

1. Introduction

Purpose of this series.
Kind of work covered.
Arrangement of material.

2. Class No. 1

Class No.
Class No.

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3. Class No. 2

THE CONFORMATION OF BEEF ANIMALS
AS SHOWN BY MEASUREMENTS.

4. Class No. 3

Class No.
Class No.

E. C. GARDNER.

5. Class No. 4

Class No.
Class No.

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OUTLINE.

1. Introduction.

Purpose of this article.

Kinds of cattle measured.

Arrangement of material.

2. Class No. 1.

Group No. 1.

Group No. 2.

3. Class No. 2.

Group No. 2.

4. Class No. 3.

Group No. 1.

Group No. 2.

5. Conclusion.

General remarks.

Criticisms on measurements.

"No detail is too small to be studied for truth." This is a well expressed thought for which we must give Stevenson credit, but we may bring it into our lives and make it our guide, with an assurance that such a course will always prove interesting. It is my opinion that no motto is so well suited to the student and judge of live stock as this one. Every variation has its significance, and this is especially true in regard to the conformation of beef animals. To the old and much experienced judge there are very few peculiarities in conformation that are not immediately evident, but with the beginner it is different. He feels the need of something definite to assist him in fixing a desirable type in mind. Often, also, in extremely close show contests a measurement might change the decision of the judges, or bring out some good quality before unperceived.

It is with this idea in mind that I am about to give some measurements that I have taken, and to draw some conclusions from them. Lack of time and opportunity have considerably hindered the work so that I am compelled to confine myself to an examination of one breed of cattle, the Shorthorns. The individuals measured are some of the best out of forty-nine head sold at auction in Manhattan, and the best from the herd of T. K. Tomson and Sons of Dover, Kansas.

In planning these measurements the idea has been to take only those that would bring out points of value to the practical stockman. The measurements of the head and circumference of cannon bone will indicate firmness and quality; the chest and abdominal measurements will show constitutional vigor, while the length of neck, back, coupling and rumps, as well as the height, will give us an idea of the general build of the animal.

The accompanying drawings are numbered and by following the

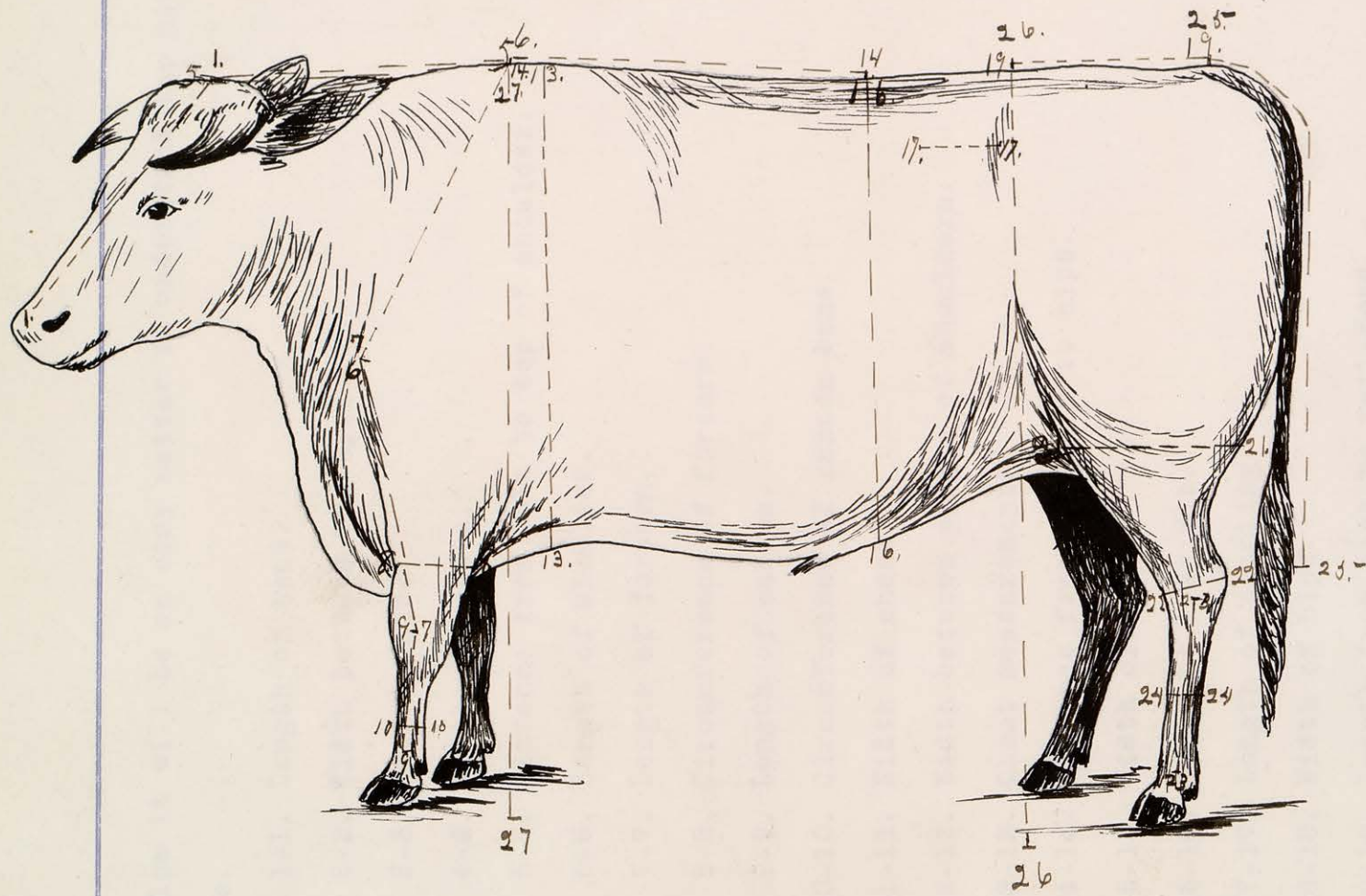


table below it will be an easy matter to understand the method of procedure.

- 1-1. Length of head.
- 2-2. Width between the eyes.
- 3-3. Eyes to nose.
- 4-4. Width of muzzle.
- 5-5. Distance from pole to top of shoulder.
- 6-6. Length of shoulder.
- 7-7. Length of forearm.
- 8-8. Circumference of forearm.
- 9-9. Length of cannon.
- 10-10. Circumference of cannon-bone.
- 11-11. Width of chest.
- 12-12. Width between points of shoulders.
- 13-13. Chest measurements.
- 14-14. Distance from shoulder to hips.
- 15-15. Width of loin.
- 16-16. Girth at last rib.
- 17-17. Length of coupling.
- 18-18. Width of hips.
- 19-19. Length from hips to tail-head.
- 20-20. Width of pin-bones.
- 21-21. Circumference of thigh at stifle.
- 22-22. Circumference of hock.
- 23-23. Length of hind cannon-bone.
- 24-24. Circumference of hind cannon-bone.
- 25-25. Length of tail.
- 26-26. Height at hips.
- 27-27. Height at shoulders.

For convenience we shall divide our subjects into three classes, as follows:

First, aged class, including those three years old and over.

Second, two-year-old class, including those from two to three years old.

Third, young class, including those from one to two years old.

In each of these classes we shall consider the males in one group and the females in another.

In the First Class, Group 1, we have three subjects,-

- Gallant Knight 124468,
- Dictator 172524,
- Red Rose Knight 3rd 161511,

and the average measurements of these are as follows:

1-1.	--	19-3/4 inches.
2-2.	--	12 "
3-3.	--	11-1/2 "
4-4.	--	5-1/2 "
5-5.	--	28 "
6-6.	--	26-3/4 "
7-7.	--	22-1/2 "
8-8.	--	20-1/3 "
9-9.	--	8 "
10-10.	--	7-1/2 "
11-11.	--	9-1/3 "
12-12.	--	28-1/3 "
13-13.	--	91-3/4 "
14-14.	--	36-1/3 "
15-15.	--	17-1/3 "
16-16.	--	101 "

17-17.	--	12-3/4	inches.
18-18.	--	22-3/4	"
19-19.	--	18	"
20-20.	--	10	"
21-21.	--	30	"
22-22.	--	20	"
23-23.	--	9-1/4	"
24-24.	--	9-1/2	"
25-25.	--	34-3/4	"
26-26.	--	55-1/2	"
27-27.	--	55-3/4	"

These animals were in moderate flesh and averaged up well. No. 161511 was slightly deficient in heart girth, measuring only 88 inches as compared with No. 124468 whose heart girth was 93-1/2. The latter measurement is almost ideal as it is not so large as to be out of proportion, and yet is sufficient. The width of chest in the latter case is also up to the standard. The height at hips and at shoulders varies considerably in this group, the extremes being 54-1/4 inches at hips and 54-1/4 inches at shoulders compared with 56-1/2 inches at hips and 57 inches at shoulders. In fact there is a general tendency all the way through for No. 161511 to be rangey and not to show a desirable make-up. The quality of this group shows up very well on an average, but again we must note that in No. 161511 there is considerable tendency to coarseness. The circumference of the cannon-bone is 10-1/2 inches in the case of No. 161511, with a general average of 8-1/2 inches.

In Group 2 of the first class we have four subjects,-
 Victoria of Maple Hill, designated as No.1,

Second Duchess of Normandy, designated as No. 2,
 Fifth Moss Rose of Walnut Grove, " " No. 3,
 Miss Mary, " " No. 4.

These were all in average breeding condition, and their measurement average is as follows:

- 1-1. -- 18-1/2 inches.
- 2-2. -- 8-1/4 "
- 3-3. --- 10-1/4 "
- 4-4. -- 4-3/4 "
- 5-5. -- 27 "
- 6-6. -- 24-1/4 "
- 7-7. -- 24 "
- 8-8. -- 22-1/4 "
- 9-9. -- 8-3/4 "
- 10-10. -- 8 "
- 11-11 -- 10 "
- 12-12. -- 24-3/4 "
- 13-13. -- 84-1/2 "
- 14-14. -- 32-1/2 "
- 15-15. -- 16 "
- 16-16. -- 98-1/4 "
- 17-17. -- 12-1/4 "
- 18-18. -- 22-1/4 "
- 19-19. -- 17-3/4 "
- 20-20. -- 9-3/4 "
- 21-21. -- 27-1/2 "
- 22-22. -- 18 "
- 23-23. -- 13 "

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24-24.	--	9-1/4 inches.
25-25.	--	31-1/2 "
26-26.	--	52-3/4 "
27-27.	--	52-3/4 "

In looking over the measurements of this group we note some very interesting features. The heart girth varies considerably, No. 2 having credit for the greatest, which is 88 inches, and No. 1 for the smallest, 81 inches. The average width of chest, as shown by Nos. 10 and 11 in the diagram, is observed to be up to the standard and to show much constitutional power. The animal with the largest heart girth has also the greatest width of chest. Likewise the exact reverse is true. The greatest width between points of shoulders is 29-1/2 inches and the smallest is 25 inches, while the extremes in width of chest are 10-1/2 and 9 inches respectively. The height of these animals varies more than for those in the previous group, the extremes being 54-1/2 inches at shoulder and 55 inches at hips as compared with 50-1/4 inches and 51-1/4 inches, respectively. No. 4, the extremely tall one, was slightly rangy and narrow throughout, but the next in order of height, 54-1/2 inches at shoulder and 54 inches at hips, was well proportioned all through, being a very large animal. The other two were of a blocky type. In length of coupling we have a difference of from 10 to 14 inches, while the width of loin is noted to vary directly. The animal having the 10-inch coupling has 17-1/2 inches as width of loin while the one with the 14-inch coupling has but 16 inches of loin. The circumference of the cannon-bones of this group, indicating the quality, shows it to be very fine on an average, measuring 9 inches. The variation, however, is considerable, ranging from 7 to 13 inches.

In comparing the groups of this first class we note that the females are generally smaller than the males in practically every respect with the exception of the circumference of the cannon-bone, which is slightly greater. This indicates a superiority of quality in the males. The difference is vastly noticeable in the case of the head. The males in the development of the masculine characters show much more coarseness about the head than the females. The average measurements of the latter are: Length, 18-1/2 inches; width, 10 inches; and width of muzzle, 4-1/2 inches, while of the former they are 19-3/4, 12, and 5-1/2 inches respectively.

Class No. 2 is not fully represented as it was impossible to get measurements of bulls between the ages of two and three years. However, representatives of the other group were accessible, and of

- Johana, designated as No. 1, and
- Mona, " as No. 2,

the following average of the measurements taken is submitted:

- 1-1. -- 18 inches.
- 2-2. -- 7-3/4 "
- 3-3. -- 10-1/4 "
- 4-4. -- 4-1/4 "
- 5-5. -- 27-1/2 "
- 6-6. -- 22-1/2 "
- 7-7. -- 23-1/4 "
- 8-8. -- 18-1/2 "
- 9-9. -- 11 "
- 10-10. -- 7-1/2 "
- 11-11. -- 8-3/4 "
- 12-12. -- 22-3/4 "
- 13-13. -- 73-3/4 "

14-14.	--	32-1/2	inches.
15-15.	--	16-1/2	"
16-16.	--	87-1/2	"
17-17.	--	11-3/4	"
18-18.	--	18-1/2	"
19-19.	--	16-3/4	"
20-20.	--	7	"
21-21.	--	28-1/2.	"
22-22.	--	16-3/4	"
23-23.	--	11-1/2	"
24-24.	--	8-1/4	"
25-25.	--	31-1/4	"
26-26.	--	50-1/4	"
27-27.	--	49-1/2	"

In looking over the measurements which comprise the above average we see many wide variations which cannot be accounted for by difference of age or of flesh as these animals were practically equal in both these respects.

No. 2 is observed to be a little the best in constitution, her chest measure being 74 inches as compared with 73-1/2 in No. 1; also distance between points of shoulders, 21 inches in the former, and 22-1/4 in the latter, with a width of chest respectively 9-1/2 and 8 inches. The measurement of height in No. 2 is 49-1/2 at hips and 49 at shoulders as compared with 51 at hips and 50-1/4 at shoulders in No. 1. Also, the distance from shoulder to the last rib in No. 2 is 31-1/2 and in No. 1, 33-1/2 inches, and correspondingly 12 and 11 inches in width of chest. These points all indicate that No. 1 is more inclined to be rangey, and to lack in desirable conformation.

The indications of quality are in favor of No. 2, her measurements being as follows: Length of head, 17-1/2 inches; width between the eyes, 8-1/2 inches, and width of muzzle, 4 inches, while No. 1 measures correspondingly 18, 7-1/2 and 4-1/2 inches. The circumference of cannon-bone for No. 2 is 7 inches as compared with 8-1/2 inches in No. 1. The others of this group are practically an average of the above and need no mention.

In considering the Third Class we have Group 1 especially well represented by eight individuals,-

- Prince Edward 202874,
- French George,
- Moss Rose Duke,
- Rose Duke of Elmwood,
- Best Cordelias,
- Red Jacket,
- Masterpiece, and
- Bell Duke,

and the following is an average of the measurements:

1-1.	--	18	inches.
2-2.	--	8-1/2	"
3-3.	--	9-3/4	"
4-4.	--	4-1/2	"
5-5.	--	26-1/2	"
6-6.	--	22-1/4	"
7-7.	--	21-1/4	"
8-8.	--	19-1/4	"
9-9.	--	9	"
10-10.	--	8-1/2	"
11-11.	--	9-1/2	"

12-12.	--	24	inches.
13-13.	--	76-3/4	"
14-14.	--	31-3/4	"
15-15.	--	14-1/2	"
16-16.	--	86-3/4	"
17-17.	--	11	"
18-18.	--	19	"
19-19.	--	18	"
20-20.	--	8-1/4	"
21-21.	--	26-1/4	"
22-22.	--	17-1/4	"
23-23.	--	12-3/4	"
24-24.	--	8-1/2	"
25-25.	--	31-3/4	"
26-26.	--	52	"
27-27.	--	51	"

The consideration of the details in regard to the group of which the above is an average measurement gives us some good material from which to draw conclusions. A study of the chest measurements of this group brings out very plainly the great amount of difference in constitutions powers of very similar animals. The range of variation in this instance is wide, 82 inches being the largest and 71 inches the smallest chest measurement. The correlation of parts is again made evident in this group, when, upon comparison, we find that the width of chest and the distance between the points of the shoulders vary directly as the chest measurements. For instance, the individual of 82 inches chest measure has 10-1/2 inches width of chest and 26 inches as the distance between points of shoulders,

while the 71-inch chested individual shows 9 and 23 inches respectively. The average general conformation is noted to be very fair, but the difference in individuals is very apparent. The extremes are 55-1/2 and 54 inches, height at hips and shoulders, as compared with 50-1/4 and 50 inches; we also note the length of coupling and width of loin and in each case find that they vary directly, the extremes in the former case being 13 and 11-1/2 inches, while in the latter it is 15 and 14 inches. The measurements showing quality average up well, indicating perhaps a little tendency toward coarseness, the average circumference of cannon-bone being 8-1/2 inches. The length of head varies all the way from 16-1/2 to 19 inches with a general average of 18, which might be shortened a little. The width between the eyes does not show any prominent differences. The average is 8-1/2 inches, which is possibly a trifle narrow. In width of muzzle we find this group especially strong, which is one of the generally accepted indications of good fattening qualities.

For consideration in the Group 2 of the Third Class we have two very fine heifers of the same age and conditions,-

- Third Elder Lawn Victoria, designated as No. 1, and
- Sweet Harmony, " as No. 2.

They were at the time of measurement being fed for the show ring.

The average of their measurements is as follows:

1-1.	--	15-3/4 inches.
2-2.	--	7-1/2 "
3-3.	--	8-1/2 "
4-4.	--	3-1/2 "
5-5.	--	22-1/2 "
6-6.	--	23 "
7-7.	--	18-1/2 "

8-8.	--	19-1/4 inches.
9-9.	--	7 "
10-10.	--	6-1/4 "
11-11.	--	9-1/4 "
12-12.	--	20-1/2 "
13-13.	--	75-1/2 "
14-14.	--	27 "
15-15.	--	14-1/2 "
16-16.	--	87-3/4 "
17-17.	--	10-1/2 "
18-18.	--	18-1/2 "
19-19.	--	14-1/2 "
20-20.	--	7 "
21-21.	--	26-1/2 "
22-22.	--	16-1/4 "
23-23.	--	9-1/2 "
24-24.	--	8-1/2 "
25-25.	--	27 "
26-26.	--	46-1/2 "
27-27.	--	46-1/4 "

These animals were in better condition than the others measured, but, allowing due consideration for that, it may be noted that the chest measurements were good. The width of chest and distance between points of shoulders, two measurements very little influenced by condition of flesh, also show up exceedingly well. These animals vary a little in height, but this difference is accounted for in that one is slightly larger all the way around. In regard

to coupling, here we find a very neat back and loin. It is also seen that the wider loin has the shorter coupling, and vice versa, which shows clearly a correlation of parts. In this group a superiority of quality is evident, and especially is this noticed in the fineness of the bone. The circumference of cannon-bone averages 7-1/4 inches. The measurements about the head also show neatness and fineness, which is desirable. In comparing these groups we shall have to make allowance for the difference in flesh. In constitutional measurements the bulls are seen to have somewhat of an advantage, as should be the case as they are naturally a little larger. In width of chest there is but one-fourth of an inch difference, but between points of shoulders a much larger variation is evident. The 3-1/2 inches in favor of the males is also accounted for by the fact of difference in sex. The height and length of coupling both indicate a little more tendency to be rangey in case of the males.

In conclusion it will be impossible to do other than draw a few general comparisons, and to suggest wherein the average measurements might be changed to fit a more perfect animal.

In comparing the height of the mature males of Class 1 and that of the yearlings of Class 3, we see that in this respect the variation is not as great as in the measurements of some other parts, for instance, the chest capacity, and girth at last rib. From this we infer that there is a tendency for young animals to appear rather rough and out of proportion because of the rapid growth of the bony structure as compared with other portions. We also note that the young males are not proportionally developed in the masculine characters of the head as compared with the rest of the body.

The general average measurements of the females of each class

in comparison show some interesting features. Those of the First and Second Classes are noticeable for their similarity. There is a little difference in chest measurement and height in favor of the old cows, but this may be accounted for by the fact that in the aged class there were two animals of a taller, rangier type, while those of the other group were all blocky and low-built. The younger class measurements show a relatively lower average in all respects.

A comparison between a few of the averages of the groups in classes will be of interest. In the First Class the coupling of the cows is 12-1/4 inches and in case of the bulls it is 12-3/4 inches, which, according to the breeder's ideal, is a correct variation. The measurements from hips to tail-head is 17-3/4 inches for the females and 18 inches for the males, while the width of the pin-bones is 9-3/4 and 10 inches respectively. It is desirable that a cow have a short wide rump, as such a conformation assists nature at the time of giving birth to the young. It is impossible to make such a comparison in the Second Class, but the Third Class shows the heifers to have 10-1/2 inches in length of coupling as compared with 11 inches in the males, and in distance from hips to tail-head 14-1/2 inches and width of pin-bones 7 inches for the females as compared with 18 and 8-1/4 inches, respectively, in the bulls.

In criticizing the general average of Group 1, First Class, I would increase the length of head one-half inch, shorten measurement No. 5, 1-1/2 inches, increase No. 12, 2 inches, shorten No. 18 one inch, and shorten height one inch in Nos. 25 and 26. In Group 2, First Class, I would shorten No. 5, 2 inches; No. 6 one inch, and No. 13, 2 inches, and would remove an inch from the height all the way around, as an improvement of the standard.

In the Second Class, Group 2 shows a fairly good average measurement. Nos. 12, 14 and 20 would have been very favorably increased with a heavier coat of flesh, but otherwise I could not intelligently add criticism.

In criticizing the measurements of Group 1 of the Third Class I feel that the average taken was of a considerable number and therefore should be very reliable. This average would have shown up much better in Nos. 12, 10 and 20 had the animals carried more flesh. No. 1 might be cut down one-half inch, but otherwise I see little need for change. In the last group of the Third Class the average measurements are practically ideal, and I have no suggestions to make.