in this matter, realizing that when we were the winning breed, as was the case, it was desirable to place beyond peradventure any criticism or claim that might thereafter be made that our cows were fed any other feed than that which was weighed out to them. It certainly did entail additional work, as there was no access from one side of the barn to the other, nor at the north end, and only one door, facing the Guernsey barn. While it had its annoyances in consequence, it had its compensations, as it demonstrated it was not feed, but breed, that was to be credited with the victory that was then in sight. And it was also gratifying that one of the best weeks we had in the history of the Jersey cows was within the next couple of weeks after this screen was put up.

In this and every other test a representative of the Testing Committee was present at every milking, five A.M., twelve noon, and six P.M. With very rare exceptions, and only when called elsewhere by business, I was present at each and every milking throughout the entire four tests, viz.: five A.M., twelve noon, six P.M. Previous to beginning milking, the stalls were examined by such representative, and the milking-pails weighed. Each cow was milked in the presence of this representative, and as each cow was milked, the pail was immediately brought to the scale and weighed by the representative, checked by me, the amount entered upon a form provided for the purpose to the credit of that cow, and a sample, being an aliquot part or equal proportion, of each milking of each cow was taken. A set of jars was provided by the Testing Committee for each herd, numbered to correspond with the number of each cow in the herd, placed in a tin case, and as the sample of the milk from each cow was taken it was poured into the proper jar, until a sample had been taken of every cow at that particular milking; and when a sample had thus been obtained from each cow for 24 hours, these glass jars were taken to the laboratory and the contents analyzed by a chemist, under the direction of the chief chemist, Prof. E. H. Farrington, of the Illinois Experiment Station, as was also a sample of the mixed milk of each herd. When the analyses of the milk had been completed in the laboratory, Prof. Farrington delivered to the superintendent of each breed a carbon copy showing the analyses, and if the same were satisfactory to such superintendent, he certified to same at the next meeting of the Testing Committee, and these records were then ready for entry upon the books. Each sample was analyzed twice by two different chemists. The work was most satisfactory, and but rarely was there occasion to have another analysis made.

When each milking was complete, the tin holding these jars was securely sealed, and was immediately taken to the laboratory and retained there until the next milking, when the seal was examined by the representative of the breed, to ascertain that there had been no tampering with it. When the representative of the Testing Committee had made a record of the 24 hours' milkings, he delivered to the superintendent of each breed a carbon copy of the result of such milkings, signed by him on behalf of the committee.

When the cows were all milked, the large cans containing the mixed milk were then sealed by the representative of the Testing Committee, in the presence of each superintendent, and were carried to the dairy, where they were placed in a room under seal, and so retained until the seal was broken by Prof. Babcock or some person authorized by the committee, with the intent of having the cream separated from the milk, and the same made into butter. The cream was retained also in a room under seal, while it was being cooled preparatory to being made into butter. A sample of the butter-milk and of the skimmed milk was taken each day for analysis, as a check upon the churn. When the butter was made, such butter was retained in a refrigerator room until scored by expert judges appointed by Chief Buchanan. This was done every week, and there were times when part of the butter had been made for a week before being scored.

A sample of the butter was taken each day, and an analysis made of it for the purpose of determining the amount of fat, water, ash and casein contained therein; and inasmuch as the butter was all to be

upon a basis of 80 per cent. of fat, for the purpose of uniformity the quantity of butter actually made by the churn was increased or decreased according to the quantity of fat shown in such analysis of the butter. The three experts who scored the butter made separate scorings, without consultation one with the other, the scale of points being as set out in the rules, and the price of butter was regulated as provided for by the rules, according to the average score of the three experts. When these scores were made they were transmitted to Chief Buchanan, who, after examining them, removed the names of the scorers and returned the scores to the Testing Committee, who then ascertained the average score of the three experts and made record thereof. The butter so to be scored was without mark of identification. No superintendent nor any member of the Testing Committee had access to, or could identify, the scoring done by any of the expert judges.

It will be noticed that all three breeds in this test used coloring-matter up to the time that the clover hay began to affect the milk in color. After that, neither the Jerseys nor the Guernseys used any butter-color, both stopping at the same time. And it is a matter of fact that while the two breeds were fed green clover hay, and neither used any butter-color, it was an impossibility to distinguish the butter of either breed by the color. At times that of the Jerseys would have a higher color than that of the Guernseys, and at times the reverse. Upon green feed, while the Guernsey milk will appear more yellow to the eye, the golden hue of the Jersey butter equals that of the Guernsey.

MILK IN NINETY DAYS' TEST.

The average milk per Jersey cow per day for the first seven days of the test was 36 3/5 lbs. The average daily milking for all Jersey cows throughout the entire test, including sick ones, was 33.08 lbs. The average length of time each Jersey had been in milk at the end of the test was 154 days. The total quantity of milk given by the Jerseys in this test was 73488.8 lbs. The Jersey herd exceeded the Guernseys in milk by 11707.1 lbs., and the Short-Horns by 7225.6 lbs.

BUTTER.

The butter given by the Jerseys in the 90 days was 4274.01 lbs., being an average of 170.96 lbs. per cow. It exceeded that given by the Guernseys by 913.57 lbs., and the Short-Horns by 1383.14 lbs. Allowing for the days some of the cows were "off the test," the average daily production of butter per head for the Jerseys was 1.92 lbs.

SOLIDS NOT FAT.

The quantity of solids not fat given by the Jerseys was 6465.049 lbs., and exceeded that of the Guernseys by 963.61 lbs., and that of the Short-Horns by 714.22 lbs.

VALUES.

The value of the butter was $1747.372; of solids not fat, $129.299; of increase in live weight, $34.920; making a total of $1911.591; as against which the cost of feed was $587.498, leaving a net profit of $1324.093, less $0.281, the cost of butter-color used in the early part of the test, which leaves a net profit of $1323.812. The value of the butter of the Jerseys exceeded that of the Guernseys by $391.91, and that of the Short-Horns by $575.60. The value of all the products, except increase in live weight, after deducting cost of feed, gave the Jerseys an excess in profit of $307.65 over the Guernseys, and $504.17 over the Short-Horns. When the value of increase in live weight is added, at 4½ cents per pound, the net profit of the Jerseys is $326.17 over the Guernseys, and $413.69 over the Short-Horns; or $3.62 net profit per day per herd, or 0.14\frac{48}{100}$ per day per cow, over the Guernseys, and $4.60 per day per herd, or $0.19⅛ per day per cow, over the Short-Horns (on the basis of 24 cows for the latter).

The net profit for the 90 days per cow was as follows: Jerseys, $52 95; Guernseys, $39.91; Short-Horns, $37.92 (24 head).

The milk required to make one pound of butter was: Jerseys, 17.2 lbs.; Guernseys, 18.4 lbs.; Short-Horns, 22.9 lbs. The cost of feed per pound of butter was as follows: Jerseys, 0.13\frac{75}{100}$; Guernseys, 0.14\frac{41}{100}$; Short-Horns, 0.17\frac{36}{100}$.

Analyzing the results per individual cows, the highest net profit per day for any Short-Horn cow was 58 cents, which was exceeded by twelve Jerseys. The highest Guernsey was 64 cents, which was exceeded by eight Jerseys, as follows:

Brown Bessie--81 cents per day.	Sheba Rex------68 cents per day.	Islip Lenox -----65 cents per day.
Merry Maiden-71 " "	Hugo's Countess-67 " "	Romp's Princess-65 " "
Ida Marigold--71 " "	Baroness Argyle-66 " "	

Or, putting it still another way, the following table gives the average net profit per cow per day, leaving out the fractions of cents, and it shows there were eight Jerseys with 65c. net profit per day or over, and no Guernseys or Short-Horns; twenty-one Jerseys which made a net profit of over 50c. per day, with six Guernseys and six Short-Horns; that, with the exception of one Jersey that was sick the greater part of the test, all the Jerseys show a daily net profit of 43c. or over, to twelve Guernseys and eleven Short-Horns, or more than the Guernseys and Short-Horns combined:

NET PROFIT PER DAY.

Cents	81	71	68	67	66	65	64	63	62	61	59	58	56	55	54	53	52	51	50	49	48	47	46	45	44	43	41	39	38	37	36	35	34	33	32	31	29	27	Total Cows.
Jerseys	1	2	1	1	2	0	0	2	1	1	1	4	1	1	1	0	1	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	*1	0	0	0	0	0	25
Guernseys	0	0	0	0	0	0	1	1	0	1	0	0	0	2	0	0	0	1	1	1	1	0	1	1	1	0	0	3	2	2	1	1	0	2	1	1	0	0	25
Short-Horns	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	1	0	0	1	1	0	2	1	2	3	0	1	0	0	1	1	2	1	1	24

* Was sick during greater part of test.

The following awards were made by the World's Columbian Exposition:

(*a*) For the *individual* cow in *each breed* competing which yields the greatest net profit during the test:

Jersey—Brown Bessie 74997----------$73.224 net profit.
Guernsey—Materna ---------- 57.822 " "
Short-Horn—Nora ---------- 52.634 " "

(*b*) For the *individual* cow in *any breed* competing which yields the greatest net profit during the test: Jersey—Brown Bessie 74997.

(*c*) For the five cows in *each breed* competing which yield the greatest net profit during the test:

Jerseys.	No. in Herd.	Net Profit.	Owner.	Guernseys. Net Profit.	Short-Horns. Net Profit.
1. Brown Bessie 74997	14	$73.224	C. I. Hood, Lowell, Mass.	$57.822	$52.634
2. Merry Maiden 64949	20	64.513	O. Graves, Maitland, Mo.	56.717	50.264
3. Ida Marigold 32615	18	64.154	C. A. Sweet, Buffalo. N. Y.	55.039	48.691
4. Sheba Rex 47429	1	61.597	T. A. Havemeyer, Mahwah, N. J.	50.284	48.450
5. Hugo's Countess 68394	17	60.732	D. L. Heinsheimer, Glenwood, Ia.	50.172	47.196

(*d*) For the five cows in *any* breed competing which yield the greatest net profit during the test:

Awarded the Jerseys—1. Brown Bessie; 2. Merry Maiden; 3. Ida Marigold; 4. Sheba Rex; 5. Hugo's Countess.

(*e*) For the *breed* which yields the greatest net profit during the test: Awarded the Jerseys.

The following table shows the relative standing of all cows in the test, with value of increase in live weight added, arranged according to their order of merit, based on net profit:

Order of Merit.	Breed.	Herd No.	Net Profit.	Order of Merit.	Breed.	Herd No.	Net Profit.
1st	Jersey	14	$73.224	38th	Guernsey	20	$41.894
2d	"	20	64.513	39th	Short-Horn	19	41.832
3d	"	18	64.154	40th	Jersey	23	41.210
4th	"	1	61.597	41st	Short-Horn	11	41.128
5th	"	17	60.732	42d	Guernsey	16	40.845
6th	"	25	60.090	43d	"	4	39.899
7th	"	5	59.231	44th	Jersey	12	39.498
8th	"	21	59.023	45th	"	9	39.349
9th	Guernsey	15	57.822	46th	Short-Horn	4	39.168
10th	"	25	56.717	47th	"	5	38.784
11th	Jersey	13	56.488	48th	"	18	37.675
12th	"	7	56.099	49th	"	7	35.710
13th	"	6	55.169	50th	Guernsey	5	35.501
14th	Guernsey	24	55.039	51st	"	13	35.313
15th	Jersey	4	53.556	52d	"	14	35.231
16th	Short-Horn	20	52.634	53d	Short-Horn	17	35.183
17th	Jersey	3	52.526	54th	Guernsey	21	34.712
18th	"	15	50.985	55th	"	3	34.456
19th	"	2	50.973	56th	Short-Horn	8	34.271
20th	"	10	50.684	57th	"	12	34.204
21st	"	22	50.419	58th	Guernsey	17	33.903
22d	Guernsey	7	50.284	59th	Short-Horn	3	33.580
23d	Short-Horn	21	50.264	60th	Guernsey	6	33.579
24th	Guernsey	8	50.172	61st	Short-Horn	1	33.288
25th	Jersey	8	49.806	62d	Guernsey	10	33.047
26th	"	11	49.041	63d	"	9	32.057
27th	Short-Horn	14	48.691	64th	*Jersey	16	31.126
28th	"	9	48.450	65th	Short-Horn	22	30.108
29th	Jersey	24	48.269	66th	Guernsey	11	30.037
30th	Short-Horn	25	47.196	67th	"	18	29.769
31st	Jersey	19	46.050	68th	Short-Horn	16	29.063
32d	Short-Horn	13	46.002	69th	Guernsey	22	29.039
33d	Guernsey	1	45.941	70th	"	19	28.680
34th	"	2	45.079	71st	Short-Horn	6	28.266
35th	Short-Horn	15	44.880	72d	"	23	28.007
36th	Guernsey	23	44.618	73d	"	2	26.397
37th	"	12	44.005	74th	"	10	24.736

* Was sick.

This table shows that the Jerseys secured not only the first five places, but the first eight, and that they had eighteen places out of the first twenty-five, to the seven places of the other two breeds combined.

This 90 days' test was the most important of all the tests, as it embraced milk (through the solids other than butter fat), butter, and increase in live weight; and its length was such as was calculated more than any other test to demonstrate the staying qualities of the cows and the breeds on dry feed, throughout the vicissitudes of the season, the swarms of flies and numerous visitors, and the other disturbing elements to which the cows were subjected by their environment. The figures tell their own story, and in most unmistakable terms the Jersey has proved herself in this greatest of all tests infinitely superior to all other cows.

SICK COWS.

Sections 9 and 10 of the rules provide as to the dropping of cows from the test in case of illness, and how their product shall be dealt with while they are off the test. Annice Magnet, No. 16, was taken sick and declared off the test on the 18th of June. At that time she was averaging in milk about 31 to 32 lbs. a day, and shrank to 1 lb. a day. She was suffering from impaction, and was a very sick cow, and at first

it was a question whether she would recover or not. She was reinstated on the 8th of July, although she had not recovered her health nor flow of milk, giving but 13.3 lbs. at that time, and on the last day of July but 23.5 lbs., and never again gave higher than 24.3 lbs., and that but for one day. I protested to Chief Buchanan against this action, but it was over-ruled, the principle being laid down that when a cow was giving normal milk she was to be reinstated, regardless of whether her permanent future health or usefulness as a breeder would be affected thereby, or without regard to what butter or other product she was giving at the time of reinstatement, or how it compared with her previous production. Annice Magnet had been doing very well up to the time she was taken sick, often making 2 lbs. of butter per day ; but, naturally, after so severe an illness, and being a young cow, she did not keep up her record, and consequently is low in point of merit for a Jersey in this test. For the first ten days she was off the test she got no credit, but for the balance of the time until she was reinstated she received credit by " averaging," as provided in the rules.

Merry Maiden, No. 20, was attacked by impaction on the 20th of June, and dropped from 36 lbs., on the 19th of June, to 13.6 on the 21st. She was not declared off the test, and gradually recovered her flow, but never reached her old mark. That she was able to finish second in this test under such circumstances stamps her as a remarkable cow. At the time she was taken sick she led in butter all the 75 cows competing. Her feed was cut down, and was not fully restored for nearly a month and a half thereafter.

Gay Orphan, No. 9, had an attack of impaction on the 12th of July, dropping from 29.1 lbs., on the 11th of July, to 1.3 lbs. on the 15th, when she was declared off the test. She was reinstated on the 22d of July, giving at that time 18.1 lbs. of milk, and gradually returned to her full flow.

Owing to a very sudden fall in the temperature, being 40 degrees in 12 hours, Alteration, No. 7, took a congestive chill on August 6, followed by impaction of the rumen, from which she never recovered, and died on August 12. She was one of the best cows in the entire test, and stood fifth among the 75 competing cows at that time. Her death was a great loss, not only to her owner, Mr. C. I. Hood, but to the Jersey interest generally.

Little Goldie, No. 6, was stricken with a like disease on August 27, and, though she lived through the test, expired on the 3d of September. She stood eighth in the test, and at the time of her sickness was doing splendid work, and her loss was a severe one to the Jerseys. Mr. Hood, unfortunately, was also her owner. Hereto is appended the report of the veterinary surgeon as to the sickness and death of both of these cows. Alteration was the only cow of the Jersey herd that died in the test. The Short-Horns lost one cow and the Guernseys two that were in the test. Each one of these cows was stricken without the slightest warning, nor was it peculiar to the Jersey herd alone. I would call particular attention to the report of Dr. Hughes, V.S., as to the condition the *post-mortem* showed Little Goldie to be in, as it tends to show that, notwithstanding the long strain of continuous dry feeding she had undergone, and the length of time she had been retained in the stable upon a dry floor, the character of the feed had been such that she had not been " burnt out," as might naturally have been expected. When Little Goldie was stricken down with impaction I urged Dr. Hughes in the strongest terms of which I was capable to open up the first stomach and take out the contents of that and the second stomach, as in my judgment the only means that would relieve her. He differed from me, thinking he could relieve her by medicine. Past experience in this and in the Guernsey barn in like cases had taught me that, by the time the medicine had had time to act upon the contents of the stomach to dislodge them, while the contents of the stomach might be dissolved by the medicine, the power to discharge it would be lacking. The *post-mortem* of Little Goldie demonstrated this fact, and I think Dr. Hughes was convinced later that my grounds were well taken. I mention this for the guidance of any who may be unfortunate enough to have cows that have been under continuous feed for any length of time stricken with a similar disease. In my judgment no possible injury can occur to the cow by making an incision in the first stomach sufficient to take out the contents of that and the second stomach, and sewing it up.

CHICAGO VETERINARY COLLEGE,
2537 AND 2539 STATE STREET,

CHICAGO, September 25, 1893.

VALANCEY E. FULLER, Esq.,
Supt. American Jersey Cattle Club,
World's Columbian Exposition:

Dear Sir: I have the honor to submit my report relative to attendance on cows Alteration and Little Goldie, both of which died as a result of impaction of the rumen.

On Aug. 6, at your request, I visited the Exposition Grounds and examined the cow Alteration. I found the cow unable to rise and suffering from inflammation of the udder, the bowels markedly constipated and the rumen impacted with food, and at the same time showing abdominal pain. Dr. McMahon, veterinarian to the Fair, arrived at this time and also examined the animal. You informed us that you already had given the cow a full dose of physic the night previous, and that on the same morning you had given still more. We decided that this treatment was perfectly proper, and recommended that small doses of Epsom salts, combined with carminatives and stomachics, be given at intervals of four hours, so as to keep up the action of the purgatives and prevent the accumulation of gas. We also directed the application of hot cloths to the udder and frequent rectal injections. On the following day, Aug. 7, Dr. McMahon telephoned me, requesting that I should take full charge of the case. I found, on arrival, the cow somewhat improved; the physic had slightly operated, the contents of the rumen were still hard, and the griping was not so severe. The cow was still unable to rise. On Aug. 8 and 9 a slight gradual improvement was noticeable. The mammary gland became softer, at times free purgation set in, yet the mass in the rumen still continued to remain. Stimulants were tried during those days to keep up the vitality, and, if possible, cause a return of the appetite, but the animal would not eat anything.

On the night of the 9th, and on Thursday, Aug. 10, the weather became extremely warm, more especially on Thursday, when the heat was oppressive. The cow sank rapidly, but seemed again more bright on Friday, Aug. 11, when it became more cool. The vitality of the cow was, however, exceedingly low on this date, as she had not eaten anything since the attack set in, except some milk, eggs or oatmeal gruel with which she was drenched. On Saturday, Aug. 12, the cow died, and you telephoned me as to whether I desired to hold a *post-mortem* on her, but I said I did not, as the cause of death was so apparent.

Early on the morning of Sunday, Aug. 27, you came after me, requesting me to accompany you to see the Jersey cow Little Goldie. I immediately did so, and found her paralyzed in the hind extremities, suffering considerable abdominal pain. A marked stupor was also evident, showing considerable derangement of the brain. I immediately gave an active cathartic, and recommended treatment tending to allay the spasms, which were at intervals very pronounced. I saw the cow again the same evening, when there was no change apparent further than that the pains were relieved. On Aug. 28 I again saw the cow, and at that time a profound coma had set in, the animal lying in the most listless manner possible, with glazed eyes and stertorous breathing. The physic given on the previous day had slightly operated, but the hardened condition of the mass of food within the rumen still remained unchanged. Recommended ice to base of brain and stimulants. On the 29th the coma passed off, the cow raised her head and drank some, but would not eat any. The pulse was small and quick. Another full dose of physic was again given, and the stimulants continued. On the 30th and 31st August, and on the 1st and 2d of September, no very marked change was apparent in the cow's condition, she seeming to remain comfortable, drinking a little, but refusing food of any kind. During these days a little gruel and milk was given her by bottle. A great mass of hardened food could still be detected in the rumen. On Sep. 2 a full dose of physic was again given, and on my visiting the cow the following day, Sep. 3, the stupor which had affected her the previous Monday had returned, and from this she did not recover during the same evening.

On Monday, Sep. 4, I held an autopsy on the cow. The stomach contained a large quantity of food, which, from the action of the last physic, was softened. The walls of the organ were healthy. The bowels showed patches of congestion and inflammation, apparently very recent, and seemingly caused by pressure, owing to the continuous constrained position in which the cow lay. The remaining organs were evidently healthy, showing nothing but the usual *post mortem* congestive appearances. The cause of death of these two cows is to be sought for in the food of which they partook, the purposes to which they had been put, and the environments in which they had been placed.

I need not allude at length to any of these particular causes further than to say that, in cattle fed continuously all they can eat of highly-stimulating and dry food for seven or eight months, permitted no exercise, and at the same time with their milking capabilities developed and drawn upon to their fullest extent, it is not possible to keep up the continuous tension indefinitely without something going wrong. Naturally, the apparatus most taxed is the mammary and digestive, the latter more particularly, and should rumination once suspend, after a cow's rumen is filled with food, the most serious of consequences may result. The food in such a case, instead of being remasticated and passed along into the third and fourth stomachs, ferments and decomposes, and even when the most powerful physic is resorted to several days or even weeks pass by before the first stomach is completely cleared of its sour contents. During this time there is complete loss of appetite, and the system becomes so weakened, more especially in nervous animals, that the vital powers fail before the result attempted is accomplished. This has been the course taken by the disease in the two cows alluded to, with the additional unfavorable symptom of paralysis present. But for the presence of this last symptom, I would have removed the contents by surgical operation, but I considered the paralysis as much the cause as the result of the disease.

I cannot conclude this report without making allusion to your untiring zeal in the nursing and general care of the animals in your charge. I have seen interested and patient nurses, but never before have I had to do with cases that received the same attention as that given by you to the cases reported upon.

Respectfully submitted,
JOSEPH HUGHES, V.S.

TEST NO. 3—(THIRTY DAYS, BUTTER).

From Aug. 29 to Sept. 27, inclusive. Number of cows in test, 15 Jerseys, 15 Guernseys and 15 Short-Horns. It will be seen by the rules that it is provided that this test shall be confined to such breeds as have competed in Tests Nos. 1 and 2, each of which shall furnish 25 cows for same. The latter portion of the rule was amended, by which the number of cows of each breed was fixed at 15, in place of 25. This was done at the instance of the American Guernsey Cattle Club, who represented that, unless they were allowed to reduce the number to 15, they would not be able to compete; and they based their request upon the grounds of economy, and also owing to the fact that they had met with misfortunes in the cows that had been selected for this test, in the burning of the barns of the owner, Hon. Levi P. Morton, which contained at the time three cows selected for the test. Owing to such representations and request, the rules were amended by Chief Buchanan, by which all breeds were allowed to compete with 15 cows each.

By the rules, the superintendent of each breed was allowed to substitute one or more or all the cows in this test, by giving specified notice shortly before the beginning of the test. I think it is to be regretted that, when the Guernseys were granted their request to reduce the number of cows to 15, they were not compelled to be limited to such cows as had been in Tests Nos. 1 or 2; because it is noticeable that they substituted in this test five new cows, to four of the Short-Horns and three of the Jerseys, so that one-third of their total herd was composed of fresher cows.

This test differed from any other test in that butter alone was the only product credited. No value was allowed for increase in live weight, nor did the quantity of milk play any part, as no credit was given for solids other than butter fat; but butter, pure and simple, was the object sought, from which was deducted the cost of feed and color. For the sake of keeping complete records of the cows, but for no other reason, the increase in live weight was reported, also the quantity of milk given by the cows and herds, and solids other than butter fat, but none of these things were considered in making the award.

In this test the Jerseys labored under the disadvantage of having but three substituted cows, one of which had been over five months in milk, to five substituted cows of the Guernseys and four of the Short-Horns. In the early part of the test Hugo's Countess, No. 14, met with an accident, and followed as it was by the caking of a quarter of the udder, it acted prejudicially to her health, and necessitated the cutting down of her feed, whereby the product was materially impaired. That she suffered in health is shown by the fact that in the thirty days of the test she lost 120 lbs. in weight. The second day of the test Romp's Princess, No. 15, took cold in the show-ring, and never thoroughly recovered from the effect of the same. Islip Lenox, No. 2 in the test, also contracted a cold in the early part of the test, and suffered the ill-effects of it through the balance of the test. Out of the 74 cows competing in the 90 days' test, these three cows stood 5th, 8th, and 7th respectively.

Notwithstanding all these disadvantages, the Jersey herd was again victorious in every respect, as will be seen by the tables. In comparing the relative merits of the cows in the herds, the only items to be considered are the pounds of fat as ascertained by the oil test, the quantity of butter, the value of same, the cost of feed, and the net profit.

The same precautions as formerly were taken to insure accuracy in feeding, milking and analyzing the milk, in the retention of the milk until creamed, the retention of the cream until made into butter, and the storage of the butter until scored.

The prices for feed in this test were as follows :

Old Hay	$11.50 per ton.	Cotton-Seed Meal	$26.00 per ton.
New Hay	10.00 " "	Middlings	13 00 " "
Silage	1.50 " "	Linseed Oil Meal	22.00 " "
*Carrots	8.00 " "	Grano-Gluten	14.75 " "
Corn-Hearts	13.00 " "	Cream Gluten	17.50 " "
Ground Oats	23.00 " "	Corn Meal	22.00 " "

The butter was scored by the same scale of points as in Tests Nos. 1 and 2, but a change was made in the value of same—that scoring 90 points, 40c.; 95 points, 45c.; 100 points, 50c.; and one cent per pound was added to these figures for every point scored above those named. For instance, under the old rule, butter scoring 90 points was credited at 40c. a pound. Anything between 90 and 95 points was still at 40c. a pound; from 95 to 100 points, at 45c. a pound. Under the amended rule, if the average score of the three experts was, say, 92 points, the butter was credited at 42c.; 93 points, at 43c.; 96 points, at 46c. and so on.

As in Test No. 2, the churn governed ; and the quantity of butter credited to each cow was distributed from the actual work of the churn and the analysis of the butter, so that when the quantity of butter credited to the whole herd was ascertained, on the basis of 80 per cent. fat, it was distributed ratably among the cows, according to the quantity of butter fat to their credit, as provided for in the rules. I particularly mention this because it has been conceived by many that the quantity of butter credited to each cow was that ascertained by the oil test and that the oil test governed the churn, whereas, as will be seen from the above, the reverse is the case.

BUTTER.

The quantity of butter given by the Jerseys in the 30 days was 837.211 lbs., which exceeded that of the Guernseys by 113.041 lbs., and that of the Short-Horns by 174.551 lbs. The value of the butter of the Jersey herd was $385.592, being $55.82 in excess of that of the Guernseys. and $81.91 in excess of that of the Short-Horns.

The net profit of the Jerseys, after deducting cost of feed, exceeded that of the Guernseys by $37.125 (equal to a net profit per herd per day of $1.24, or $8\frac{4}{15}$c. per head per day), and that of the Short-Horns by $75.236, or $2.51 per herd per day, or $16\frac{11}{15}$c. per head per day.

The cost of feed of the Jerseys for the 30 days exceeded that of the Guernseys by $18.477, but it produced value in butter of $37.125 over the Guernseys, or over 200 per cent. net profit, although the cost per pound of butter in feed was slightly less in the Guernseys.

COST OF BUTTER.

The cost per pound of butter in feed was : Jerseys, $13\frac{28}{100}$c.; Guernseys, $12\frac{81}{100}$c.; Short-Horns, $15\frac{77}{100}$c. Appended is a list of the cows composing the Jersey and Guernsey herds in this test, giving the dates when they last calved ; and such cows as were substituted for this test are in each herd marked with an asterisk. The slight excess cost in the Jerseys over the Guernseys of producing a pound of butter is accounted for by the fact, as will be seen by the table, that the Guernseys had a number of fresher cows than the Jerseys. These are among the substituted cows. It is well known that cows that are fresh will produce butter at a less cost per pound than cows that have been on dry feed and in milk for the length of time that were those composing the Jersey herd. It was clearly demonstrated by the 90 days' test that the Jerseys could produce butter at a cheaper rate than could Guernseys, and the respective ability of the two breeds was not changed in that short length of time, but the Guernseys had the good fortune of possessing fresher cows, and the Jerseys had not.

* But 900 lbs. were furnished, as a trial prior to being furnished with cured clover hay of the crop of 1893.

I give a table in this test also of the profits per cow per day of the various herds, and, as has been the case heretofore, the decimal parts of cents are left out:

NET PROFIT PER DAY.

Cents	82	76	66	65	64	62	61	60	59	58	57	56	53	52	51	50	48	47	46	44	43	42	41	40	39	38	32	31	Total Cows.
Jerseys	1	1	..	*1	..	1	1	..	*2	3	*1	1	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	15
Guernseys	..	..	..	..	*1	*1	..	*2	..	2	*1	..	*1	..	..	1	1	..	1	1	..	1	1	..	..	1	..	0	15
Short-Horns	..	..	*1	..	..	..	..	..	..	..	..	..	..	..	1	*1	1	1	..	1	1	2	*1	1	*1	1	1	1	15

* One substituted cow.

It shows that every Jersey made a net profit of 50 cents a day or over, and from that up to 82 cents, as against nine Guernseys at 50 cents and over and three Short-Horns, or three more than the other two breeds combined; that of the nine Guernsey cows which made 50 cents or over, five were substituted or fresher cows, and of the three Short-Horns two were substituted cows, to three substituted cows in the entire Jersey herd. The superiority of the Jersey is, however, shown most strongly in the average net profit per cow per day, which is: Jerseys, $60\frac{96}{100}$c.; Guernseys, $52\frac{66}{100}$c.; Short-Horns, $44\frac{20}{100}$c.

MILK TO POUND OF BUTTER.

The following is the quantities of milk required to make one pound of butter: Jerseys, 16.58 lbs.; Guernseys, 18.66 lbs.; Short-Horns, 23.56 lbs.

NET PROFIT OF ALL COWS (45).

The following table gives the standing and net profit of the 45 cows in the test, arranged in their order of merit:

Order of Merit.	Breed.	No. of Cow in Herd.	Net Profit.	Order of Merit.	Breed.	No. of Cow in Herd.	Net Profit.
1st	Jersey	3	$24.678	24th	Short-Horn	15	$15.478
2d	"	10	23.085	25th	Guernsey	6	15.293
3d	Short-Horn	1	20.015	26th	Jersey	4	15.290
4th	Jersey	12	19.560	27th	Short-Horn	2	15.220
5th	Guernsey	10	19.377	28th	"	4	14.599
6th	"	3	18.898	29th	Guernsey	12	14.524
7th	Jersey	1	18.869	30th	Short-Horn	13	14.288
8th	"	8	18.556	31st	Guernsey	2	14.020
9th	Guernsey	15	18.242	32d	Short-Horn	11	13.484
10th	"	14	18.214	33d	Guernsey	7	13.362
11th	Jersey	11	17.910	34th	Short-Horn	14	13.099
12th	"	15	17.771	35th	Guernsey	1	12.784
13th	"	6	17.640	36th	Short-Horn	9	12.709
14th	"	5	17.615	37th	"	7	12.649
15th	Guernsey	9	17.543	38th	Guernsey	11	12.595
16th	"	13	17.539	39th	Short-Horn	6	12.585
17th	Jersey	9	17.443	40th	"	10	12.127
18th	"	13	17.249	41st	"	3	11.971
19th	Guernsey	4	17.116	42d	Guernsey	5	11.565
20th	Jersey	14	16.947	43d	Short-Horn	5	11.524
21st	Guernsey	8	15.930	44th	"	8	9.623
22d	Jersey	2	15.791	45th	"	12	9.520
23d	"	7	15.723				

It will be noticed that, out of a possible fifteen, the Jerseys have nine cows among the first fifteen, to six of the other two breeds combined; that the highest net profit for any Jersey is $24.678 (over five

months in milk at the end of the test); the highest Guernsey, $19.377 (one month and fifteen days in milk); the highest Short-Horn, $20.015 (two months and eight days in milk); that the lowest Jersey scores $15.290, standing twenty-sixth in the test out of forty-five, having been six months and fourteen days in milk; the lowest Guernsey, $11.565, and the lowest Short-Horn, $9.520. The above table further shows that there are six Guernseys and thirteen Short-Horns lower than the lowest Jersey.

The following awards were made by the World's Columbian Exposition:

(*a*) For the individual cow of *each breed* competing which yielded the greatest net profit during the test:

Breed.	Owner.	Net Profit.
Jersey—Brown Bessie 74997	C. I. Hood, Lowell, Mass.	$24.678
Guernsey—*Purity	G. Howard Davison, Millbrook, N. Y.	19.377
Short-Horn—*Kitty Clay 4th	I. K. Innis, Greenville Centre, Pa.	20.015

* Substituted cows.

(*b*) For the individual cow in *any* breed competing which yielded the greatest net profit during the test:

Jersey—Brown Bessie 74997.

(*c*) For the five cows in *each breed* competing which yielded the greatest net profit during the test:

	Jerseys.		Guernseys.		Short-Horns.	
Name of Cow.	Owner.	Net Profit.	No. of Cow.	Net Profit.	No. of Cow.	Net Profit.
1. Brown Bessie 74997	C. I. Hood, Lowell, Mass.	$24.678	No. 1.*	$19.377	No. 1.*	$20.015
2. Merry Maiden 64949	C. I. Hood, Lowell, Mass.	23.085	" 2.	18.898	" 2.	15.478
3. *Stoke Pogis' Regina 48309	Est. of F. Billings, Woodstock, Vt.	19.560	" 3.*	18.242	" 3.*	15.220
4. Ida Marigold 32615	C. A. Sweet, Buffalo, N. Y.	18.869	" 4.	18.214	" 4.	14.599
5. Sheba Rex 47429	T. A. Havemeyer, Mahwah, N. J.	18.556	" 5.	17.543	" 5.	14.288
	Total	$104.748		$92.274		$79.600

* Substituted cows.

(*d*) For the five cows in *any breed* competing which yielded the greatest net profit during the test:

Breed.	Name of Cow.	Net Profit.	Last Calf.
1st. Jersey	Brown Bessie 74997	$24.678	April 21, 1893
2d. "	Merry Maiden 64949	23.085	April 15, 1893
3d. *Short-Horn	Kitty Clay 4th	20.015	July 19, 1893
4th. *Jersey	Stoke Pogis' Regina 48309	19.560	July 29, 1893
5th. *Guernsey	Purity	19.377	Aug. 12, 1893

* Substituted cows.

(*e*) For the breed which yielded the greatest net profit during the test: *Jerseys.*

TEST NO. 4—HEIFER TEST.

Period, 21 days, from Sept. 30 to October 20, inclusive. Number of heifers in test: Jerseys, 7; Short-Horns, 6; Guernseys, none.

The original rules provided that this test should be for a period of 30 days, and that the value of the product should be ascertained and the awards made on exactly the same basis as in Test No. 2, the 90

days' test. It was optional with any breed that had participated in Tests Nos. 1, 2 and 3 to enter this test. The Guernseys decided not to enter any heifers.

The rules were amended by Chief Buchanan on the ground of economy (the tests having cost the World's Columbian Exposition up to that time over $70,000), by which the length of the test was curtailed to 21 days. The churning in the dairy was dispensed with ; the fat was ascertained by the Babcock oil test, in the laboratory, under the immediate supervision of Prof. Farrington, and the butter was estimated therefrom, on a basis of 80 per cent. oil in the butter, and the solids other than butter fat were ascertained by analysis of the whole milk. The same values of feed ruled as in Test No. 3, and like precautions were taken as in former tests to prevent any feed being improperly given to the heifers. The same precautions as in the past were taken to insure accuracy in weighing the milk, in sampling the same, and in retaining samples of milk under seal until analyzed. As there was no butter to score, all the estimated butter was credited at the fixed price of 40 cents per pound, and the solids, other than butter fat, at the rate of $2.00 per hundred pounds.

The heifers were to be less than three years old on Sept. 1, 1893, and each breed was limited to not less than five head, nor could they enter more than ten.

None of the Jersey heifers calved at the barns in this case, and, with the exception of Campania, No. 2 in the test, none of them had been especially prepared for the same.

Appended to this report is a table giving the weights of the Jerseys for the first five and the last five days of the test, the gain in live weight, and the value of such gain at the rate of 4½ cents per pound ; also the like information for the Short-Horns. The Short-Horns made the unprecedented average gain of three pounds per head per day, equal in value to 13½ cents per day, the total value of the Short-Horn gain in weight being $2.88 per head, to $0.964 of the Jerseys ; so that the Jersey heifers had each to make, practically out of butter, nearly nine cents a day to equal the increase in live weight of the Short-Horns, and where the quantity of product, owing to the immaturity of the animals, is much less than in the case of mature cows. This was no small task to accomplish ; but, as will be seen hereafter, the Jerseys again led in every respect, except in increase in live weight.

There were seven Jerseys in this test, and but six Short-Horns, so that in making any comparison it is necessary to take the averages per head for the purpose.

MILK.

The Jerseys averaged 479.5 lbs. milk per head, to 430.1 lbs. of the Short-Horns. The daily average per head of the Jerseys was 22.83 lbs. Five of the Jerseys averaged 24.48 lbs. per head per day.

FAT IN MILK.

The quantity of fat in the milk of the Jerseys gave an average of 22.19 lbs. and that of the Short-Horns 16.31 lbs.

BUTTER.

The Jerseys gave of estimated butter 27.75 lbs. per head, and the Short-Horns 20.39 lbs. The daily average production per head of the Jerseys was 1.32 lbs., and of the Short-Horns 0.97 lbs. The Jersey, Lily Garfield, barely two years old, averaged over 1¾ lbs. per day, and one day made 1.98 lbs.

VALUES.

The value of the butter and solids not fat of the Jerseys gave an average of value per head to the Jerseys of $11.098, to $8.158 for the Short-Horns, or a daily average per head to the Jerseys of 52 cents, and to the Short-Horns of 38 cents, without taking into consideration increase in live weight. When the cost of feed is deducted it gives an average net profit to the Jerseys per head of $7.075, and to the Short-Horns of $5.023, or a daily average per head to the Jerseys of $0.337, and to the Short-Horns of $0.239. But when the value of increase in live weight at 4½ cents per pound is added, the Short-

Horns show their true breed characteristic, and cut down this profit, so that in the final summing up the average net profit per head of the Jerseys is $8.039, and of the Short Horns $7.903.

The object of this test was to show the profitable production which young cows can give, and certainly in this instance that object was attained.

The following awards were made by the World's Columbian Exposition :

(*a*) For the individual heifer of *each breed* competing which yielded the greatest net profit during the test :

Breed.	Owner.	Net Profit.
Jersey—Lily Garfield 79819	Estate of F. Billings, Woodstock, Vt.	$11.220
Short-Horn—Miss Rennick 24th	I. C. Thornton & Sons	10.970

(*b*) For the individual heifer of *any* breed competing which yielded the greatest net profit during the test :

Jersey—Lily Garfield 79819.

(*c*) For the five heifers in *each* breed competing which yielded the greatest net profit during the test:

Jerseys.	Owner.	Net Profit.
1st. Lily Garfield 79819	Est. of F. Billings. Woodstock, Vt.	$11.220
2d. Jeannette of Pittsford 73185	Aaron O. Auten, Jerseyville, Ill.	8.685
3d. Woodstock Mystery 77746	Est. of F. Billings, Woodstock, Vt.	8.653
4th. Campania 88475	Richardson Bros., Davenport, Iowa	7.901
5th. Elturia 80701	Richardson Bros., Davenport, Iowa	7.219
	Total	$43.678

Short-Horns.	Owner.	Net Profit.
1st. Miss Rennick 24th	I. C. Thornton & Sons	$10.970
2d. Fancy 15th	I. C. Thornton & Sons	9.374
3d. Aggie 2d	W. W. Waltman	8.275
4th. 4th Belle of Trowbridge	C. Lovett	7.510
5th. Blossom	C. Lovett	5.901
	Total	$42.030

(*d*) For the five heifers in *any* breed competing which yielded the greatest net profit during the test:

Breed.	Name of Cow.	Owner.	Net Profit according to Rules.	Net Profit without Increase in Live Weight.
1st. Jersey	Lily Garfield 79819	Estate of Fred'k Billings	$11.220	$10.365
2d. Short-Horn	Miss Rennick 24th	I. C. Thornton & Sons.	10.970	7.460
3d. " "	Fancy 15th.	I. C. Thornton & Sons.	9.374	6.584
4th. Jersey	Jeannette of Pittsford 73185	Aaron O. Auten.	8.685	7.785
5th. "	Woodstock Mystery 77746	Estate of F. Billings.	8.653	7.438

(*e*) For the *breed* which yielded the greatest net profit during the test—*Jerseys.*

HIGH CHARACTER AND IMPARTIALITY OF TESTS.

It will thus be seen, from a careful perusal of the facts above enumerated, and especially the figures (which are official, which are beyond peradventure, and which will be quoted for years to come as those of the greatest tests that the world has ever seen), that the Jersey has proved, beyond cavil or doubt, her superiority in all these tests—tests which were more prolonged, covered more ground, settled more points in dairying, handling of cattle, feeding, and the relative merits of the breeds, than has ever been done in the past. To myself, it is a matter of great gratification that the Jerseys have proved that the claims that have been made by those who had confidence in them were well founded, and that they were, as we have always claimed them to be, the greatest and most economical producers, both at the churn and the cheese-vat. This was a fair test, under strict rules, supervised by experts of national reputation in the dairy world, of unquestioned probity, of well-known ability and experience, such men as Prof. S. M. Babcock of the Wisconsin Experiment Station, I. P. Roberts of Cornell University, H. P. Armsby of the State College of Pennsylvania, and Prof. M. A. Scovell of Kentucky Experiment Station, chairman of the Testing Committee. The fact that these gentlemen gave an active and personal supervision to this matter is sufficient to warrant the confidence that has everywhere been inspired as to the high character and accuracy of the work that would be and was performed.

THE WORLD'S COLUMBIAN EXPOSITION PART.

But few have any idea of the magnitude of these tests. The World's Columbian Exposition expended the enormous sum of $73,096.42 net, in conducting these tests and making preparations for same. They established a store-house for all the feed to be fed the cows in the tests, as well as for those not in the tests. They had a purchasing agent for the purpose of buying such feed as was required, a set of men to cut up hay and attend to the proper distribution of this feed, and each barn was charged, merely as a check, with the feed taken out by them.

I desire to say that none of the difficulties we had to contend with in the absence of cured clover in the spring, and later green clover or fodder, can be properly laid to the door of the Exposition authorities, as Chief Buchanan and those he represented did everything in their power to overcome the obstacles and disadvantages of a test conducted in a city, and in the World's Fair grounds, distant as it was from any market that could provide green fodder. They spared no expense in their efforts to meet the demands of the case, even sending their fodder agent into different States convenient to Chicago, for the purpose of endeavoring to procure a supply of green fodder continuously. The best, and in fact the only, arrangements they could make to have green clover shipped to us were in Wisconsin. This was at a point one hundred miles distant from Chicago. To insure the arrival of the clover at the Exposition grounds in the best condition possible, special arrangements were made with the railroads. Large refrigerator cars, similar to those used for shipping dressed meat, were sent to the point of shipment; the clover was cut in the morning, loaded on the afternoon of the same day, the car attached to a passenger train and brought to the city, and specially switched into the Exposition grounds, where an engine was always standing ready to switch it to the dairy barns, where it was at once unloaded rapidly and spread upon the floor. Both open and tight cars were used in transit. Experiments were made by storing it at the dairy barns in tight box-stalls and spreading it on the floor with straw as a layer. Notwithstanding all these efforts and the expense incident to such methods, it was not a success as a feed, as it sweated in transit, notwithstanding all precautions, and when exposed to the atmosphere wilted rapidly and became black.

SILAGE.

Chief Buchanan had two large silos filled with 400 tons of silage. The spring of the year in which the corn was planted was wet and late. In consequence, when it had to be cut to avoid frost, it was too green. It had to be transported on cars a considerable distance, was delayed *en route*, and was soaked with rain.

Under these circumstances, production of a good class of silage could not be looked for, and in consequence it was of very little value to us as a feed.

BARNS.

The Exposition provided most comfortable barns, six in number, as that represented the number of breeds that they finally expected to compete in the tests. The Jersey barn was two stories high, 120 ft. in length and 50 ft. in width. The building was plastered on the outside. The first floor was ceiled, both walls and ceiling, with tongued-and-grooved planed pine. The cows stood tail to tail, with an alley 20 ft. in width between them, on platforms raised nine inches. A gutter ran the full length of the stable (with an incline to carry off liquid manure), which was coated with a hard "pitch." There were no partitions between the cows, back of the mangers. There were five box-stalls for calving cows, but they proved inadequate, and subsequently one of the other barns, which was not in use, was changed into a calving barn, where many of the cows calved ; but it was required for the laboratory and offices of the Testing Committee at a later date, so we were obliged to vacate same early in April. In the latter barn were also stables for keeping calves. The box-stalls as erected in the barn proper were too small, and we lost two calves by cows lying on them, owing to the cramped space. In the centre of the alley running the length of the barn between the cows was placed a tank, for the purpose of feeding the Buckley water-troughs with water, by which each cow was given all the water she required.

In the Jersey barn two chimneys had been built, so that we were able to keep the temperature comfortable for the cows through the winter. This was necessary, as many of the cows came from Southern States.

From the time of the beginning of the tests the World's Columbian Exposition provided the feed Up to that time each breed provided its own feed. The feed so furnished included that of any cows that were not in the tests, and also the feed for such calves as remained after the tests began.

The feed was put in boxes and placed upon the floor in front of the cows, and, when the test began, boxes were placed in front of the feed-troughs. with partitions between the cows, to prevent one from stealing from the other. Directly against the wall, in front of the cows, were placed feed-bins, to hold feed during the test, with locks and keys ; but this was believed to place too much liberty in the hands of the superintendents of the breeds, and all the feed, except such as was locked up in the ceiled room before referred to, was kept in a barn especially for that purpose, presided over by a forage agent, with employees in the pay and directly under the control of the World's Columbian Exposition.

Large, double drive-doors were placed at each end of the barns, and side-doors to get into the space in front of the cows. An office was provided upstairs, also sleeping accommodations for all the employees. These rooms were very comfortable, and were constructed in the loft, which was large and spacious, the floor of which was laid with planed pine. Chief Buchanan did everything in his power to make every person conducting these tests as comfortable as circumstances would permit. It was his earnest wish that the cows should have as fair a chance as was possible under the surrounding conditions, and no money nor pains were spared to attain that end.

VISITORS.

Visitors to barns were admitted only upon the authority of the superintendent of each barn. Admission to our barn was obtained by passes issued to every member of the A. J. C. Club, and to such other Jersey breeders as applied by letter to me or to Mr. D. H. Jenkins, the secretary of the committee, and wherever any Jersey breeder was known to be such, admittance was never refused him. The number of people applying, however, daily ran into hundreds, and often thousands ; and it must have occurred that admission was inadvertently refused to Jersey breeders who should have been admitted, owing to the guards refusing same, or to the fact that, owing to other duties, it was not always possible to investigate as to whether those seeking admission were breeders or not ; and as the majority of applicants, at times over 1,000 a

day, claimed to be Jersey breeders, it was necessary to investigate to ascertain the accuracy of such assertions.

LABORATORY AND OFFICES.

The laboratory and offices of the Testing Committee were fitted up very comfortably. There was a large room in which all the analyzing of the milk was done, as also the running of the Babcock oil tests, of which there were several, and every appliance necessary for that purpose was provided. An adjacent room, with all necessary appliances, was fitted up for the analyzing of the butter. This work was under the immediate direction of Prof. E. H. Farrington, with competent assistants, principally students from the agricultural colleges and experiment stations. Of these there were generally three or four at work.

A large and comfortable room was provided for the daily meetings of the Testing Committee, and an adjacent one for the accountants who kept the books and records, of whom there were generally four employed. The balance of the building was devoted, one room for washing up the pails and dairy utensils, and the other portions fitted up into rooms for the sleeping accommodations of the representatives of the committee who supervised the weighing of the milk at milkings, and the feeding of the cows. Janitors were provided by the Exposition, both for the barns and for the laboratory and offices.

The office work was under the immediate supervision of Prof. Scovell as chairman, who was there nearly all the time, and Prof. Armsby at such times as he was there, but, owing to sickness in his family, the latter was not present as much of the time as I know he desired to be. All four representatives of the agricultural colleges and experiment stations assisted each other in this work, especially in all-proof-reading, calculations and computations.

DAIRY.

Dr. Babcock took charge of this work nearly the whole period of the tests. In his absence Prof Roberts took his place. A head cheese-maker and two assistants were employed during the fifteen days of the cheese test, also janitors. During the 90 and 30 days' tests a head butter-maker, with two assistants, and janitors were employed. Mr. W. H. Gilbert was the superintendent of the dairy, but the work was left largely to the Testing Committee. The dairy and facilities in same were not such as tended to produce good butter. The temperature of the room was altogether too high, and no adequate means of cooling the same were provided. But it gave to the Jersey breed an opportunity of showing its characteristic in its cream, inasmuch as, under these disadvantageous circumstances, the scoring of the butter shows that its solidity was very marked. As I have before remarked, the facilities for the retention of the cream, as such, and the butter after it was made, did not do justice to any of the breeds, and especially to a delicately-flavored butter, such as that of the Jersey. I know that an effort was made to remedy the excessive glare which caused the heat by stretching gauze across the building, to prevent the rays of the sun having such direct effect, but it was not successful.

QUALIFICATION OF COWS FOR TESTS.

I stated in my former report that in my judgment cows should be of a placid disposition, and I think it is too apparent to need any argument. That the cows of the Jersey herd possessed quiet dispositions, and the characteristic of adapting themselves to their surroundings as far as possible, was, I think, apparent to every person visiting the barns during the tests.

I also stated that I preferred cows from five to nine years of age. There were cows chosen for the tests exceeding the latter age, but, as the summer wore on, under the strain to which each cow in every barn was subjected, it was more and more apparent that, had they been younger, they would have withstood their disadvantages better, and would have done better in the tests.

In my judgment it was essentially necessary that the cows should be deep milkers. I conceived that, under the disadvantageous circumstances that surrounded them here, confined as they were and practically

without green food, subjected to sudden changes of climate, to the disturbing element of constant visitors, away from their homes and changed wholly from the natural conditions that surrounded them there, no cow of any breed would show anything like the same richness in her milk, and that it was necessary, for this reason, to have a large flow of milk, which could be more readily procured under the circumstances than could richness. The results of the tests demonstrated that such preconceived ideas were correct, and I am satisfied that, had we confined ourselves to cows of abnormal richness without a considerable flow of milk, our efforts would not have met with the success they did. Reference to the figures in the tables clearly demonstrate that the cows that succeeded best, not only in the Jersey herd, but among the Short-Horns and Guernseys, were generally deep milkers.

I also stated that in my judgment it was necessary to have cows of good constitution. I appreciated many of the difficulties that we had to encounter, as I conceived them; but I was not prepared to meet the very changeable weather which we had to contend with through a great portion of the tests. It was my expectation that we would have been provided with green fodder, which could be fed to the cattle fresh every day, and that it would not have been necessary for us to carry them, many from February through to October, upon practically dry feed.

No green fodder of any sort was provided for us until the 14th of June, when we were furnished with the green cut clover brought from Wisconsin before referred to. The supply often lasted for three days, and, for the reasons previously stated, it did not have the beneficial effect that pasture, or cut clover fresh from the farm and fed to the cattle, would have had. At best, it was but a corrective. It did not affect the richness of the milk, nor the flow of same, to any appreciable extent, as grass generally does; so that I claim we practically carried our cows on dry feed from the time they calved until they left the barns for their homes, a most difficult task, and one that entailed great risk to the cows themselves, and grave responsibilities and anxieties to those in charge; and that such conditions were not followed by more disastrous results than were the case, I think is to be attributed to the character of the grain that was fed, and to the watchfulness that was ever on the alert to discover the slightest signs of danger, and by experience, skill and nursing, avert it as far as possible.

Under these circumstances it was absolutely necessary that our cows should be possessed of uncommonly good constitutions. In this connection I may remark that I think the cows from the Southern States suffered more than those from the North, and that the confinement to cows that were in the habit of roaming the pastures practically the year through, and of having access at nearly all times to at least a little green feed, as is the case with most cows in the extreme Southern States, was more prejudicial than to those from the North and East.

I have stated that it was my aim to obtain, as far as possible, cows of a capacity of 3 lbs. a day at home, under favorable conditions. But I stated, before I accepted this position, to the chairman of your committee, as also to the late Maj. Campbell Brown, that if a herd could be procured that would average 2 lbs. a day, or very close to it, to the end of the 90 days' test, I would be satisfied with the work that would be done, and that I knew no breed could surpass such production. The records will show that this was practically accomplished, although when I made that the basis of my calculation I fully expected that we would have placed at our disposal cured clover hay, and later a daily fresh supply of either green fodder corn or green cut hay; and if we had been in possession of such, there is no doubt in my mind that we would have averaged higher per cow than 2 lbs. per day.

Any cow, especially one that is very highly bred, is a creature of habit, and very sensitive, and anything that disturbs that habitude does so at the expense of production. The changing of cows that have remained in stalls for any length of time to others will decrease the flow of milk and production of butter, often for a week, and very often it will be two weeks before they will approach the yield they gave before such change was made; and it is a well-known fact that wherever decreases of that nature take place, the return s seldom up to exactly as high a mark as before. We had that experience one time

during the test, at the time the partition between the cows was erected. We had twenty-three cows on the west side of the barn, Nos. 1 to 23, and two cows on the east side, Nos. 24 and 25. When it was desired to place all our test cows on one side, we took down a box-stall to the north of where cow No. 1 stood, making two stalls in its place. Instead of placing Nos. 24 and 25 in these two stalls, we moved all the twenty-three cows up two stalls, so that our cows might come in the order of their numbers, and put Nos. 24 and 25 in the stalls formerly occupied by Nos. 22 and 23. A drop of between 35 and 40 lbs. occurred from such change, and lasted through twenty-four hours. and I am satisfied it would have taken from a week to ten days to bring them back. But when they were changed back to their old places again, it took only two days to get them back to their normal work. All persons familiar with practical dairying know what the result of a change of milkers is with the flow of milk.

Climatic influences also made great changes. Much to my surprise, I found by observation that when the temperature rose to an uncomfortable degree for the human being, in the summer, it acted very favorably to the production of milk in the cow, and to the richness of same. When we had three or four days of such continued weather, oppressively hot to the human being, it was favorable to the cows ; but if such warm weather was accompanied by great humidity, it was prejudicial to both flow of milk and percentage of butter fat. Cool, bright weather for one or two days would not decrease the flow ; but if it lasted three or four days it had a tendency to decrease both that and the percentage of butter fat.

While we endeavored to accustom our cows to visitors, and while apparently a moderate number of visitors per day did not affect them, yet I found that the days in which we had fewest visitors, the weather not being prejudicial, we had the best production, and that a large number of visitors decreased the flow of milk.

I think it is the case at home on the farm, as far as I have observed, that where there is a decrease in the flow of milk there is an increase in richness, so that the increased fat generally nearly equals the decrease in milk. But it was a noticeable feature of these tests that anything which decreased the flow of milk also decreased the butter fat, so that on the days that we had a smaller flow of milk we also had a less percentage of butter fat. The effect of visitors, noise and confusion was very noticeable immediately the live stock exhibit was placed in the barns. There was a material decrease in products, caused by the increased number of visitors, and by the fact that we had large, heavy draft-horses in the barn adjoining us, which were worried by flies and themselves disturbed, and so disturbed the cows nearly all night. I know at first they certainly disturbed me, because I was up three or four times every night, believing something was wrong in the barn. Everything was done by me that my judgment suggested to get the cows back to their flow, until I was satisfied that the whole trouble arose from the increase of visitors and the increased noise and disturbance. After the live stock returned home, the cows again improved in milk, demonstrating the accuracy of the conclusions reached.

I found the best way to keep down the flies, which swarmed in thousands, was to use sticky fly-paper, and waged an incessant warfare against the flies by the use of such paper. Different "washes" were used on the cows, but with no good results. After considerable difficulty and delay, screens were procured for the windows, and swinging screen-doors. This, however, should have been done prior to the flies becoming so prevalent, and in the early spring I made a request to Chief Buchanan for wire screens and wire screen-doors, which were promised by him to me, and in turn were promised to him by the proper authorities ; but there was so much work to be done that it was delayed until late.

YIELD PRODUCED.

I am satisfied that the yield made here was not as large by twenty-five per cent. as the same cows would have done at home on the farms, under the same supervision, were the same amount of thought, attention and anxiety to obtain results displayed, and with the cows in as good a condition for good production as they were in here. And this opinion is not confined to myself, but was the belief of the chairman and every member of the Testing Committee with whom I discussed this matter. From a careful

observation of the cows I am satisfied that of those who came from Eastern climates, and especially those from the South, many did not become acclimated during the entire period they remained here, and many not for months. Again, some of our best cows did not get into the tests owing to the fact that it was an off year, and there were others that were distinctly home-sick, and among these some cows from which I expected great results. They would not give milk, but, notwithstanding all the feed we would give them, they became thin, were dejected, and yet were in perfect health. I am satisfied, too, from past experience, that, with as careful and gradual preparation to assimilate food as the cows in these tests had, larger quantities of food could have been fed them at home on the farm, with an increased butter-production following, but could not here.

PRODUCTION AT WORLD'S FAIR AND AT HOME.

Those who have been at the barn, and who know what we had to contend with, will readily realize that I am within the mark when I repeat that the production of the majority of the cows was not within 20 to 25 per cent. of what they would have done at home. And if proof of such assertion were wanting, it is found in the following facts : I received letters from a few breeders during the progress of the 90 days' test who believed they had cows that would do far better at Chicago than those we had in the herd, basing their opinion upon what such animals were doing at home ; and they were justified in arriving at such a decision from the premises before them. Believing that such cows would be an aid to the test and to the cause, with that public spirit which has animated Jersey breeders in this matter, they offered these cows for the tests. I corresponded with these gentlemen, and, while recognizing the fact from the yields that were reported to me, details of which were carefully given, that these cows were doing better than those we had at Jackson Park, I suggested to them that it did not follow that the cows under discussion could repeat their performance here ; that the change from the home farm to Jackson Park would act prejudicially to them ; that they had to become acclimated ; that they would suffer from the ill-effects of visitors, from the absence of good and green feed, and from the other disadvantageous circumstances surrounding them ; but that I believed, if they would bring their cows, even at home, to as near the condition they would be in at Chicago as possible, they would find a material falling-off ; and I suggested to them to isolate the cows from the rest of the herd, tie them up for seven days, have the same man milk and attend to them who had heretofore performed these duties, feed them as they considered would be most beneficial to them in grain feed, and give them whatever green cut grass (this was in June and July) they thought desirable, and, after they had been so tied up for seven days, test them for the next seven days by the oil test, and keep accurate records of their flow of milk. There were six cows so treated under my suggestions, and of these but one retained the flow of milk and butter-production of the preceding few weeks. The others decreased in flow from 20 to 30 per cent., and decreased in percentage of butter at least one per cent. As I stated before, I believe the cows from the Southern States, where they were in the habit of roving the pastures practically the year through, and having some green grass to nibble, suffered most, those from the Eastern States next, and those from the West least, because they were in the habit of being tied up for months ; but we had in our herd two cows from a farm where I am told it is the custom to keep the cows tied up all the year through, and not allow them to go out to pasture, but to feed them in the barn, and these two cows maintained nearer the home production than any other two cows we had, and I think, if I am not mistaken, that one did better than she had ever done at home.

I think our flow of milk more nearly approximated the home production, but with such cows as we had, and fed as they were, we ought to have had a richer product—*i. e.*, a higher percentage of butter fat. It certainly was not the fault of the breed that we did not have it. I question if it was the fault of the feeding or care. But I, in common with others who have watched this matter very closely, am convinced that it was the change of life and surroundings which decreased the percentage of butter fat. Had these tests been conducted upon a farm within reach of Chicago, where the cattle would have had access to pasture, and where they could have had proper exercise, far better results ought to have been attained.

I found the cows did better when not let out for exercise at all. All through the winter months I had the cows exercised on the floor daily, and in the early spring, before the flies came, had them exercised out of doors. But after that it was impossible to do so, as the flies drove them nearly wild when out, and they brought swarms of flies in with them. Had we been able to continue the exercise every day, I have no doubt it would have helped them ; but I found that turning the cows out occasionally, as we did, was followed by a decrease in the flow of milk and percentage of butter fat, on the general principle that it was disturbing the habitude of the cows.

The wisdom of bringing all the cows here to calve has been amply justified. I have always believed that the ability for milking between calvings is fixed in the first thirty to forty-five days after each such event, and that to produce a good flow of milk the cows must be especially fed in that period to produce that result, beginning with such food in small quantities, fed moist or as a "slop," and gradually increased. Too great anxiety leading to over-crowding in the early part of lactation will be most prejudicial to the cow until her next calving, and my preconceived ideas on this subject were borne out by my experience in these tests. Had the majority of the cows not been brought here before calving, this habit could not have been fixed for this test, except it were done at home ; and in bringing them here it would probably have caused a very large decrease in flow, which, with very rare exceptions, could not have been regained. Of all the cows which went through Tests Nos. 1 and 2, but one had calved at home, Gay Orphan, and I doubt not, from careful records furnished of her previous work, that she would have done much better had she calved here. In Test No. 3, of the ten cows that were especially brought here for that purpose, and that had calved at home, but three went into the test, viz.: Stoke Pogis' Regina (which did extremely well, and which I regret we did not have for the 90 days' test), Katherine of Pittsford and Cupid's Jersey Maid.

PRICE OF BUTTER.

A good deal has been said upon the subject of the price of butter, and that it was too high. I believe that the price of butter as given in the schedules was too low, regard being had to the quality of the butter. But whether too high or too low, it was the price fixed by Chief Buchanan, based upon the wholesale price of a fine article of butter in the markets of New York, Boston and Chicago, and assented to by all the breeds prior to the tests beginning. The price of feed was regulated upon the same basis. I have noticed that those who claimed that the price of butter was too high, and based their assertions upon the market price in the West, have carefully abstained from asserting that the price of feed as charged was too high. Yet a revision of the price of feed, based upon the Western prices for fodder, would make a considerable reduction in the cost of feed; and it is manifestly unfair to claim that the price of the butter should be scaled down to a Western price, while the price of feed should be maintained to a basis equal to an average between the West and East. This test was for the purpose of demonstrating not only the capacity of cows and breeds, but also as an educator in the production of a high class of butter ; and any person keeping his cows and his stable in absolutely as clean and sweet a condition as was the case here, producing in accordance with the character of the feed fed here a milk absolutely as clean and carefully aerated, and butter made by A1 butter-makers, can and will always find a market the whole year through for the product of as many cows as were in this test, at a higher market price than was allowed for this butter. There is too much indifferent butter on the market, and an A1 article, produced with the same cleanliness, and made with the same skill that was demonstrated here, will always command a price in excess of that at which the butter was credited to the various breeds.

I would, however, beg that those who judge the character of the butter in these tests by the score as made by the experts, comparing it with the scores as given to the butter on exhibition, will not be deceived as to the character of the former, or believe that it was inferior in any way to the exhibited butter, because it was not. It is a question of the application of the score-card, and the scoring of such of the prize butter as was sold on the Elgin market demonstrates the accuracy of my assertions.

YIELD OF MILK.

The milking of the Jersey cows in the herd as a whole was most satisfactory, considering the conditions. The statistics upholding my assertion are to be found in the tables in another part of this report.

YIELD OF BUTTER.

Notwithstanding all the disadvantageous circumstances for the production of a large quantity of butter, there were individual yields at various times that indicate the capacity of the Jerseys under favorable conditions. Some of the statistics bearing this out are in the accompanying tables.

FEED.

The composition of feed in these tests had to be regulated to a certain extent with reference to the cost of the component parts of same. Had the price of oats permitted it, I would have preferred to have fed more largely of them than I did. While the price of corn-hearts, as compared with corn meal, favored a cheaper production, it was not this consideration alone that induced me to feed them. It was the fact that we had a long test before us, that we had no prospect of being able to procure a supply of green feed, and for these reasons I preferred corn-hearts to corn meal. In a shorter test, where yield alone is to be considered, a larger amount of butter can, in my judgment, be produced on corn meal than on corn-hearts. We were not able to maintain as high feeding in middlings towards the end of the test as in the beginning, as the gluten in the middlings tended towards impaction, one of the greatest difficulties we had to contend with. I was unable to discover any special merit in cream gluten or grano-gluten.

When the cows were stall fed, as was the case in all these tests, I found they did best when the cured clover or timothy was cut up into lengths of about three-quarters of an inch. I also found that the cows digested the grain feed better when it had been dampened with hot water and allowed to stand, as the food thus heated has been partially prepared for digestion, and the cow has been saved the labor to that extent. "Steaming," had it been possible, would have been preferable.

When any material change in feed was made, no effect was produced in the first twenty-four hours, but in the following twenty-four hours there was a falling-off in product; on the third or fourth day, according to the extent of the change made, the beneficial effect, if any were to follow, was shown. It was clearly demonstrated that radical changes in feed should be seldom made, and that any increase that may be desired must be done very gradually, and in small quantities.

I am more than ever convinced that, with patience and skill, cows can be educated to assimilate profitably a large quantity of grain feed, and that, if the composition of same is judicious, no ill effect will follow. This was so marked in the 90 days' test that it was possible to calculate the increase in product that might be reasonably expected, and was almost always produced, by a given increase in feed.

That continuous and heavy feeding can be indulged in without injury, if coupled with discretion in administering it, is shown by the fact that not a single cow that went through all three tests had her udder in any way injured (except Hugo's Countess, and that was an accident, in no way traceable to feed), and that every owner of these cows from whom I have heard reports them as doing extremely well, and as being sound.

CHARACTER OF THE HERDS.

A good deal has been said of the high character of the Jersey herd competing, and that it would be an impossibility to duplicate such a herd. It cannot be denied that in individual merit, in appearance, in udder, and in all that goes to make up a perfect type of dairy cow the cows at Jackson Park were of a very high order. But there are many equally as good, if not better, cows in the country, that we expected would have been available for this test, but which were not, for the following reason: they were bred by their owners to calve in the latter part of March or early in April, and many of them had been held for

that purpose for some time. As is often the case, they failed to hold, and consequently were not available for our purposes.

Again, out of some 250 cows that I was especially requested to examine, over twenty had died of milk fever between the time the members of the committee had seen them and my visit to the farms where they had been. I am not in a position to judge positively whether the Short-Horn Association and the Guernsey Cattle Club had as good specimens as it was possible to obtain under the circumstances, although I think I am in as good a position to form a conclusion on those subjects as they are to form their conclusions as to whether it would be possible for us to produce a better herd. I do not believe that all the good Jersey cows of the country were in the Jersey herd. In fact, I am satisfied that, under certain conditions, a better herd could be produced. I believe that the Short-Horns had as fair samples of their breed as it was possible for them to obtain. I do know that the superintendent of that breed informed me early in March, 1893, that he had more cows selected for the tests than he desired, and that he was then undergoing the process of weeding out. I believe that the Guernseys had as fair representation of their breed as it was possible to obtain, and I am convinced the superior performance of the Jersey, the superior individuality of the cows in point of dairy excellence, in conformation, in udder, and, in general, all that goes to make up a great dairy cow, were not alone owing to the individual excellence of these cows, but to the superiority of the breed. I believe all the breeds had fair representative animals, and that, were this test to be done over again, the results could not be relatively changed. The truth is, a superior breed to the Jersey, in all that goes to make a perfect dairy cow, in conformation, and in excellence of work at the pail, churn and cheese-vat, does not exist; and before the Jersey cow can be deposed from the proud position she had heretofore attained, and which this test does nothing more than confirm in the most unmistakable manner, a new breed of dairy cows must be created. But, unless I mistake the character, the intelligence and the enterprise of Jersey breeders, the type of the Jersey cow as she is to-day will have advanced to a still higher pinnacle before another breed to equal the Jersey cow of to-day is produced.

The dairying public, the members of the American Jersey Cattle Club, and Jersey breeders generally, are under many obligations to the agricultural colleges and experiment stations for the interest they took in this work, and for the appointment of such skilled, fair and impartial gentlemen as were chosen to represent them in these tests. They all devoted themselves to the work with the single aim of conducting the tests in such a manner as would best carry out the rules, and never displayed the slightest prejudice whatever in favor of either one breed or the other. They were always found at their posts of duty, and it is to their efforts that so perfect a system of blanks and records, and the carrying out of same in detail, were due. They have the satisfaction of knowing that, through their aid and assistance, one of the most perfect, most prolonged, most severe and most impartial tests was made that has ever been conducted in the world. Personally I feel under obligations to them for the encouragement they always held out, and for the universal courtesy and kindness they ever extended to me.

With the broad minds that have characterized the World's Columbian Exposition authorities in all matters pertaining to this great exposition, they approached this matter in the broadest and most liberal way, never hesitating to spend money where objects were to be attained, and never sparing themselves any labor or trouble where the end seemed to justify the means. To them all dairymen, in this country and in others, are indebted for making such a test possible.

I desire to return my sincere thanks to the President, to the Executive Committee, to the chairman and your committee, to members of the Club, and to Jersey breeders throughout the length and breadth of this country, for the universal courtesy ever extended to me, and for the aid they were always ready to proffer to me in this matter. We were all working for one common cause, the retention of the Jersey cow on the high pinnacle she had been placed. The members of the Club and Jersey breeders have done nobly in the matter, and if, through any effort of mine, as faulty as it has been, I have helped but slightly to attain results that are gratifying and satisfactory to you, I am amply repaid.

COMPOSITION OF JERSEY HERD IN TEST NO. 1—CHEESE TEST, 15 DAYS, MAY 12 TO MAY 26 (INCLUSIVE), 1893.

Cheese, Whey and Increase in Live Weight formed Basis of Net Profit.

No. of Cow.	Name and Herd Register No. of Cow.	Breeder.	Owner.	Date Dropped.	Date of Last Calf.	Where Calf was Dropped.
1	Sheba Rex 47429	O. A. Rockwell, Bloomfield, Conn	T. A. Havemeyer, Mahwah, N. J	Nov. 25, 1885	Feb. 22, 1893	World's Fair Grounds
2	Natasqua 65598	Cyrus Coe, Middlefield, Conn	T. A. Havemeyer, Mahwah, N. J	Apr. 14, 1888	Mar. 1, 1893	"
3	Exile's Lulu 49984	P. J. Cogswell, Rochester, N. Y	C. I. Hudson, New York, N. Y	Nov. 18, 1886	Apr. 15, 1893	"
4	Albert's Gem 34005	Moulton Bros., West Randolph, Vt	F. A. Schermerhorn, Lenox, Mass	Dec. 12, 1884	Apr. 11, 1893	"
5	Tristeka 28332	C. S. Taylor, Burlington, N. J	C. S. Taylor, Burlington, N. J	Mar. 6, 1884	Mar. 29, 1893	"
6	Little Goldie 38671	W. E. Matthews, Huntsville, Ala	C. I. Hood, Lowell, Mass	Nov. 6, 1884	Apr. 10, 1893	"
7	Alteration 56436	S. H. Moore, Huntsville, Ala	W. E. Matthews, Huntsville, Ala	Sep. 25, 1887	Mar. 30, 1893	"
8	Justa Pogis 64863	R. Douglas, Lexington, Ky	Ky. Agric. Exp. Station, Lexington, Ky.	Sep. 21, 1888	Apr. 1, 1893	"
9	Gay Orphan 25985	P. Le Fevre, Trinity, I. of J	Ky. Agric. Exp. Station, Lexington, Ky.	Feb., 1882	Jan. 1, 1893	Lexington, Ky.
10	Sayda 3d 17317	E. Morse, Thomaston, Conn	Edgar Brewer, Hockanum, Conn	Feb. 11, 1882	Mar. 13, 1893	World's Fair Grounds.
11	Pearl of Riverside 55659	C. Huntington, Higganum, Conn	H. A. Huntington, Nashville, Tenn	Feb. 18, 1889	Mar. 23, 1893	"
12	Lorita 33750	Richardson Bros., Davenport, Iowa	C. A. Sweet, Buffalo, N. Y	Dec. 15, 1883	Feb. 28, 1893	"
13	Flora Temple 3d 40086	S. D. Newell, Bristol, Conn	Frederic Bronson, Southport, Conn	May 12, 1886	Apr. 1, 1893	"
14	Brown Bessie 74997	Richardson Bros., Davenport, Iowa	H. C. Taylor, Orfordville, Wis	Mar. 27, 1885	Apr. 21, 1893	"
15	Lily Martin 49954	M. C. Campbell, Spring Hill, Tenn	M. C. Campbell, Spring Hill, Tenn	May 4, 1887	Apr. 7, 1893	"
16	Annice Magnet 60256	John Boyd, Elmhurst, Ill	John Boyd, Elmhurst, Ill	Mar. 14, 1889	Mar. 14, 1893	"
17	Hugo's Countess 68394	M. G. Jacobs, Independence, Mo	D. L. Heinsheimer, Glenwood, Iowa	Nov. 18, 1887	Mar. 7, 1893	"
18	Ida Marigold 32615	Miller & Sibley, Franklin, Pa	C. A. Sweet, Buffalo, N. Y	June 2, 1885	Apr. 29, 1893	"
19	Daisy Hinman 61537	Miller & Sibley, Franklin, Pa	Ayer & McKinney, Philadelphia, Pa	Dec. 18, 1885	Jan. 4, 1893	World's Fair (premature)
20	Merry Maiden 64949	Richardson Bros., Davenport, Iowa	O. & C. T. Graves, Maitland, Mo	Sep. 26, 1888	Apr. 15, 1893	World's Fair Grounds.
21	Pretty Marchioness 62569	T. S. Cooper, Coopersburgh, Pa	W. W. Law, Whitson, N. Y	Sep. 9, 1885	Mar. 7, 1893	"
22	Signal Queen 30869	G. M. Jewett, Zanesville, Ohio	Frank Eno, Pine Plains, N. Y	Oct. 17, 1883	Apr. 4, 1893	"
23	Grace Pansy 2d 18764	L. J. Hill, Atlanta, Ga	Geo. V. Green, Hopkinsville, Ky	Jan. 11, 1883	Mar. 5, 1893	"
24	Princess Honoria 62548	F. Billings, Woodstock, Vt	Est. of Fred'k Billings, Woodstock, Vt.	Nov. 18, 1880	Apr. 26, 1893	"
25	Baroness Argyle 40498	E. S. Henry, Rockville, Conn	E. S. Henry, Rockville, Conn	Sep. 22, 1886	Apr. 21, 1893	"

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 1, CHEESE TEST.

JERSEYS.		FEED WEIGHED OUT FOR 15 DAYS.											LIVE WEIGHT.					VALUES OF LIVE WEIGHT.		
No. of Cow.	Name and Herd Register No. of Cow.	Hay.	Silage.	Oil Meal.	Corn Meal.	Bran.	Oats.	Cotton-Seed Meal.	Corn-Hearts.	Mids.	Grano-Gluten.	Value Eaten.	Average Weight First 5 Days of Test.	Average Weight Last 5 Days of Test.	Gain.	Loss.	Net Gain.	Gain.	Loss.	Net Gain.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.		lbs.	lbs.	lbs.	lbs.	lbs.			
1	Sheba Rex 47429	135.8	130.0	15 72	25.90	93.50	19.25	45.98	101.36	70.42	....	$4.04	926	928	2	....	....	$0.09	....	....
2	Natasqua 65598	135.8	126.0	12 13	18.87	72.97	15.35	37 20	79.36	54.22	....	3.39	816	808	....	8	....	....	$0.36	....
3	Exile's Lulu 49984	135.8	128 3	13.50	22 50	81.51	16.05	40.40	86.91	61.60	....	3.65	880	894	14	....	....	.63	....	....
4	Albert's Gem 34006	135.8	125.2	14 81	23.31	87 77	18.28	44 20	96.16	66.55	....	3.86	851	872	21	....	....	.95	....	....
5	Tristeka 28332	135.8	150.3	13 58	22.87	81.60	16.40	40.57	87 30	61.60	....	3.70	901	896	....	5	....	....	.23	....
6	Little Goldie 38671	135 8	154 4	14.42	21.50	85.69	18.03	43 02	95.10	64 23	....	3.86	976	989	13	....	....	.59	....	....
7	Alteration 56436	135 8	153.0	13.83	22 00	82.38	17.25	41.27	89.62	61 52	....	3.73	791	800	9	....	....	.41	....	....
8	Justa Pogis 64863	135 8	156.9	14 79	24.33	88.02	18.04	44.12	95.10	66.52	....	3.92	834	864	30	....	....	1.35	....	....
9	Gay Orphan 25985	135.8	159 3	14.92	24 58	88.74	18.08	44.61	95 91	67.27	....	3.96	914	930	16	....	....	.72	....	....
10	Sayda 3d 17317	135.8	162.1	15.87	25.50	94.18	19.31	47.39	102.65	71.36	....	4.12	965	965	....	....	....	....	....	....
11	Pearl of Riverside 55659	135.8	162 2	15 03	24 92	89.48	18.16	44.83	96.38	67.80	....	3.97	982	986	4	....	....	.18	....	....
12	Lorita 33750	135.8	161 2	14 83	25.15	88.52	17.85	44.30	94.70	67.00	....	3 96	988	997	9	....	....	.41	....	....
13	Flora Temple 3d 40086	135.8	155.8	14 69	23.68	87.53	17.76	43 89	95 06	66 38	....	3.90	964	982	18	....	....	.81	....	....
14	Brown Bessie 74997	135.8	154 4	16 10	25.56	95.16	19.76	48.15	104.52	71.99	....	4.18	966	967	1	....	....	.05	....	....
15	Lily Martin 49954	135.8	162.0	15 07	24 43	89 70	18.25	44.99	97.23	67.80	....	3.99	887	936	49	....	....	2.20	....	....
16	Annice Magnet 60256	135.8	166.6	15.34	25.07	91 28	18.58	45.83	98.88	69.18	....	4.07	859	856	....	3	....	....	.14	....
17	Hugo's Countess 68394	135 8	169.9	15 80	25 86	93 87	19 15	47.18	101.73	71.13	....	4.14	982	998	16	....	....	.72	....	....
18	Ida Marigold 32615	135 8	170 4	16.21	26 00	95.88	19.35	48.46	104.88	73.19	....	4.23	1078	1106	28	....	....	1.26	....	....
19	Daisy Hinman 61537	135 8	157.0	14.41	21.84	85 54	17 83	42.99	94 55	65.60	....	3.85	892	899	7	....	....	.31	....	....
20	Merry Maiden 64949	135.8	161.1	15 48	23 80	91.21	19.18	46.25	101.31	69.08	....	4.05	906	924	18	....	....	.81	....	....
21	Pretty Marchioness 62569	135.8	154.0	13.91	22.93	83.28	16 87	41.64	83 46	62.81	....	3.75	849	863	14	....	..	.63	....	....
22	Signal Queen 30869	135.8	165 1	15.84	27.10	94.19	18.64	47.24	100 66	71.81	....	4.14	980	1023	43	....	....	1.94	....	....
23	Grace Pansy 2d 18764	135 8	160 0	14 35	24.23	85.47	17 43	42.80	91 62	64 59	....	3.86	1041	1065	24	....	....	1.08	....	....
24	Princess Honoria 62548	135 8	130.8	13.32	21.46	80 06	16.16	39.76	86 28	59.99	....	3.60	845	840	....	5	....	....	.23	....
25	Baroness Argyle 40498	135.8	164.1	16.22	26.41	96.34	19.34	48.47	104 67	73.07	....	4.22	914	926	12	....	....	.54	....	....
	Totals	3395.0	3840.1	370 18	600.0	2203.87	450.35	1105 53	2391.4	1666.71	...	....	22987	23314	348	21	327	....	....	....
	Total values	$19.52	$7.68	$4 07	$6.60	$13.76	$5.17	$14.37	$13.14	$10.83	....	$98.14	....	....	....	....	....	$15.68	$0 96	$14.72
GUERNSEY HERD.	Totals	5000 0	1765.0	519.0	994 7	1533.0	409.75	385.75	449.5	.....	677.0	.....	22954	23434	....	....	480	....	....	....
	Total values	$28.75	$3.53	$5.71	$10.94	$9.58	$4.71	$5.01	$3.03	.....	$4.99	$76.25	.....	.....	....	....	....	$32.37	$0.77	$21.60
SHORT-HORN HERD.	Totals	4784.3	5977.8	370.95	997.1	1193.8	1644.8	681.5	519.0	948 45	.....	.....	28319	29028	....	....	709	....	....	....
	Total values	$27.51	$11.96	$4.08	$10.97	$7.46	$18.91	$8 86	$3.45	$6.16	.....	$99.36	.....	.....	....	....	....	$32.33	$0.42	$31.91

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 1, CHEESE TEST.

No. of Cow.	Jerseys. Name and Herd Register No. of Cow.	Milk.	Fat.	Estimated Butter 80% Oil.	Weight of Solids.	Equivalent to Cheese.	Whey.	Value of Products. Cheese.	Whey.	Live Weight	Total.	Net Profit less Cost of Food.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.					
1	Sheba Rex 47429	593.4	28.01	35.01	84.67	65.70	516.9	$8.78	$0.41	$0.09	$9.28	$5.24
2	Natasqua 65598	429.2	22.43	28.04	64.85	50.33	373.4	6.74	.30	—.36	6.68	3.29
3	Exile's Lulu 49984	632.0	24.59	30.74	83.71	64.95	550.4	8.68	.44	.63	9.75	6.10
4	Albert's Gem 34006	506.3	24.21	30.27	73 71	57.19	440.9	7.64	.35	.95	8.94	5.08
5	Tristeka 28332	454.3	20.67	25.84	65.04	50.26	395.5	6.72	.32	—.23	6.81	3.11
6	Little Goldie 38671	563.1	25.30	31.63	79.58	61.74	490.3	8.25	.39	.59	9.23	5.37
7	Alteration 56436	588.2	27.85	34.81	84.37	65.47	512.3	8.75	.41	.41	9.57	5.84
8	Justa Pogis 64863	448.2	21.21	26.51	65.96	51.17	390.2	6.84	.31	1.35	8.50	4.58
9	Gay Orphan 25985	422.3	22.77	28.47	63.45	49.21	367.6	6.57	.29	.72	7.58	3.62
10	Sayda 3d 17317	524.4	23.21	29.01	73.25	56.82	456.7	7.59	.37	.09	7.96	3 84
11	Pearl of Riverside 55659	509.3	24.18	30.23	74.27	57.62	443.5	7.70	.35	.18	8.23	4.26
12	Lorita 38750	444.7	21.43	26.79	63.53	49.31	387.5	6.59	.31	.41	7 31	3 35
13	Flora Temple 2d 40086	526.9	22.56	28.20	71.32	55.33	458.9	7.39	.37	.81	8 57	4 67
14	Brown Bessie 74997	639.1	28.04	35.05	88.24	68.47	556.6	9.14	.45	.05	9 64	5.46
15	Lily Martin 49954	573.4	21.65	27.06	74.56	57.86	499.4	7.73	.40	2.20	10.33	6 34
16	Annice Magnet 60256	492.8	23.24	29.05	70.18	54.45	429.1	7.27	.34	—.14	7.47	3 90
17	Hugo's Countess 68394	628.4	26.21	32.77	86 25	66.91	547.3	8.94	.44	.72	10.10	5.96
18	Ida Marigold 32615	673 6	28.07	35 09	91.40	70.92	586.6	9.47	.47	1.26	11.20	6.97
19	Daisy Hinman 61537	443.2	21.56	26.95	63.94	49.61	386.8	6.64	.31	.31	7.26	3.41
20	Merry Maiden 64949	624.6	30.73	38.42	90.32	70.07	543.8	9.36	.44	.81	10 61	6.56
21	Pretty Marchioness 62569	422.6	18.25	22.81	59.00	45 77	376.6	6.12	.30	63	7.05	3.90
22	Signal Queen 30869	581.0	24 03	30.04	78.56	60.97	505.9	8 14	40	1.94	10.48	6.24
23	Grace Pansy 2d 18764	419.3	20.64	25.80	60.58	46 98	365.2	6.28	.29	1 03	7.65	3 79
24	Princess Honoria 62548	488.2	22.78	28.48	70 58	54.75	425.1	7.31	.34	—.23	7 42	3.82
25	Baroness Argyle 40498	656.9	28.39	35.49	90.09	69.90	571.9	9.34	.46	.54	10 34	6 42
	Totals	13296.4	602.01	752.56	1871.41	1451.76	11578.5					
	Total values							$193.98	$9.26	$14.73	$217.96	$119.82
	Guernsey Herd. Totals	10938.6	488.42	610.53	1503 80	1130 63	9666.7					
	Guernsey Herd. Total values							$135.32	$7.73	$21.69	$164.55	$88.30
	Short-Horn Herd. Totals	12186.9	436.60	545.75	1544.28	1077.60	10838.9					
	Short-Horn Herd. Total values							140.14	$8.67	$31.91	$180.72	$81.36

RECORDS OF ALL COWS COMPETING IN TEST NO. 1 (CHEESE), ARRANGED IN ORDER OF MERIT, SHOWING NET PROFIT OF EACH COW.

Order of Merit.	Name.	Breed.	Owner.	Amount Products.				Value Products			Summary.		
				Milk.	Cheese.	Whey.	Live Weight Gain or Loss (—).	Cheese.	Whey.	Live Weight Value. Gain or Loss (—).	Total Value of Products	Cost of Food.	Net Profit.
				lbs.	lbs.	lbs.	lbs.						
1st.	Ida Marigold 32615	Jersey	C. A. Sweet	673.6	70 92	586.6	28	$9.47	$0.47	$1.36	$11.20	$4.23	$6.97
2d.	Merry Maiden 64949	Jersey	O. & C. T. Graves	624.6	70.07	543.8	18	9.36	.44	.81	10.61	4.05	6.56
3d.	Lily Martin 49954	Jersey	M. C. Campbell	573.4	57.86	499.4	49	7.73	.40	2.20	10.33	3.99	6.34
4th.	Signal Queen 30869	Jersey	Frank Eno	581.	60.97	505.9	43	8.14	.40	1.94	10.48	4.14	6.34
5th.	Nora	Short-Horn	D. Sheehan & Sons	663.1	60.56	590.	56	7.88	.47	2.52	10.87	4.60	6 27
6th.	Baroness Argyle 40498	Jersey	E. S. Henry	656.9	69.90	571.9	12	9.34	.46	.54	10.34	4.22	6.12
7th.	Exile's Lulu 49984	Jersey	C. I. Hudson	632.	64.95	550.4	14	8.68	.44	.63	9.75	3.65	6.10
8th.	Hugo's Countess 68394.	Jersey	D. L. Heinsheimer	628.4	66.91	547.3	16	8.94	.44	.72	10.10	4.14	5.96
9th.	Alteration 56436	Jersey	W. E. Matthews	588.2	65.47	512.3	9	8.75	.41	.41	9.57	3.73	5.84
10th.	Betsey 7th	Short-Horn	Flora V. Spencer	483.	42.94	429.6	66	5.58	.34	2.97	8.89	3.26	5.63
11th.	Brown Bessie 74997	Jersey	H. C. Taylor	639.1	68.47	556.6	1	9.14	.45	.05	9.64	4.18	5.46
12th.	Little Goldie 38671	Jersey	C. I. Hood	563.1	61.74	490.3	13	8.25	.39	.59	9.23	3.86	5.37
13th.	Genevieve	Short-Horn	W. W. Waltmire	685.2	59.13	609.4	34	7.69	.49	1.53	9.71	4.43	5.28
14th.	Sweet Ada	Guernsey	John M. Eddy	535.	54.05	472.7	37	6.47	.38	1.67	8.52	3.25	5.27
15th.	Sheba Rex 47429	Jersey	T. A. Havemeyer	593.4	65.70	516.9	2	8.78	.41	.09	9.28	4.04	5.24
16th.	Albert's Gem 34006	Jersey	F. A. Schermerhorn	506.3	57.19	440.9	21	7.64	.35	.95	8.94	3.86	5.08
17th.	Amanda	Guernsey	Jas. Logan Fisher	482.2	52.56	426.2	21	6.29	.34	.95	7.58	2.52	5.06
18th.	Materna	Guernsey	N. K. Fairbank	597.2	62.01	527.7	7	7.42	.42	.31	8.15	3.33	4.82
19th.	Select 8th	Guernsey	Francis Shaw	545.6	56.35	482.2	20	6.74	.39	.90	8.03	3.24	4.79
20th.	Flora Temple 3d 40086	Jersey	Frederic Bronson	526.9	55.33	458.9	18	7.39	.37	.81	8.57	3.90	4.67
21st.	Rosette 5th	Guernsey	Levi P. Morton	583.8	56.54	515.	14	6.75	.41	.63	7.79	3.13	4.66
22d.	Jeweler's Jessie	Guernsey	Francis Shaw	455.4	45.68	402.4	42	5.46	.32	1.89	7.67	3.08	4.59
23d.	Justa Pogis 64863	Jersey	Ky. Agr. Exp. Station	448.2	51.17	390.3	30	6.84	.31	1.35	8.50	3.92	4 58
24th.	Kitty Clay 7th	Short-Horn	Flora V. Spencer	437.8	37.79	389.8	57	4.91	.31	2.57	7.79	3.29	4 52
25th.	Ethics of Cornwall	Guernsey	G. Howard Davison	494.	50.66	436.6	21	6.06	.35	.94	7.35	3.01	4.34
26th.	Pearl of Riverside 55659.	Jersey	H. A. Huntington	509.3	57.62	443.5	4	7.70	.35	.18	8.23	3.97	4.26
27th.	Bashful 2d	Short-Horn	William Miller	658.	58.32	585.2	8	7.59	.47	.36	8.42	4.35	4.07
28th.	Fancy 11th	Short-Horn	J. S. Thornton & Son	429.1	41.61	381.6	60	5.41	.31	2.70	8.42	4.37	4 05
29th.	Lottie C. 2d	Guernsey	Joseph Evans	461.2	46.28	407.6	28	5.53	.33	1.26	7.12	3.08	4.04
30th.	Marchioness 6th	Short-Horn	T. Ballantyne	540.5	48.64	489.7	49	6.32	.39	2.20	8.91	4.98	3.93
31st.	Sayda 3d 17317	Jersey	E. Brewer	524.4	56.82	456.7	0	7.59	.37	0	7.96	4.12	3.84
32d.	Princess Honoria 62548	Jersey	Fred'k Billings Estate	488 2	54.75	425.1	—5	7.31	.34	—.23	7.42	3.60	3.82
33d.	Grace Pansy 2d 18764	Jersey	George V. Green	419.3	46.98	365.2	24	6.28	.29	1.08	7.65	3.86	3.79
34th.	Bella of the Touillets	Guernsey	Francis Shaw	407.6	40.88	360.3	35	4.89	.29	1.58	6.76	3.10	3.66
35th.	Gay Orphan 25985	Jersey	Ky. Agr. Exp. Station	422.3	49.21	367.6	16	6.57	.29	.72	7.58	3.96	3.62
36th.	Butterfly 3d	Short-Horn	Emory Cobb	499.8	41.78	444.6	57	5.43	.36	2.57	8.36	4.76	3.60
37th.	Emma Abbott 3d	Short-Horn	I. U. Wetmore	522.1	44.77	463.4	19	5.82	.37	.86	7.05	3.47	3.58
38th.	Mernie	Guernsey	George C. Hill & Son.	429.	47.57	379.	17	5.69	.30	.76	6.75	3.19	3.56
39th.	Jane Ash	Guernsey	Walter Cutting	360.7	39.40	318.8	38	4.71	.25	1.71	6.67	3.13	3.54
40th.	Honor	Guernsey	Edward Norton	418.3	41.21	369.6	25	4.93	.30	1.13	6.36	2.94	3.42
41st.	Daisy Hinman 61537	Jersey	Ayer & McKinney	444.2	49.61	386.8	7	6.64	.31	.31	7.26	3.85	3.41
42d.	Annice Magnet 60256	Jersey	John Boyd	492.8	54.45	429.1	—3	7.27	.34	—.14	7.47	4.07	3.40
43d.	Mina 3d	Guernsey	Levi P. Morton	398.2	39.96	351.9	31	4.78	.28	1.40	6.46	3.08	3.38
44th.	Lorita 33750	Jersey	C. A. Sweet	444.7	49.31	387.5	9	6.59	.31	.41	7.31	3.96	3.35
45th.	Pretty Marchioness 62569	Jersey	Walter W. Law	432.6	45.77	376.6	14	6.12	.30	.63	7.05	3.75	3.30
46th.	Natasqua 65598	Jersey	T. A. Havemeyer	429.2	50.33	373.4	—8	6.74	.30	—.36	6.68	3.39	3.29
47th.	Daisy Flower	Guernsey	S. L. Hoxie	408.1	42.43	360.6	17	5.07	.29	.76	6.12	2.91	3.21
48th.	Panacea	Guernsey	J. R. Scott	373.2	39.86	329.8	29	4.71	.26	1.30	6.27	3.08	3.19
49th.	Iza	Short-Horn	A. Morse	446.3	39.82	396.9	32	5.18	.32	1.44	6.94	3.74	3.17
50th.	Prudie 3d	Guernsey	Clover Ridge Farm	391.2	38.87	345.7	23	4.65	.28	1.04	5.97	2.82	3.15
51st.	Countess Cora	Guernsey	Francis Shaw	406.3	42.38	359.1	16	5.07	.29	.73	6.03	2.94	3.15
52d.	Waterloo Daisy	Short-Horn	F. Martindale	714.4	64.05	635.4	—21	8.33	.51	—.94	7.90	4.78	3.12
53d.	Tristeka 28332	Jersey	C. S. Taylor	454.3	50.26	395.5	—5	6.72	.32	—.23	6.81	3.70	3.11
54th.	Orange Girl	Short-Horn	E. G. Meriwether	433.4	38.24	385.5	30	4.97	.31	1.35	6.63	3.60	3 03
55th.	Martha Scott	Guernsey	Alexander Scott	372.5	37.88	329.3	27	4.53	.26	1.22	6.01	3.00	3.01
56th.	Ovation	Guernsey	A. J. Cassatt	416.2	42.11	367.7	17	5.04	.29	.76	6.09	3.08	3 01
57th.	Fillpail 9th	Short-Horn	Flora V. Spencer	367.7	35.65	327.	36	4.64	.26	1.62	6.52	3.51	3.01
58th.	Azalea	Short-Horn	A. Morse	495.	44.54	440.3	6	5.79	.35	.27	6.41	3.43	2.98
59th.	Fillpail 8th	Short-Horn	Flora V. Spencer	307.2	27.71	273.2	62	3.61	.22	2.79	6.62	3.66	2.96
60th.	Lawn Tennis	Guernsey	Silas Betts	394.	41.56	348.2	18	4.97	.28	.80	6.05	3.15	2 90
61st.	Plumwood Belle	Short-Horn	Christian Hintz	441.	41.40	392.2	25	5.38	.31	1.12	6.81	3.94	2.87
62d.	Lady of Ellerslie	Guernsey	Levi P. Morton	423.7	47.47	374.4	—11	5.68	.30	—.50	5.48	2 68	2.80
63d.	Belle Price	Short-Horn	D. Sheehan & Sons	527.9	44.94	469.6	11	5.84	.38	.49	6.71	3.92	2.79
64th.	Miss Cowslip	Guernsey	E. F. Bowditch	393.	40.37	347.4	11	4.83	.28	.50	5.61	3.13	2.48
65th.	Claudia	Guernsey	James Logan Fisher	328.9	45.04	379.1	—4	5 39	.30	—.18	5.51	3.07	2.44
66th.	Maid of Oxford 2d	Short-Horn	A. Morse	442.5	36.82	393.7	24	4.79	.31	1.08	6.18	3.77	2.41
67th.	Rosa	Short-Horn	Penn. Reform School	439.7	36.31	391.1	15	4.72	.31	.68	5.71	3.31	2 40
68th.	Lucy Ann	Short-Horn	Flora V. Spencer	468.	41.57	416.3	11	5.41	.33	.49	6.23	3.90	2 33
69th.	Oxford Bloom 8th	Short-Horn	Arthur Gibson	407.9	36.35	362.8	42	4.73	.29	1.89	6.91	4.58	2.33
70th.	Royal Duchess	Short-Horn	J. F. Davis	466.7	39.73	415.1	31	5.17	.33	1.40	6.90	4.61	2.29
71st.	Maid of Oxford 3d	Short-Horn	A. Morse	449.5	37.40	399.8	20	4.86	.32	.90	6.08	3.81	2.27
72d.	Aldine	Guernsey	Ezra Michener	389.	40.76	343.8	—2	4 87	.27	—.09	5.05	3.13	1.92
73d.	Rosabella	Guernsey	Levi P. Morton	375.3	39.24	331.6	3	4.69	.27	.13	5.09	3.18	1.91
74th.	Christata	Short-Horn	John M. Sterr	440.9	41.13	392 2	—17	5.35	.31	—.77	4.89	3.50	1.39
75th.	Maud's Antarctic	Short-Horn	B B. Overmeyer	420.	36.42	373 5	—4	4.74	.20	—.18	4.86	3.78	1.08

INDIVIDUAL YIELDS OF JERSEY COWS IN TEST NO. 1.—CHEESE.

COWS THAT MILKED 44 LBS. OR OVER IN TWENTY-FOUR HOURS.

Ida Marigold 32615 ..... Fourteen times: 44.5 lbs., 45.6 lbs., 45.4 lbs., 44.4 lbs., 46.4 lbs., 44.7 lbs., 46.7 lbs., 45.3 lbs., 44.8 lbs., 46.1 lbs., 44.6 lbs., 45.2 lbs., 44 lbs. and 45.3 lbs.

Baroness Argyle 40498 ..... Seven times: 44 lbs., 45.3 lbs., 44.9 lbs., 44.7 lbs., 44.8 lbs., 44 lbs. and 45.7 lbs.

Brown Bessie 74997 ..... Once: 45.4 lbs.

Hugo's Countess 68394 ..... " 44.8 "

Exile's Lulu 49984 ..... Twice: 44.5 lbs. and 44.6 lbs.

FIVE HIGHEST AVERAGE DAILY MILKINGS IN TEST NO. 1.

Ida Marigold 32615 ..... 44.9 lbs.	Exile's Lulu 49984 ..... 42.1 lbs.
Baroness Argyle 40498 ..... 43.8 "	Hugo's Countess 68394 ..... 41.9 "
Brown Bessie 74997 ..... 42.6 "	

FIVE COWS HIGHEST IN BUTTER IN TEST NO. 1.

Estimated butter at 80% oil, from fat in milk.

Merry Maiden 64949 ..... 38.42 lbs. in 15 days.	Brown Bessie 74997 ..... 35.05 lbs. in 15 days.
Baroness Argyle 40498 ..... 35.49 " "	Sheba Rex 47429 ..... 35.01 " "
Ida Marigold 32615 ..... 35.09 " "	

COWS MAKING 2½ LBS. OF BUTTER OR OVER PER DAY IN TEST NO. 1.

Estimated butter at 80% oil, from fat in milk.

Hugo's Countess 68394 ..... Twice: 2.95 lbs. and 2.71 lbs.

Sheba Rex 47429 ..... Four times: 2.54 lbs., 2.52 lbs., 2.50 lbs. and 2.74 lbs.

Merry Maiden 64949 ..... Twelve times: 2.69 lbs., 2.58 lbs., 2.50 lbs., 2.82 lbs., 2.67 lbs., 2.67 lbs., 2.64 lbs., 2.61 lbs., 2.52 lbs., 2.51 lbs., 2.64 lbs. and 2.50 lbs.

Brown Bessie 74997 ..... Twice: 2.67 lbs. and 2.54 lbs.

Baroness Argyle 40498 ..... " 2.51 lbs. and 2.65 lbs.

Alteration 56436 ..... " 2.50 lbs. and 2.51 lbs.

Ida Marigold 32615 ..... Three times: 2.50 lbs., 2.50 lbs. and 2.55 lbs.

HIGHEST DAY'S YIELD OF MILK.

Ida Marigold 32615 ..... 46.7 lbs.

HIGHEST DAY'S YIELD OF BUTTER.

Hugo's Countess 68394 ..... 2.95 lbs.

YIELDS OF JERSEY COWS FOR FIVE DAYS PRELIMINARY TO TEST NO. 2.

Name and No. of Cow.	Total Milk.	Estimated Butter, 80% Oil.	Total Solids Not Fat.	Name and No. of Cow.	Total Milk.	Estimated Butter, 80% Oil.	Total Solids Not Fat.
	lbs.	lbs.	lbs.		lbs.	lbs.	lbs.
Sheba Rex 47429	186.2	11.014	17.80	Brought forward	2193.4	126.602	209.50
Natasqua 65598	137.2	9.063	13.28	Brown Bessie 74997	209.7	11.899	19.64
Exile's Lulu 49984	200.4	9.073	18.64	Lily Martin 49954	206.9	9.712	19.26
Albert's Gem 34006	171.6	10.463	15.45	Annice Magnet 60256	170.3	10.089	17.35
Islip Lenox 31703	148.6	8.413	14.13	Hugo's Countess 68394	206.5	10.774	19.53
Little Goldie 38671	194.9	10.975	18.33	Ida Marigold 32615	221.5	11.688	21.00
Alteration 56436	199.2	11.712	18.71	Daisy Hinman 61537	145.4	8 625	13.68
Justa Pogis 64863	147.7	9.025	14.85	Merry Maiden 64949	203.0	12.525	19.23
Gay Orphan 25985	133 6	9.250	13.62	Romp's Princess 51185	169.6	10.812	15.96
Sayda 3d 17317	182.8	9.788	17.60	Signal Queen 30869	192.6	10.425	18.35
Pearl of Riverside 55659	163.7	9.562	16.26	Grace Pansy 2d 18764	136.8	8 899	13.00
Lorita 33750	146.8	8.738	14.03	Princess Honoria 62548	156.8	9.899	15.16
Flora Temple 3d 40086	180.7	9.526	16.80	Baroness Argyle 40498	211.6	11.575	19.74
Forward	2193.4	126.602	209.50	Totals for Herd	4424.1	253.524	421.40

INDIVIDUAL YIELDS OF JERSEY COWS IN FIVE DAYS PRELIMINARY TO TEST NO. 2.

COWS MILKING 44 LBS. OR OVER IN TWENTY-FOUR HOURS.

Ida Marigold 32615 ---------- Four times: 44.6 lbs., 44.3 lbs., 44.9 lbs. and 44.6 lbs.
Baroness Argyle 40498 ---------- Once: 44.5 lbs.

COWS MAKING 2½ LBS. OF BUTTER OR OVER PER DAY.

Estimated butter, 80% oil, based upon fat in milk.

Sheba Rex 47429 ---------- Once: 2.55 lbs.
Albert's Gem 34006 ---------- " 2.52 "
Brown Bessie 74997 ---------- " 2.70 "
Ida Marigold 32615 ---------- " 2.56 "
Merry Maiden 64949 ---- Twice: 2.71 lbs., 2.77 lbs.
Romp's Princess 51185 -- Once: 2.57 lbs.
Signal Queen 30869 ---- " 2 57 "

HIGHEST MILK YIELD IN TWENTY-FOUR HOURS.

Ida Marigold 32615 ---------- 44.9 lbs.

HIGHEST BUTTER YIELD IN TWENTY-FOUR HOURS.

Merry Maiden 64949 ---------- 2.77 lbs.

In these five days the yield is not as great as in the fifteen days of the cheese test preceding, or in the ninety days' test immediately following, as in these five days I made material changes in the feed. Comparing the feed for the fifteen days of the cheese test with the first fifteen days of the ninety days' test, I increased the linseed oil meal 86.82 lbs., middlings 1243.29 lbs., and added cream gluten 709 lbs., or a total of 2039.11 lbs. increase to the herd. I cut off corn meal altogether, 1004.4 lbs. of corn-hearts, 402.87 lbs. of bran, 348.35 lbs. of ground oats and 403.52 lbs. of cotton-seed, a total of 2759.15 lbs., or a net decrease of 720.04 lbs. Under this change in feed the Jerseys maintained their flow of milk, increased the fat in milk, and decreased the solids other than butter fat, the result sought.

COMPOSITION OF JERSEY HERD IN TEST NO. 2—90 DAYS' TEST—MAY 31 TO AUGUST 28, 1893.

Number of Cow.	Name and Herd Register No. of Cow.	Breeder.	Owner.	Date Dropped.	Date of Last Calf.	Where Last Calf Was Dropped.
1	Sheba Rex 47429	O. A. Rockwell, Bloomfield, Conn.	T. A. Havemeyer, Mahwah, N. J.	Nov. 25, 1885	Feb. 22, 1893	World's Fair Grounds.
2	Natasqua 65598	Cyrus Coe, Middlefield, Conn	T. A. Havemeyer, Mahwah, N. J.	Apr. 14, 1888	Mar. 1, 1893	" " "
3	Exile's Lulu 49981	P. J. Cogswell, Rochester, N. Y.	C. I. Hudson, New York, N. Y.	Nov. 18, 1886	Apr. 15, 1893	" " "
4	Albert's Gem 34006	Moulton Bros., West Randolph, Vt.	F. A. Schermerhorn, Lenox, Mass.	Dec. 12, 1884	Apr. 11, 1893	" " "
5	*Islip Lenox 31703	A. P. Foster, Plainview, Minn.	C. I. Hood, Lowell, Mass.	Nov., 1883	May 17, 1893	" " "
6	Little Goldie 38671	W. E. Matthews, Huntsville, Ala.	C. I. Hood, Lowell, Mass.	Nov. 6, 1884	Apr. 10, 1893	" " "
7	Alteration 56436	S. H. Moore, Huntsville, Ala.	W. E. Matthews, Huntsville, Ala.	Sep. 25, 1887	Mar. 30, 1893	" " "
8	Justa Pogis 64863	R Douglas, Lexington, Ky.	Ky. Agric. Ex. Station, Lexington, Ky.	Sep. 21, 1888	Apr. 1, 1893	" " "
9	Gay Orphan 25985	P. Le Feuvre, Trinity, I. of J	Ky. Agric. Ex. Station, Lexington, Ky.	Feb., 1882	Jan. 1 1893	Lexington, Ky.
10	Sayda 3d 17317	E Morse, Thomaston, Conn.	Edgar Brewer, Hockanum, Conn.	Feb. 11, 1882	Mar. 13, 1893	World's Fair Grounds.
11	Pearl of Riverside 55659	C. Huntington, Higganum, Conn.	H. A. Huntington, Nashville, Tenn.	Feb. 18, 1889	Mar. 23, 1893	" " "
12	Lorita 33750	Richardson Bros., Davenport, Iowa.	C. A. Sweet, Buffalo, N. Y.	Dec. 15, 1883	Feb. 28, 1893	" " "
13	Flora Temple 3d 40086	S. D. Newell, Bristol, Conn	Frederic Bronson, Southport, Conn	May 12, 1886	Apr. 1, 1893	" " "
14	Brown Bessie 74997	Richardson Bros., Davenport, Iowa	C. I. Hood, Lowell, Mass.	Mar. 27, 1885	Apr. 21, 1893	" " "
15	Lily Martin 49954	M. C. Campbell, Spring Hill, Tenn.	M. C. Campbell, Spring Hill, Tenn.	May 4, 1887	Apr. 7, 1893	" " "
16	Annice Magnet 60256	John Boyd, Elmhurst, Ill.	John Boyd, Elmhurst, Ill.	Mar. 14, 1889	Mar. 14, 1893	" " "
17	Hugo's Countess 68394	M. G. Jacobs, Independence, Mo.	D. L. Heinsheimer, Glenwood, Iowa.	Nov. 18, 1887	Mar. 7, 1893	" " "
18	Ida Marigold 32615	Miller & Sibley, Franklin, Pa	C. A. Sweet, Buffalo, N. Y.	June 2, 1885	Apr. 29, 1893	" " "
19	Daisy Hinman 61537	Miller & Sibley, Franklin, Pa.	Ayer & McKinney, Philadelphia, Pa.	Dec. 18, 1885	Jan. 4, 1893	" " (premature)
20	Merry Maiden 64949	Richardson Bros., Davenport, Iowa	O. Graves, Maitland, Mo.	Sep. 26, 1888	Apr. 15, 1893	World's Fair Grounds.
21	*Romp's Princess 51185	H. M. McKeldin, Atlanta, Ga.	C. A. Sweet, Buffalo, N. Y.	Mar. 13, 1887	Apr. 17, 1893	" " "
22	Signal Queen 30869	G. M. Jewett, Zanesville, Ohio	Frank Eno, Pine Plains, N. Y.	Oct. 17, 1883	Apr. 4, 1893	" " "
23	Grace Pansy 2d 18764	L. J. Hill, Atlanta, Ga.	Geo. V. Green, Hopkinsville, Ky.	Jan. 11, 1883	Mar. 5, 1893	" " "
24	Princess Honoria 62548	F. Billings, Woodstock, Vt.	Est. of Fred'k Billings, Woodstock, Vt.	Nov. 18, 1889	Apr. 26, 1893	" " "
25	Baroness Argyle 40498	E. S. Henry, Rockville, Conn.	E. S. Henry, Rockville, Conn.	Sep. 22, 1886	Apr. 21, 1893	" " "

* Substituted cows.

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 2—90 DAYS' TEST.

No. of Cow.	Jerseys. Name and Herd Register No. of Cow.	Live Weight. Average 5 days weighed in.	Average 5 days weighed out.	Gain.	Loss.	Value of Gain.	Value of Loss.	Value of Net Gain.	Feed Used in 90 Days. Cream Gluten.	Corn Meal.	Old Hay.	Silage.	New Hay.	Oil Meal.	Bran.	Oats.	Corn-Hearts.	Cotton Seed.	Middlings.	Gramo-Gluten.	Clover.	Swale-Grass.	Value Eaten.
		lbs	lbs.	lbs.	lbs.				lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
1	Sheba Rex 47429	928	991	63	....	$2.835	.....	.....	.....	.....	324.0	123.0	603.7	191.5	469.0	122.5	566.0	144.50	385.0	34.0	1210.4	10	$24.845
2	Natasqua 65598	808	844	36	....	1.620	.....	.....	.....	.....	300.0	123.0	486.6	190.5	398.0	72.0	436.5	124.25	296.0	34.0	1137.4	10	21.078
3	Exile's Lulu 49984	894	934	40	....	1.800	.....	.....	.....	.....	298.5	123.0	504.4	189.5	445.0	96.0	556.5	124.50	467.0	46.0	1153.4	10	23.794
4	Albert's Gem 34006	872	970	98	....	4.410	.....	.....	.....	.....	310.8	123.0	523.1	191.0	477.0	85.0	563.5	124.25	385.5	34.0	1116.4	10	23.366
5	Islip Leno x 31703	932	1040	108	....	4.860	.....	.....	.....	.....	323.0	126.0	525.2	222.0	508.0	149.0	538.5	111.75	349.0	21.0	1108.4	10	23.979
6	Little Goldie 38671	989	sick	*32	....	1.440	.....	.....	.....	.....	322.3	149.5	529.7	186.5	510.0	89.0	533.0	126.25	424.0	34.0	1182.4	10	24.035
7	Alteration 56436	800	dead	....	....	.....	.....	.....	.....	.....	302.7	210.0	256.6	133.5	335.0	52.0	374.5	93.25	311.0	33.0	1184.4	10	*4.341 18.285
8	Justa Pogis 64863	864	932	68	....	3.060	.....	.....	.....	.....	329.0	210.0	518.2	168.0	465.0	83.5	559.5	113.50	310.0	32.0	1165.4	10	22.749
9	Gay Orphan 25985	930	880	....	50	.....	$2.250	.....	.....	.....	282.0	206.5	446.8	163.5	473.5	181.0	330.0	9.50	293.0	33.0	926.4	10	19.270
10	Sayda 3d 17317	965	944	...	21	.....	.945	.....	.....	.....	313.9	210.0	478.2	184.5	545.0	72.5	537.0	121.75	418.0	34.0	1060.4	10	23.270
11	Pearl of Riverside 55659	986	1036	50	....	2.250	.....	.....	.....	.....	319.0	210.0	527.8	191.0	522.0	73.0	560.5	111.50	402.0	34.0	1153.4	10	23.773
12	Lorita 33750	997	926	....	71	.....	3.195	.....	.....	.....	305.9	202.5	445.7	179.0	463.5	69.5	450.5	116.25	336.5	33.0	1088.4	10	21.356
13	Flora Temple 3d 40086	982	1058	76	....	3.420	.....	.....	.....	.....	319.7	210.0	556.9	187.0	538.0	74.0	567.0	128.50	456.0	34.0	1105.4	10	24.415
14	Brown Bessie 74907	967	1048	81	....	3.645	.....	.....	.....	.....	326.0	210.0	643.8	187.5	562.0	76.0	597.0	142.50	405.0	32.0	1209.4	10	25.511
15	Lily Martin 49954	936	1003	67	....	3.015	.....	.....	.....	.....	339.0	210.0	594.0	191.0	479.0	93.5	578.0	145.50	434.0	34.0	1204.4	10	25.156
16	Annice Magnet 60256	856	846	....	10	.....	.450	.....	.....	.....	274.5	210.0	514.7	174.0	334.5	150.0	321.0	92.75	233.0	31.0	447.1	..	*3.408 17.168
17	Hugo's Countess 68394	998	1031	33	..	1.485	.....	.....	.....	.....	342.0	210.0	575.5	191.0	506.0	94.5	585.0	144.75	473.5	34.0	1188.4	10	25.492
18	Ida Marigold 32615	1106	1184	78	...	3 510	.....	.....	.....	.....	361.0	213.0	639.4	207.0	604.0	92.0	614.5	146.50	470.0	55.0	1209.4	10	27.125
19	Daisy Hinman 61537	899	903	4	....	.180	.....	.....	.....	.....	304.0	210.0	531.7	186.0	388.0	159.0	438.5	124.25	277.0	34.0	1126.4	10	22.224
20	Merry Maiden 61949	924	936	12	....	.540	.....	.....	.....	.....	322.0	210.0	597.7	180.5	494.0	152.0	535.0	105.75	293.0	33.0	1053.4	10	23.391
21	Romp's Princess 51185	776	780	4	....	.180	.....	.....	.....	.....	304.0	210.0	534.1	191.5	450.0	103.0	545.5	126.75	385.0	34.0	1110.4	10	23.434
22	Signal Queen 30869	1023	1059	36	....	1.620	.....	.....	.....	.....	327.0	210.0	559.9	188.5	503.0	98.0	509.5	126.75	438.0	34.0	1195.4	10	24.377
23	Grace Pansy 2d 18764	1065	1050	....	15	.....	.675	.....	.....	.....	330.0	195.0	596.5	177.0	395.0	98.0	437.0	115.25	366.0	34.0	1122.4	10	22.345
24	Princess Honoria 62548	840	865	25	..	1.125	.....	.....	.....	.....	299.0	111.0	511.4	213.5	523.0	92.0	436.5	111.50	397.0	34.0	1126.4	10	22.899
25	Baroness Argyle 40498	926	958	32	....	1.440	.....	.....	.....	.....	361.0	191.5	569.3	202.0	605.0	134.0	578.0	130.25	448.0	42.0	1193.4	10	26.412
	Totals	....	....	911	167	.....	.....	.....	.....	.....	7940.3	4617.0	13270.9	4667.0	11992.5	2561.0	12748.5	2962.25	9452.5	867.0	27778.7	240	.....
		....	....	*943	....				.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	$579.749
	Total values	....	....	....	....	$42.435	$7.515	$34.920	.....	.....	$45.657	$8.326	$66.324	$51.339	$74.953	$29.452	$86.051	$38.509	$61.440	$6.395	$111.153	$0.120	*587.498
	Guernsey Herd. Totals	....	....	466	101	.....	.....	.....	1894.0	1100.75	1434.30	582.0	11795.0	2465.5	13040.5	168.25	7430.0	2063.0	4018.5	3304.5	16110.0	615.0	$473.701
	Guernsey Herd. Total values	....	....	....	....	$20.970	$4.545	$16.425	$16.573	$12.108	$82.473	$0.907	$58.875	$27.120	$81.503	$1.935	$50.152	$26.818	$26.120	$24.370	$64.440	$0.307	*484.141
	Short-Horn Herd. Totals	....	....	2826	23.0	.....	.....	.....	2973.6	705.0	13545.05	51707.4	9565.4	2180.0	10853.5	2078.0	9864.5	3277.0	5773.5	1662.0	726.0	.....	.....
	Short-Horn Herd. Total values	....	....	....	....	$127.170	$1.035	$126.135	$26.020	$7.755	$77.880	$68.412	$47.827	$23.980	$67.834	$23.900	$66.585	$42.600	$37.528	$12.257	$2.904	.....	$505.482
																					Minus charged to No. 24..		3.693
																							$501.789

* Amounts credited to sick cows "off the test," under Rule 10, or the totals where such credit is added.

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 2—90 DAYS' TEST.

No. of Cow.	JERSEYS. Name and Herd Register No. of Cow.	Milk.	Fat.	80 % Butter.	Total Solids to be Credited.	Solids not Fat in Milk.	Value of Products.	Value of Products less Cost of Food.	Net Gain Plus Color.	Cost of Color.	Total Net Profit.
		lbs.	lbs.	lbs.	lbs.	lbs.					
1	Sheba Rex 47429.....	3283.3	156.83	190.617	286.445	300.43	$83.620	$58.775	$61.610	$0.013	$61.597
2	Natasqua 65598.....	2463.9	132.89	161.522	222.695	233.59	70.441	49.363	50.983	.010	50.973
3	Exile's Lulu 49984.....	3224.5	138.61	168.538	279.941	293.70	74.531	50.737	52 537	.011	52.526
4	Albert's Gem 34006.....	2666.4	136.43	165.777	239.386	251.11	72.523	49.157	53.567	.011	53 556
5	Islip Lenox 31703.....	3070.0	146.46	178.066	273.473	286.87	78.362	54.383	59.243	.012	59.231
6	Little Goldie 38671.....	3284.1	145.22	176.394	285.627	298.80	77.776	53.741	55.181	.012	55.169
7	Alteration 56426.....	*583.9 2531.8	*28.87 119.16	*35.648 144.231	*50.948 272.354	*53.12 253.12	78.737	56.111	56.111	012	56.099
8	Justa Pogis 64863.....	2745.3	129.70	157.697	249.029	261.17	69.505	46.756	49.816	.010	49 806
9	Gay Orphan 25985.....	2175.9	114.21	138.973	193.581	202.92	60.878	41.608	39.358	.009	39.349
10	Sayda 3d 17317.....	3043.1	139.93	170.094	268.253	281.39	74.910	51.640	50.695	.011	50.684
11	Pearl of Riverside 55659	2653.7	132.27	160.804	241.561	253.34	70 574	46.801	49.051	.010	49.041
12	Lorita 33750.....	2320.3	120.64	146.619	206.176	216.27	64.059	42.703	39.508	.010	39.498
13	Flora Temple 3d 40086..	3088.2	145.45	176.751	264.631	277.60	77.495	53.080	56.500	.012	56.488
14	Brown Bessie 74997. ...	3634.0	178.12	216.640	316.936	332.41	95.104	69.593	73.238	.014	73.224
15	Lily Martin 49954.....	3520.2	135.11	164.227	299.292	313.92	73.137	47.981	50.996	.011	50.985
16	Annice Magnet 60256...	2064.0	76.14 *22.06	119.284	181 114	190.09	52.160	31.584	31.134	.008	31.126
17	Hugo's Countess 68394..	3542.9	157.85	191.894	314.484	329.85	84.752	59.260	60.745	.013	60.732
18	Ida Marigold 32615.....	3448.3	164.28	199.756	298.656	313.26	87.782	60.657	64.167	.013	64.154
19	Daisy Hinman 61537....	2677.8	127.62	155.131	232.960	244.35	68.104	45.880	46.060	.010	46.050
20	Merry Maiden 64949....	3041.2	164.81	200.517	267.459	280.67	87.377	63.986	64.526	.013	64.513
21	Romp's Princess 51185..	2984.4	154 97	188 373	263.423	276.32	82.289	58.855	59.035	.012	59 023
22	Signal Queen 30869	3190.6	136.30	165.601	276.810	290.34	73.187	48.810	50.430	.011	50.419
23	Grace Pansy 2d 18764.	2344.4	121.03	147.009	208.580	218.99	64.240	41.895	41.220	.010	41.210
24	Princess Honoria 62548.	2690.4	131.19	159.447	240.038	251.79	70.053	47.154	48.279	.010	48.269
25	Baroness Argyle 40498..	3266.2	159.93	194.400	282.145	295.97	85.075	58.663	60.103	.013	60.090
	Totals..	72904 9 *73488.8	3465.15 *3516.08	4238.362 *4274.010	6414.101 *6465.049	6689.26 *6781.52	.....	.....	.....	.....	.....
	Total values.	.....	.....	.....	.....	.....	$1876.671	$1289.173	$1324.093	$0.281	$1323.812
GUERNSEY HERD.	Totals.....	60768.5 *61781.7	2736.45 *2784.56	3302.590 *3360.431	5501.438	5621 80 *5715.72	.....	.....	.....	.....	.....
	Total values..	.....	.....	.....	.....	.....	$1465.464	$981.323	$997.748	$0.109	$997.639
SHORT-HORN HERD.	Totals.....	66263.2	2409.97	2890.869	5750.83	6015.22	.....	.....	.....	.....	.....
	Total values..	.....	.....	.....	.....	.....	$1286.789	$785.000	$911.135	$1.018	$910.117

* Amounts credited to sick cows "off the test," under Rule 10, or the totals where such credit is added.

The following is the ranking of the 74 cows of all breeds that took part in the test, from two standpoints—Column 1, with increase of live weight added, as provided by the rules of the test; and Column 2, without increase of live weight being taken into consideration:

RECORDS OF ALL COWS IN TEST NO. 2—90 DAYS' TEST.

(1) Columbian Rules, With Live Weight.				(2) Dairyman's Rules, Without Live Weight.				(1, continued.) Columbian Rules, With Live Weight.				(2, continued.) Dairyman's Rules, Without Live Weight.			
Order of Merit.	Breed.	Herd No.	Net Profit.	Order of Merit.	Breed.	Herd No.	Net Profit.	Order of Merit.	Breed.	Herd No.	Net Profit.	Order of Merit.	Breed.	Herd No.	Net Profit.
1	Jersey	14	$73.224	1	Jersey	14	$69 579	38	Guernsey	20	$41.894	38	Jersey	23	$41.885
2	"	20	64.513	2	"	20	63 973	39	Short-Horn	19	41.832	39	"	9	41.599
3	"	18	64.154	3	"	18	60.644	40	Jersey	23	41.210	40	Short-Horn	9	40.215
4	"	1	61.597	4	"	17	59.247	41	Short-Horn	11	41.128	41	Guernsey	16	39.855
5	"	17	60.732	5	"	21	58 843	42	Guernsey	16	40.845	42	"	4	38.054
6	"	25	60.090	6	"	1	58.762	43	"	4	39.899	43	Short-Horn	13	38.037
7	"	5	59.231	7	"	25	58.650	44	Jersey	12	39.498	44	"	11	36.133
8	"	21	59.023	8	Guernsey	15	58.407	45	"	9	39.349	45	Guernsey	14	35.501
9	Guernsey	15	57.822	9	Jersey	7	56.099	46	Short-Horn	4	39.168	46	"	13	35.313
10	"	25	56.717	10	Guernsey	25	55.682	47	"	5	38.784	47	Short-Horn	18	35.200
11	Jersey	13	56.488	11	Jersey	5	54.371	48	"	18	37.675	48	Guernsey	5	34 286
12	"	7	56.099	12	"	6	53.729	49	"	7	35.710	49	"	17	33.948
13	"	6	55.169	13	"	13	53.068	50	Guernsey	5	35.501	50	Short-Horn	5	33.834
14	Guernsey	24	55.039	14	Guernsey	24	52.474	51	"	13	35.313	51	Guernsey	3	33.736
15	Jersey	4	53.556	15	Jersey	10	51.629	52	"	14	35.231	52	Short-Horn	19	33.642
16	Short-Horn	20	52.634	16	Guernsey	7	50.959	53	Short-Horn	17	35.183	53	Guernsey	21	33.182
17	Jersey	3	52.526	17	Jersey	3	50.726	54	Guernsey	21	34.712	54	"	6	32.859
18	"	15	50.985	18	Guernsey	8	49.497	55	"	3	34.456	55	"	10	32.282
19	"	2	50.973	19	Jersey	2	49.353	56	Short-Horn	8	34.271	56	Jersey	16	31.576
20	"	10	50.684	20	"	4	49 146	57	"	12	34.204	57	Short-Horn	4	30.888
21	"	22	50.419	21	"	22	48.799	58	Guernsey	17	33.903	58	Guernsey	9	30.572
22	Guernsey	7	50 284	22	Guernsey	1	48.461	59	Short-Horn	3	33.580	59	Short-Horn	7	30.310
23	Short-Horn	21	50.264	23	Jersey	15	47.970	60	Guernsey	6	33.579	60	"	17	29.918
24	Guernsey	8	50.172	24	Short-Horn	20	47 459	61	Short-Horn	1	33.288	61	Guernsey	18	29.724
25	Jersey	8	49.806	25	"	25	47.376	62	Guernsey	10	33.047	62	"	11	29.587
26	"	11	49.041	26	Jersey	24	47.144	63	"	9	32.057	63	Short-Horn	1	29.238
27	Short-Horn	14	48.691	27	"	11	46.791	64	*Jersey	16	31.126	64	Guernsey	22	29.039
28	"	9	48.450	28	"	8	46.746	65	Short-Horn	22	30.108	65	Short-Horn	3	28.585
29	Jersey	24	48.269	29	Short-Horn	14	46.711	66	Guernsey	11	30.037	66	Guernsey	19	27.555
30	Short-Horn	25	47.196	30	"	21	46.529	67	"	18	29.769	67	Short-Horn	8	26.621
31	Jersey	19	46.050	31	Jersey	19	45.870	68	Short-Horn	16	29.663	68	"	12	25.877
32	Short-Horn	13	46.002	32	Short-Horn	15	45.735	69	Guernsey	22	29.039	69	"	16	23.903
33	Guernsey	1	45.941	33	Guernsey	12	43 060	70	"	19	28.680	70	"	23	23.867
34	"	2	45.079	34	"	23	42.773	71	Short-Horn	6	28.266	71	"	6	23.541
35	Short-Horn	15	44.880	35	Jersey	12	42.693	72	"	23	28.007	72	"	22	22.818
36	Guernsey	23	44.618	36	Guernsey	20	42.344	73	"	2	26.397	73	"	2*	19.062
37	"	12	44.005	37	"	2	42.064	74	"	10	24.736	74	"	10	18.481

* Sick

INDIVIDUAL YIELDS OF JERSEYS IN TEST NO. 2—90 DAYS.

COWS MILKING OVER 44 LBS. IN THE MONTH OF JUNE.

	No. of Times.	Yield in 24 Hours.		No. of Times.	Yield in 24 Hours.
Brown Bessie 74997	Two :	44.5, 44.7 lbs.	Hugo's Countess 68394	Three:	44.4, 44.8, 44.2 lbs.
Lily Martin 49954	One :	44.0 lbs.	Ida Marigold 32615	One:	45.3 lbs.

Highest day's milking, Ida Marigold 32615, 45.3 lbs.

COWS AVERAGING OVER 40 LBS. IN TWENTY-FOUR HOURS IN THE MONTH OF JUNE.

	Total Milk.	Daily Average.		Total Milk.	Daily Average.
Brown Bessie 74997	1213.2 lbs	40.44 lbs.	Hugo's Countess 68394	1217.5 lbs	40.58 lbs.
Lily Martin 49954	1219.2 lbs	40.64 "			

COW MILKING OVER 42 LBS. IN TWENTY-FOUR HOURS IN JULY.

Brown Bessie 74997 — Three times : 43.0 lbs., 42.6 lbs. and 43.6 lbs.
Highest day's yield, 43.6 lbs.

COWS AVERAGING OVER 39 LBS. FOR JUNE AND JULY.

	Total Milk.	Daily Average for 61 Days.		Total Milk.	Daily Average for 61 Days.
Brown Bessie 74997	2443.6 lbs	40.05 lbs.	Hugo's Countess 68394	2401.3 lbs	39.36 lbs.
Lily Martin 49954	2409.0 lbs	39.49 "			

COWS MILKING 40 LBS. OR OVER IN TWENTY-FOUR HOURS IN AUGUST.

Brown Bessie 74997 — Twenty-four times : 40.8 lbs., 42.3 lbs., 41.6 lbs., 41.4 lbs., 41.4 lbs., 41.2 lbs., 42.6 lbs., 42.1 lbs., 42.8 lbs., 41.2 lbs., 41.4 lbs., 42.2 lbs., 40.1 lbs., 41.7 lbs., 43.5 lbs., 43.8 lbs., 41.3 lbs., 43 lbs., 43.7 lbs., 41 lbs., 43.5 lbs., 43.7 lbs., 42.7 lbs., 40.9 lbs.
Lily Martin 49954 — Once : 40.1 lbs.
Hugo's Countess 68394 — Eleven times : 41.0 lbs., 40.5 lbs., 40.8 lbs., 41.6 lbs., 41.4 lbs., 43.4 lbs., 41.1 lbs., 42.0 lbs., 40.0 lbs., 40.0 lbs., 40.5 lbs.
Ida Marigold 32615 — Eight times : 41.2 lbs., 40.2 lbs., 41.7 lbs., 40.9 lbs., 40.5 lbs., 40.4 lbs., 40.3 lbs., 40.2 lbs.

COWS AVERAGING OVER 38 LBS. FOR THE NINETY DAYS OF TEST.

	Total Milk.	Daily Average.		Total Milk.	Daily Average.
Brown Bessie 74997	3634.0 lbs	40.38 lbs.	Hugo's Countess 68394	3542.9 lbs	39.37 lbs.
Lily Martin 49954	3520.0 "	39.11 "	Ida Marigold 32615	3448.3 "	38.31 "

COWS MAKING 2½ LBS. OF BUTTER OR OVER IN TWENTY-FOUR HOURS IN JUNE.

Sheba Rex 47429 — Twice : 2.52 lbs., 2.70 lbs.
Exile's Lulu 49984 — Once : 2.71 lbs.
Islip Lenox 31703 — " 2.74 lbs.
Alteration 56436 — Twice : 2.77 lbs., 2.85 lbs.
Brown Bessie 74997 — Four times : 2.64 lbs., 2.55 lbs., 2.66 lbs., 2.61 lbs.
Annice Magnet 60256 — Once 2.80 lbs.

Hugo's Countess 68394.....Five times : 3.17 lbs., 2.53 lbs., 2.65 lbs., 2.59 lbs., 2.60 lbs.
Ida Marigold 32615.....Twice : 2.52 lbs., 3.01 lbs.
Merry Maiden 64949.....Nine times : 2.52 lbs., 2.74 lbs., 2.54 lbs., 2.50 lbs., 2.50 lbs., 2.64 lbs., 2.55 lbs., 2.64 lbs., 2.70 lbs. (Sick June 20).
Romp's Princess 51185.....Once : 2.76 lbs.
Signal Queen 30869.....Twice : 2.55 lbs., 2.58 lbs.
Baroness Argyle 40498.....Four times : 2.79 lbs., 2.52 lbs., 2.54 lbs., 2.68 lbs.

Highest day's yield in June : Hugo's Countess 68394, 3.17 lbs.

COWS MAKING OVER 2½ LBS. OF BUTTER IN TWENTY-FOUR HOURS IN JULY.

Brown Bessie 74997.....Nine times : 2.66 lbs., 3.48 lbs., 2.54 lbs., 2.51 lbs., 2.63 lbs., 3.15 lbs., 2.68 lbs., 3.02 lbs. 2.66 lbs.
Hugo's Countess 68394.....Once : 2.81 lbs.
Ida Marigold 32615.....“ 2.61 lbs.
Merry Maiden 64949.....“ 2.61 lbs.
Baroness Argyle 40498.....“ 2.73 lbs.

Highest day's yield in July : Brown Bessie 74997, 3.48 lbs.

COWS MAKING 2½ LBS. OF BUTTER OR OVER IN TWENTY-FOUR HOURS IN THE 29 DAYS OF AUGUST.

Islip Lenox 31703.....Twice : 2.54 lbs., 2.57 lbs.
Brown Bessie 74997.....Twenty-two times : 2.54 lbs., 2.65 lbs., 2.56 lbs., 2.68 lbs., 2.58 lbs., 2.53 lbs., 2.51 lbs., 2.64 lbs., 2.50 lbs., 2.91 lbs., 2.68 lbs., 2.54 lbs., 2.91 lbs., 3.23 lbs. (Aug. 18), 2.97 lbs. (Aug. 19), 2.87 lbs. (Aug. 20), 2.54 lbs., 2.68 lbs., 3.03 lbs. (Aug. 24), 2.61 lbs., 2.51 lbs., 2.85 lbs.
Hugo's Countess 68394.....Three times : 2.55 lbs., 2.56 lbs., 2.57 lbs. (Aug. 28).
Ida Marigold 32615.....Six times : 2.56 lbs., 2.68 lbs., 2.50 lbs., 2.53 lbs., 2.61 lbs., 2.52 lbs.
Merry Maiden 64949.....“ 2.58 lbs., 2.60 lbs., 2.66 lbs., 2.59 lbs., 2.56 lbs., 2.70 lbs.
Baroness Argyle 40498.....Once : 2.73 lbs. (was sick in this month).

Highest day's yield in August : Brown Bessie 74997, 3.23 lbs.

COWS THAT MADE 3 LBS. OF BUTTER OR OVER IN TWENTY-FOUR HOURS IN TEST NO. 2.

Hugo's Countess 68394.....Once : 3.17 lbs. (June).
Brown Bessie 74997.....Five times : 3.48 lbs. (July), 3.15 lbs. (July), 3.02 lbs. (July), 3.23 lbs. (Aug. 18), 3.03 lbs. (Aug. 24).
Ida Marigold 32615.....Once : 3.01 lbs. (June).

HIGHEST SEVEN CONSECUTIVE DAYS' YIELD IN BUTTER DURING TEST NO. 2.

Brown Bessie 74997.....20.163 lbs., August 14 to 20, both inclusive.

Number of days in milk, 121.

HIGHEST THIRTY CONSECUTIVE DAYS' YIELD DURING TEST NO. 2.

Brown Bessie 74997.....77.319 lbs., July 31 to Aug. 29, both inclusive.

DATES OF LAST CALVES OF COWS COMPOSING THE JERSEY AND GUERNSEY HERDS IN TEST NO. 3.

Jerseys.			Guernseys.		
No.	Name and H. R. No. of Cow.	Date of Last Calf.	No.	Name of Cow.	Date of Last Calf.
1	Ida Marigold 32615	April 29, 1893.	1	Amanda	May 10, 1893.
2	Islip Lenox 31703	May 17, 1893.	2	Aldine	April 16, 1893.
3	Brown Bessie 74997	April 21, 1893.	*3	Careno	
4	Sayda 3d 17317	March 13, 1893.	*4	Duchess of Orleans	July 1, 1893.
5	Baroness Argyle 40498	April 21, 1893.	5	Essence	May 17, 1893.
6	Flora Temple 3d 40086	April 1, 1893.	6	Ethics of Cornwall	April 6, 1893.
7	Signal Queen 30869	April 4, 1893.	7	Lady of Ellerslie	May 9, 1893.
8	Sheba Rex 47429	February 22, 1893.	*8	Marita	July 10, 1893.
9	Exile's Lulu 49984	April 15, 1893.	9	Materna	April 5, 1893.
10	Merry Maiden 64949	April 15, 1893.	*10	Purity	August 12, 1893.
*11	Cupid's Jersey Maid 35040	April, 1893.	11	Princess Aster 2d	May 13, 1893.
*12	Stoke Pogis' Regina 48309	July 29, 1893.	12	Rosette 5th	March 27, 1893.
*13	Katherine of Pittsford 73169	August 10, 1893.	13	Select 8th	March 16, 1893.
14	Hugo's Countess 68394	March 7, 1893.	14	Sweet Ada	March 20, 1893.
15	Romp's Princess 51185	April 17, 1893.	*15	Vesta's Valencia	

* Substituted cows.

RECORDS OF LIVE WEIGHT OF COWS IN TEST NO. 3–30 DAYS' TEST.

	Jerseys.						Guernseys.						Short-Horns.				
No. of Cow.	Name and Herd Register No. of Cow.	Average Weighed in.	Average Weighed out.	Gain.	Loss.	Net Gain.	Average Weighed in.	Average Weighed out.	Gain.	Loss.	Net Gain.	Average Weighed in.	Average Weighed out.	Gain.	Loss.	Net Gain.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
1	Ida Marigold 32615	1178	1169	.....	9	....	960	971	11	....	....	*1320	1348	28	....	....
2	Islip Lenox 31703	1017	1016	.....	1	....	971	983	12	....	....	*1247	1278	31	....	....
3	Brown Bessie 74997	1019	1026	7	....	....	*944	985	41	....	....	*1201	1216	15	....	....
4	Sayda 3d 17317	957	990	33	....	....	*953	975	22	....	....	1288	1317	29	....	....
5	Baroness Argyle 40498	962	1005	43	....	....	986	996	10	....	....	1251	1240	.....	11	....
6	Flora Temple 3d 40086	1055	1079	24	....	....	963	966	3	....	....	*1128	1124	.....	4	....
7	Signal Queen 30869	1059	1094	35	....	....	879	897	18	....	....	1246	1287	41	....	....
8	Sheba Rex 47429	996	1013	17	....	....	*881	918	37	....	....	1410	1434	24	....	....
9	Exile's Lulu 49984	936	963	27	....	....	1062	1076	14	....	....	1208	1216	8	....	....
10	Merry Maiden 64949	919	946	27	....	....	*1136	1150	14	....	....	1225	1234	9	....	....
11	*Cupid's Jersey Maid 35040	907	886	.....	21	....	952	974	22	....	....	1241	1286	45	....	....
12	*Stoke Pogis' Regina 48309	849	886	37	....	....	922	961	39	....	....	1233	1241	8	....	....
13	*Katherine of Pittsford 73169	806	825	19	....	....	1023	1041	18	....	....	1210	1224	14	....	....
14	Hugo's Countess 68394	1031	911	.....	120	....	1122	1147	25	....	....	1275	1297	22	....	....
15	Romp's Princess 51185	746	785	39	....	....	*1088	1082	.....	6	....	1362	1347	.....	15	....
	Totals	14437	14594	308	151	157	14842	15122	286	6	280	18825	19069	274	30	244
	Averages	962	973	.....	....	....	989	1008	.....	....	....	1255	1271	.....	....	....

* Cows not in former tests.

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 3—30 DAYS' TEST.

JERSEYS.		FEED WEIGHED OUT.												
No. of Cow.	Name and Herd Register No. of Cow.	Hay.	Oil Meal.	Silage.	Grano-Gluten.	Corn Meal.	Bran.	Oats.	Corn-Hearts.	Cotton-Seed.	Mids.	Carrots.	Old Hay.	Value Eaten.
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
1	Ida Marigold 32615	424.3	84	112	.....	18	223	84	206	55.5	84	18	6	$8.453
2	Islip Lenox 31703	332.9	67	107	.....	....	196	84	134	16	45	9	5	6.143
3	Brown Bessie 74997	411.4	87	112	.....	41	202	116	183	54.5	58	18	6	8.574
4	Sayda 3d 17317	349.6	70	110	.....	11	189	97	120	35.5	49.5	18	4	6.766
5	Baroness Argyle 40498	366.2	90	112	.....	40	180	120	199.5	44.5	60	18	5	8.267
6	Flora Temple 3d 40086	372.2	75	116	.....	20	180	90	189	45	90	18	5	7.700
7	Signal Queen 30869	374.2	75	112	.....	20	206	120	188	45	60	15	5	8.001
8	Sheba Rex 47429	394.6	75	146	.....	40	179	90.5	169	59.5	60	18	6	7.920
9	Exile's Lulu 49984	318.5	75	112	.....	20	180	90	189	45	90	18	4	7.422
10	Merry Maiden 64949	418	89.5	112	.....	....	179	90	210	45	30	18	6	7.618
11	*Cupid's Jersey Maid 35040	372.9	76.5	94	.....	48	174	67	163	58	56.5	18	5	7.484
12	*Stoke Pogis' Regina 48309	369.6	73	90	.....	112	180	120	85	44	80	9	5	8 189
13	*Katherine of Pittsford 73169	361.6	72.5	110	.....	121	180	90	85	44.5	36	18	5	7.660
14	Hugo's Countess 68394	318.2	65.5	104.5	.....	....	216	71	49	10.5	14	18	4.5	5.209
15	Romp's Princess 51185	340.7	66.5	106.5	.....	14	214	73	84	28.5	4	18	2.5	5.897
	Totals	5524.9	1141.5	1656	.....	505	2878	1402.5	2253.5	631	817	249	74	.....
	Total values	$27.624	$12.555	$1.242	.....	$5.560	$17.990	$16.130	$15.212	$8.200	$5.310	$0.995	$0.425	$111.243
GUERNSEY HERD	Totals	3779	895	8605	12	.....	3258	1023	2573	308	613	.....	.....	.....
	Total values	$18.895	$9.845	$6.454	$0.088	.....	$20.363	$11.764	$17.368	$4.004	$3.085	.....	.....	$92.766
SHORT-HORN HERD	Totals	4215.0	540	16852.5	58	.....	3277	471	2909	1046	821	.....	.....	.....
	Total values	$21.075	$5.940	$12.640	$0.428	.....	$20.481	$5.417	$19.636	$13.598	$5.336	.....	.....	$104.551

* Cows not in former tests.

RECORDS OF JERSEY COWS AND GUERNSEY AND SHORT-HORN HERDS IN TEST NO. 3—30 DAYS'

No. of Cow.	JERSEYS. Name and Herd Register No. of Cow.	Milk.	Fat.	80 per cent. Butter.	Solids not Fat.	Value of Butter.	Value of Butter Less Cost of Food.	Cost of Color.	Net Profit.	Order of Merit.
		lbs.	lbs.	lbs.	lbs.					
1	Ida Marigold 32615	985.8	48.60	59.367	88.62	$27.338	$18.885	$0.016	$18.869	4
2	Islip Lenox 31703	714.6	39.05	47.699	66.63	21.946	15.803	.012	15.791	13
3	Brown Bessie 74997	1134.6	59.15	72.235	104.46	33.271	24.697	.019	24.678	1
4	Sayda 3d 17317	843.6	39.18	47.825	76.99	22.009	15.303	.013	15.290	15
5	Baroness Argyle 40498	925.5	46.05	56.215	82.64	25.897	17.630	.015	17.615	9
6	Flora Temple 3d 40086	923.6	45.10	55.058	84.17	25.355	17.655	.015	17.640	8
7	Signal Queen 30869	944.5	42.20	51.522	86.20	23.738	15.737	.014	15.723	14
8	Sheba Rex 47429	1004.2	47.12	57.511	92.20	26.491	18.571	.015	18.556	5
9	Exile's Lulu 49984	988.4	44.26	54.017	89.83	24.879	17.457	.014	17.443	10
10	Merry Maiden 64949	965.	54.65	66.695	90.47	30.721	23.103	.018	23.085	2
11	*Cupid's Jersey Maid 35040	1028.7	45.21	55.163	93.95	25.408	17.924	.014	17.910	6
12	*Stoke Pogis' Regina 48309	1012.2	49.39	60.268	94.30	27.765	19.576	.016	19.560	3
13	*Katherine of Pittsford 73169	1062.3	44.33	54.107	99.98	24.923	17.263	.014	17.249	11
14	Hugo's Countess 68394	684.2	39.44	48.172	63.89	22.169	16.960	.013	16.947	12
15	Romp's Princess 51185	704.7	42.08	51.357	67.11	23.682	17.785	.014	17.771	7
	Totals	13921.9	685.81	837.211	1281.44					
	Total values					$385.592	$274.349	$0.222	$274.127	
GUERNSEY HERD.	Totals	13518.4	597.96	724.170	1253.33					
	Total values					$329.768	$237.002		$237.002	
SHORT-HORN HERD.	Totals	15618.3	555.71	662.660	1413.68					
	Total values					$303.685	$199.134	$0.243	$198.891	

* Cows not in former tests.

The following table gives the standing and net profit of the 45 cows in Test No. 3, arranged in their order of merit :

RECORDS IN ORDER OF MERIT OF COWS IN TEST NO. 3.

Order of Merit.	Breed.	No. of Cow in Herd.	Net Profit.	Order of Merit.	Breed.	No. of Cow in Herd.	Net Profit.
1	Jersey	3	$24.678	24	Short-Horn	15	$15.478
2	"	10	23.085	25	Guernsey	6	15.293
3	Short-Horn	1	20.015	26	Jersey	4	15.290
4	Jersey	12	19.560	27	Short-Horn	2	15.220
5	Guernsey	10	19.377	28	"	4	14.599
6	"	3	18.898	29	Guernsey	12	14.524
7	Jersey	1	18.869	30	Short-Horn	13	14.288
8	"	8	18.556	31	Guernsey	2	14.020
9	Guernsey	15	18.242	32	Short-Horn	11	13.484
10	"	14	18.214	33	Guernsey	7	13.362
11	Jersey	11	17.910	34	Short-Horn	14	13.099
12	"	15	17.771	35	Guernsey	1	12.784
13	"	6	17.640	36	Short-Horn	9	12.709
14	"	5	17.615	37	"	7	12.649
15	Guernsey	9	17.543	38	Guernsey	11	12 595
16	"	13	17.539	39	Short-Horn	6	12.585
17	Jersey	9	17.443	40	"	10	12.127
18	"	13	17.249	41	"	3	11.971
19	Guernsey	4	17.116	42	Guernsey	5	11.565
20	Jersey	14	16.947	43	Short-Horn	5	11.524
21	Guernsey	8	15.930	44	"	8	9.623
22	Jersey	2	15.791	45	"	12	9.529
23	"	7	15.723				

INDIVIDUAL YIELDS OF COWS IN TEST NO. 3—30 DAYS.

COWS MILKING OVER 38 LBS. IN TWENTY-FOUR HOURS.

Brown Bessie 74997 ---------Twenty times: 41.1 lbs., 38.7 lbs., 42.2 lbs., 39.3 lbs., 42.2 lbs., 38.4 lbs., 40.3 lbs., 39.1 lbs., 40.6 lbs., 42.7 lbs., 40.2 lbs., 40.5 lbs., 39.5 lbs., 39.0 lbs., 38.2 lbs., 40.1 lbs., 39.2 lbs., 38.6 lbs., 43.5 lbs. (Sept. 27), 39.1 lbs.

Katherine of Pittsford 73169 ---Three times: 38.2 lbs., 39.9 lbs., 38.4 lbs.

COWS MAKING OVER 2½ LBS. OF BUTTER IN TWENTY-FOUR HOURS.

Brown Bessie 74997 ---------Eleven times: 2.567 lbs., 2.673 lbs., 2.513 lbs., 2.744 lbs., 3.073 lbs. (Sept. 7), 2.636 lbs. (Sept. 8), 2 774 lbs. (Sept. 9), 2.630 lbs., 2.544 lbs., 2.652 lbs., 3.002 lbs. (Sept. 27).

Merry Maiden 64949----------Once: 2.675 lbs.

HIGHEST SEVEN CONSECUTIVE DAYS' YIELD.

Brown Bessie 74997----------Sept. 6 to 12, both inclusive: Milk, 282.6 lbs.; Butter, 18.63 lbs. Number of days since last calving, 144.

TOTAL MILKINGS OF ALL JERSEY COWS IN TESTS NOS. 1, 2 AND 3, AND FIVE DAYS PRELIMINARY TO TEST NO. 2.

Name and Herd Register No. of Cow.	Fifteen Days of Cheese Test.	Five Days Preliminary to Test No. 2.	Ninety Days of Test No. 2.	Thirty Days of Test No. 3.	Total Milk.	No. of Days in Tests.
	lbs.	lbs.	lbs.	lbs.	lbs.	
Sheba Rex 47429	593.4	186.2	3283.3	1004.2	5067.1	140
Natasqua 65598	429.2	137.2	2465.9	.....	3030.3	110
Exile's Lulu 49984	632.0	200.4	3224.5	988.4	5045 3	140
Albert's Gem 34006	506.3	171.6	2666.4	.....	3344.3	110
Islip Lenox 31703	.....	148.6	3070.0	714.6	3933.2	125
Little Goldie 38671	563.1	194.9	3284.1	.....	4042.1	108
Alteration 56436	588.2	199.2	{*583.9 / 2531.8}	.....	3303.1	100
Justa Pogis 64863	448.2	147.7	2745.3	.....	3341.2	110
Gay Orphan 25985	422.3	133.6	2175.9	.....	2731.8	100
Sayda 3d 17317	524.4	182.8	3043.1	843.6	4593.9	140
Pearl of Riverside 55659	509.3	163.7	2653.7	.....	3326.7	110
Lorita 33750	444.7	146.8	2320.3	.....	2911.8	110
Flora Temple 3d 40086	526.9	180.7	3038.2	923.6	4669.4	140
Brown Bessie 74997	639.1	209.7	3634.0	1134.6	5617.4	140
Lily Martin 49954	573.4	206.9	3520.2	.....	4300.5	110
Annice Magnet 60256	492.8	170.3	2064.0	.....	2727.1	100
Hugo's Countess 68394	628.4	206.5	3542.9	684.2	5062.0	140
Ida Marigold 32615	673.6	221.5	3448.3	985.8	5329.2	140
Daisy Hinman 61537	444.2	145.4	2677.8	.....	3267.4	110
Merry Maiden 64949	624.6	203.0	3041.2	965.0	4833.8	140
Romp's Princess 51185	.....	169.6	2984.4	704.7	3858.7	125
Signal Queen 30869	581.0	192.6	3190.6	944.5	4908.7	140
Grace Pansy 2d 18764	419.3	136.8	2344.4	.....	2900.5	110
Princess Honoria 62548	488.2	156.8	2690.4	.....	3335.4	110
Baroness Argyle 40498	656.9	211.6	3266.2	925.5	5060.2	140
Tristeka 38332	454.3	.....	.....	.....	454.3	15
Pretty Marchioness 62569	432.6	.....	.....	.....	432.6	15
Cupid's Jersey Maid 35040	.....	.....	.....	1028.7	1028.7	30
Stoke Pogis' Regina 48309	.....	.....	.....	1012.2	1012.2	30
Katherine of Pittsford 73169	.....	.....	.....	1062.3	1062.3	30
Totals	13296.4	4424 1	73488.8	13921.9	105131.2	

* Estimated.

TOTAL BUTTER OF ALL JERSEY COWS IN TESTS NOS. 1, 2 AND 3, AND 5 DAYS PRELIMINARY TO TEST NO. 2.

Name and Herd Register No. of Cow.	Test No. 1. (Est. from Analysis).	Five Days Preliminary (Est. from Analysis).	Test No. 2, 80% Butter.	Test No 3, 80% Butter.	Total Butter.	No. of Days in Tests.
	lbs.	lbs.	lbs.	lbs.	lbs.	
Sheba Rex 47429	35.01	11.014	190.617	57.511	294.152	140
Natasqua 65598	28.04	9.063	161.522	.....	198.625	110
Exile's Lulu 49984	30.74	9.073	168.538	54.017	262.368	140
Albert's Gem 34006	30.27	10.463	165.777	.....	206.510	110
Islip Lenox 31703	.....	8.413	178.066	47.699	234.178	125
Little Goldie 38671	31.63	10.975	‡176.394	.....	218.999	108
Alteration 56436	34.81	11.712	†35.648 / ‡144.231	.....	226.401	100
Justa Pogis 64863	26.51	9.025	157.697	.....	193.232	110
Gay Orphan 25985	28.47	9.250	‡138.973	.....	176 693	100
Sayda 3d 17317	29.01	9.788	170.094	47.825	256.717	140
Pearl of Riverside 55659	30.23	9.562	160.804	.....	200.596	110
Lorita 33750	26.79	8.738	146.619	.....	182.147	110
Flora Temple 3d 40086	28.20	9.526	176.751	55.058	269.535	140
Brown Bessie 74997	35.05	11.899	216.640	72.235	335.824	140
Lily Martin 49954	27 06	9.712	164.227	.....	200.999	110
Annice Magnet 60256	29.05	10.089	‡119.284	.....	158.423	100
Hugo's Countess 68394	32.77	10.774	191.894	48.172	283.610	140
Ida Marigold 32615	35.09	11.688	199.756	59.367	305.901	140
*Daisy Hinman 61537	26.95	8.625	155.131	.....	190.706	110
Merry Maiden 64949	38.42	12.525	‡200.517	66.695	318.157	140
Romp's Princess 51185	.....	10.812	188.373	51.357	250.542	125
Signal Queen 30869	30.04	10.425	165.601	51.522	257.588	140
Grace Pansy 2d 18764	25.80	10.899	147.009	.....	183 708	110
Princess Honoria 62548	28.48	9.899	159.447	.....	197.826	110
Baroness Argyle 40498	35.49	11.575	‡194 400	56.215	297.680	140
Tristeka 28332	25.84	.....	.....	.....	25.84	15
Pretty Marchioness 62569	22.81	.....	.....	.....	22.81	15
Cupid's Jersey Maid 35040	.....	.....	.....	55.163	55.163	30
Stoke Pogis' Regina 48309	.....	.....	.....	60.268	60.268	30
Katherine of Pittsford 73169	.....	.....	.....	54.107	54.107	30
Totals	752.56	253.524	4274.010	837.211	6119.305	

* Calved prematurely. † Estimated. ‡ Sick during part of test.

COMPOSITION OF JERSEY HERD IN TEST NO. 4—HEIFER TEST.

September 30 to October 20, 1893.

No.	Name and Herd Register No. of Heifer.	Breeder	Owner.	Date Dropped.
1	Elturia 80701	Richardson Bros., Davenport, Iowa	Richardson Bros., Davenport, Iowa	Nov. 9, 1890
2	Campania 88475	Richardson Bros., Davenport, Iowa	Richardson Bros., Davenport, Iowa	Sep. 12, 1890
3	Lily Garfield 79819	Est. of Fred'k Billings, Woodstock, Vt.	Est. of Fred'k Billings, Woodstock, Vt.	Sep. 29, 1891
4	Iola F. 85529	N. N. Palmer, Brodhead, Wis.	E. W. Fairman, Brodhead, Wis.	July 19, 1891
5	Woodstock Mystery 77746	Est. of Fred'k Billings, Woodstock, Vt.	Est. of Fred'k Billings, Woodstock, Vt.	July 12, 1891
6	Woodstock Lady 80619	Est. of Fred'k Billings, Woodstock, Vt.	Est. of Fred'k Billings, Woodstock, Vt.	Aug. 6, 1891
7	Jeannette of Pittsford 73185	Fred'k J. Prentiss, Greenport, N Y.	Aaron O. Auten, Jerseyville, Ill.	Oct. 1, 1890

RECORDS OF LIVE WEIGHT OF HEIFERS IN TEST NO. 4—21 DAYS.

JERSEYS.						SHORT-HORNS.			
Name and Herd Register No. of Heifer.	No. of Heifer.	LIVE WEIGHT.				LIVE WEIGHT.			
		Average 5 Days Weighed in.	Average 5 Days Weighed out.	Gain.	Value of Net Gain.	Average 5 Days Weighed in.	Average 5 Days Weighed out.	Gain.	Value of Net Gain.
		lbs.	lbs.	lbs.		lbs.	lbs.	lbs.	
Elturia 80701	1	791	830	39	$1.755	904	956	52	$2.340
Campania 88475	2	744	764	20	.900	897	948	51	2.295
Lily Garfield 79819	3	775	794	19	.855	842	920	78	3.510
Iola F 85529	4	690	711	21	.945	840	902	62	2.790
Woodstock Mystery 77746	5	653	680	27	1.215	871	943	72	3.240
Woodstock Lady 80619	6	687	691	4	.180	854	923	69	3.105
Jeannette of Pittsford 73185	7	666	686	20	.900	.....	.....	.....	.....
Totals		4986	5136	150	$6.750	5208	5592	384	$17.280
Averages		712.3	733.7	21.4	$0.964	868	932	64	$2.880

RECORDS OF JERSEY HEIFERS AND SHORT-HORN HERD IN TEST NO. 4—21 DAYS.

JERSEYS.		TOTAL FEED WEIGHED OUT FOR 21 DAYS.									Value Total Eaten.
Name and Herd Register No. of Heifer.	No. of Heifer.	Hay.	Silage.	Oil Meal.	Corn Meal.	Bran.	Oats.	Cotton-Seed.	Mids.	Corn-Hearts.	
		lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
Elturia 80701	1	235.5	6	55.0	72	117	63	38.0	59	26	$5.090
Campania 88475	2	237.5	6	55.0	93	134	61	41.5	42	17	5.286
Lily Garfield 79819	3	224.5	6	63.0	93	138	84	50.5	42	14	5.697
Iola F. 85529	4	202.0	6	42.0	77	126	84	35.0	21	7	4.716
Woodstock Mystery 77746	5	176.0	6	38.0	61	114	57	24.5	19	0	3.782
Woodstock Lady 80619	6	201.0	6	42.0	84	126	63	42.0	42	0	4.728
Jeannette of Pittsford 73185	7	195.0	6	53.5	93	138	70	43.0	35	14	5.140
Totals		1471.5	42	348.5	573	893	482	274.5	260	78	.....
Total values		$7.358	$0.032	$3.833	$6.303	$5.584	$5.543	$3.569	$1.690	$0.527	$34.439
SHORT-HORN HERD Totals		lbs. 922	lbs. 1593	lbs. 118.5	.....	lbs. 709	lbs. 176	lbs. 332	lbs. 250	lbs. 596	.....
SHORT-HORN HERD Total values		$4.610	$1.195	$1.304	.....	$4.432	$2.024	$4.316	$1.625	$4.022	$23.528

RECORDS OF JERSEY HEIFERS AND SHORT-HORN HERD IN TEST NO. 4—21 DAYS.

JERSEYS. Name and Herd Register No. of Heifer.	No. of Heifer.	Milk.	Fat.	80 Per Cent. Butter.	Solids Not Fat.	VALUE OF PRODUCTS. Butter.	Solids Not Fat.	Total.	Value of Products Less Cost of Feed, Without Live Weight.	Net Gain with Live Weight
		lbs.	lbs.	lbs.	lbs.					
Elturia 80701	1	483.4	19.31	24.137	44.95	$9.655	$0.899	$10.554	$5.464	$7.219
Campania 88475	2	556.7	22.50	28.127	51.87	11.251	1.036	12.287	7.001	7.901
Lily Garfield 79819	3	562.7	28.99	37.488	53.31	14.995	1.067	16.062	10.365	11.220
Iola F. 85529	4	465.3	20.20	25.251	43.42	10.100	.867	10.967	6.251	7.196
Woodstock Mystery 77746	5	388.6	20.98	26.223	36.36	10.489	.731	11.220	7.438	8.653
Woodstock Lady 80619	6	398.1	18.42	23.027	37.15	9.211	.741	9.952	5.224	5.404
Jeannette of Pittsford 73185	7	501.8	24.98	29.973	46.82	11.989	.936	12.925	7.785	8.685
Totals		3356.6	155.38	194.226	313.88	.....	.....	.....	.....	.....
Total values		.....	.....	$77.690	$6.277	$77.690	$6.277	$83.967	$49.528	$56.278
Averages per head		479.5	22.19	27.746	44.84	.....	.....	.....	.....	.....
		.....	.....	.....	$0.952	$11.098	$0.952	$11.995	$7.075	$8.039
SHORT-HORN HERD. Totals		2581.0	97.89	122.362	235.82	.....	.....	.....	.....	.....
Total values		.....	.....	$48.950	$4.719	$48.950	$4.719	$53.669	$30.141	$47.421
Averages per head		430.1	16.31	20.393	39.30	.....	.....	.....	.....	.....
		.....	.....	.....	$0.786	$8.158	$0.786	$8.944	$5.023	$7.903

GRAND SWEEPSTAKES AWARDS OF TESTS NOS. 1, 2 AND 3.

These awards were based on the greatest aggregate net profit shown by the cows and breeds in the first fifteen days of Tests Nos. 1, 2 and 3, confined to such cows as went through all three tests. If anything were wanting in the results of the tests to show most conclusively the great superiority of the Jerseys, collectively as a breed, or in the individuals composing the herd, the "Grand Sweepstakes Awards" place it beyond any possibility of doubt.

It will be remembered that Test No. 1 was for cheese and by-products, Test No. 2 for butter and by-products and Test No. 3 for butter alone. In Test No. 1 not only cheese, and in Tests Nos. 2 and 3 not only butter, was taken into consideration, but in Tests Nos. 1 and 2 the milk (through the solids other than butter fat) and increase in live weight formed a part of the basis for awards and decisions, so that every quality of the dairy cow (and to some minds a step beyond, in giving credit for increase in live weight) was considered. Again, the staying qualities were put to the test of proof, and the Jerseys were not found lacking, but, on the contrary, stood out pre-eminently the leaders in this essential.

The appended tables will show that ten Jerseys went through all three tests, to nine Short-Horns and seven Guernseys, demonstrating the ability of the Jersey breed to stand the strain that the environment of the tests imposed on them better than the other breeds. It will also be noticed that out of the first possible ten places the Jerseys had seven, in the following order, 1st, 2d, 3d, 4th, 5th, 6th and 10th, to three Guernseys and no Short-Horns; that the three remaining Jerseys stood 12th, 13th and 17th; that the highest Jersey made in the 45 days a net profit of $5.66 in excess of the best Guernsey (equal to an excess net profit of over 12c. a day), and $6.40 in excess of the best Short-Horn (equal to an excess net profit of 14c. per day); that the lowest Jersey made a net profit of $4.16 more than the lowest Guernsey, and $7.90 more than the lowest Short-Horn. Important as these figures are, the relative profits of the breeds are of far greater import, and demonstrate in the plainest and most conclusive manner that the Jersey breed is vastly the superior, as the average "aggregate net profit" per cow in the first fifteen days of each test is as follows: Jerseys, $25.69; Guernseys, $21.52; Short-Horns, $18.20. Analyzing the

figures that go to make up the totals on which the awards were based, we find that the Jerseys lead in the first fifteen days of each test by equally as strong a lead, as the following table shows :

AVERAGE NET PROFIT PER COW BY HERDS FOR FIRST 15 DAYS OF TESTS NOS. 1, 2 AND 3.

Herd.	Test No. 1.	Test No. 2.	Test No. 3.	Total.
Jerseys	$5.73	$10.35	$9.61	$25.69
Guernseys	4.14	9.44	7.94	21.52
Short-Horns	4.04	7.62	6.54	18.20

SWEEPSTAKES FOR FIRST 15 DAYS OF TESTS NOS. 1, 2 AND 3.

Arranged in Order of Merit, According to the Aggregate Net Profit of all Cows that went through all Three Tests.

Order of Merit.	Name of Cow.	Breed.	Net Profit.			Total Net Profit.
			Test No. 1.	Test No. 2.	Test No. 3.	
1st.	Merry Maiden 64949	Jersey	$6.56	$12.129	$11.476	$30.165
2d.	Brown Bessie 74997	Jersey	5.46	11.245	12.761	29.466
3d.	Ida Marigold 32615	Jersey	6.97	10.419	10.063	27.452
4th.	Baroness Argyle 40498	Jersey	6.12	11.103	9.250	26.473
5th.	Hugo's Countess 68394	Jersey	5.96	10.877	9.083	25.920
6th.	Sheba Rex 47429	Jersey	5.24	11.162	9.354	25.756
7th.	Sweet Ada	Guernsey	5.27	9.742	9.493	24.505
8th.	Materna	Guernsey	4.82	10.211	8.986	24.017
9th.	Select 8th	Guernsey	4.79	10.637	8.583	24.010
10th.	Flora Temple 3d 40086	Jersey	4.67	10.072	9.082	23.824
11th.	Nora	Short-Horn	6.27	9.968	7.525	23.763
12th.	Exile's Lulu 49984	Jersey	6.10	8.447	8.998	23.545
13th.	Signal Queen 30869	Jersey	6.34	9.184	7.947	23.471
14th.	Amanda	Guernsey	5.06	10.608	6.557	22.225
15th.	Genevieve	Short-Horn	5.28	9.003	7.142	21.425
16th.	Ethics of Cornwall	Guernsey	4.34	9.073	7.857	21.270
17th.	Sayda 3d 17317	Jersey	3.84	8.909	8.074	20.823
18th.	Betsey 7th	Short-Horn	5.63	8.735	6.363	20.728
19th.	Bashful 2d, imp	Short Horn	4.07	8.368	7.975	20.413
20th.	Waterloo Daisy	Short-Horn	3.12	8.220	7.722	19.062
21st.	Lady of Ellerslie	Guernsey	2.80	8.255	6.882	17.937
22d.	Kitty Clay 7th	Short-Horn	4.52	5.804	6.391	16.715
23d.	Aldine	Guernsey	1.92	7.565	7.180	16.665
24th.	Belle Price	Short-Horn	2.79	6.685	5.825	15.300
25th.	Rosa	Short-Horn	2.40	6.316	4.811	13.527
26th.	Lucy Ann	Short-Horn	2.33	5.481	5.107	12.918

As was to be expected from the above figures, the Jerseys *captured every "sweepstakes award,"* leaving nothing for the other breeds, as will be seen from the following awards :

SWEEPSTAKES AWARDS.

(*a*) For the best individual cow in *each* breed competing :

	Net Profit.
Jersey—Merry Maiden 64949	$30.165
Guernsey—Sweet Ada	24.505
Short-Horn—Nora	23.763

(*b*) For the best individual cow in any breed competing :

Jersey ..... Merry Maiden 64949.

(*c*) For the best five cows in *each* breed competing:

JERSEYS.		GUERNSEYS.		SHORT-HORNS.	
	Net Profit.		Net Profit.		Net Profit.
Merry Maiden 64949	$30.165	Sweet Ada	$24.505	Nora	$23.763
Brown Bessie 74997	29.466	Materna	24.017	Genevieve	21.425
Ida Marigold 32615	27.452	Select 8th	24 010	Betsey 7th	20.728
Baroness Argyle 40498	26.473	Amanda	22.225	Bashful 2d, imp.	20.413
Hugo's Countess 68394	25.920	Ethics of Cornwall	21.270	Waterloo Daisy	19.062
Totals	$139.476		$116.027		$105.392

(*d*) For the best five cows in *any* breed competing:

Jersey ---- Merry Maiden 64949.
" ---- Brown Bessie 74997.
" ---- Ida Marigold 32615.
" ---- Baroness Argyle 40498.
" ---- Hugo's Countess 68394.

(*e*) For the *best breed* competing—*Jerseys*.

RECAPITULATION.

In the cheese test the following are the quantities and values of cheese of the breeds:

	CHEESE.	VALUE.
	lbs.	
Jerseys	1451.76	$193.98
Guernseys	1130.62	135.22
Short-Horns	1077.60	140.14

The milk of each cow, as also the mixed milk, was analyzed each day, and though no butter was made in the cheese test and the "five days preliminary" between Tests Nos. 1 and 2, it is an easy matter to estimate the butter in these two periods, on the basis of 80 per cent. oil in the butter. Estimating the butter in this way, the following tables give all the products on a basis of the three tests of the mature cows:

JERSEYS.

	MILK.	BUTTER.	VALUE OF BUTTER.	COST OF FEED.
	lbs.	lbs.		
Test No. 1, Cheese	13296.4	752.560	$307.646	$98.14
5 Days Preliminary	4424.1	253.524	103.640	-------
Test No. 2, 90 Days, Butter	73488.8	4274.010	1747.215	587.498
Test No. 3, 30 Days, Butter	13921.9	837.211	385.592	111.243
Totals	105131.2	6117.305	$2544.093	

GUERNSEYS.

	MILK.	BUTTER.	VALUE OF BUTTER.	COST OF FEED.
	lbs.	lbs.		
Test No. 1, Cheese	10938.6	610.530	$330.881	$76.250
5 Days Preliminary	3814.2	209.911		
Test No. 2, 90 Days, Butter	61781.7	3360.431	1355.261	484.141
Test No. 3, 30 Days, Butter	13518.4	724.170	329.768	92.766
Totals	90052.9	4905.042	$2015.910	

SHORT-HORNS.

	MILK.	BUTTER.	VALUE OF BUTTER.	COST OF FEED.
	lbs.	lbs.		
Test No. 1, Cheese	12186.9	545.750	$294.171	$99.360
5 Days Preliminary	4028.3	180.061		
Test No. 2, 90 Days, Butter	66263.2	2890.869	1171.669	501.789
Test No. 3, 30 Days, Butter	15618.3	662.660	303.685	104.551
Totals	98096.7	4279.340	$1769.525	

As the cost of feed in the five days preliminary has not been estimated, I am unable to give the total footings.

The price of butter for the cheese test and five days preliminary is credited at the average rate per pound credited to the breeds in the 90 days' test.

The price of butter was fixed by the scoring, that having the highest scoring having the highest value, and, consequently, that having the highest value possessed the best quality. The following are the values per pound of butter :

	JERSEYS.	GUERNSEYS.	SHORT-HORNS.
	Cents.	Cents.	Cents.
Test No. 2, 90 days	40.88	40.33	40.53
Test No. 3, 30 days	46.05	45.53	45.66

The cost of butter per pound in feed was :

	JERSEYS.	GUERNSEYS.	SHORT-HORNS.
	Cents.	Cents.	Cents.
Test No. 2	13.75	14.41	17.36
Test No. 3	13.28	12.81	15.77

The value of the cheese made was : Jerseys, 13.36c. per pound ; Guernseys, 11.96c.; Short-Horns, 13.01c.

The quantity of milk required to pound of cheese or butter was:

	JERSEYS.	GUERNSEYS.	SHORT-HORNS.
	lbs.	lbs.	lbs.
Test No. 1, Cheese	9.16	9.67	11.31
Test No. 2, Butter	17.20	18.40	22.90
Test No. 3, Butter	16.58	18.66	23.56

Taking each separate test and taking all of them in the aggregate, the results conclusively show that the Jerseys—

1. *Gave more milk.*
2. *Made more cheese.*
3. *Made more butter.*
4. *Gave more solids other than butter fat.*
5. *Required less milk to make a pound of cheese.*
6. *Required less milk to make a pound of butter.*
7. *Produced a pound of butter at less cost.*
8. *Made cheese of a higher quality.*
9. *Made butter of a higher quality.*
10. *Demonstrated their ability to profitably assimilate a greater quantity of feed and return a net increased profit.*

The tests prove these to be facts, and in proving them give the stamp of publicity and authenticity to the Jersey cow as the greatest dairy cow in all essentials that the world has ever produced.

Respectfully submitted,

VALANCEY E. FULLER,

Superintendent.

WORLD'S FAIR GROUNDS, Chicago, Ill.

INDEX.