following from the Model Farm Report in 1886, pages 158–9.

There is no doubt of the fact that the present limit of North American pastures is 1,300 lbs. of milk, or 85 lbs. of beef per acre per season of 5½ months. These at ¾c. and 5c. per lb., give $9.75 and $4.25 respectively, or an average value of $7 per acre, with the very marked difference of nearly 130 percent in favor of the milk product. * * * The pasture seeded down in 1884 is still holding two cows per acre easily, and producing at the rate of 7,692 lbs. of milk per season of 5½ months by common grade cows—cows which under any conditions never give over 25 lbs. per head per day. Were they Holsteins, Ayrshires or Shorthorns, the season's produce would amount to about 14,000 lbs. of milk per acre.

Prof. Brown deserves the gratitude of every farmer in Ontario for his excellent permanent pasture, but if he would confine his observations more to facts and arguments and less to theory, he would deserve much greater gratitude.

Let us now show how his facts disprove his own theories, as well as those of his disciples in his School of Practical Theory. We don't deny the fact that he pastures two cows per acre, but his conclusions relating to the yields of the thoroughbreds are unwarrantable, although this extreme is not unattainable.

By reference to the aforementioned tables, it will be seen that we produced, under average conditions, 1,000 lbs. of milk per acre, producing a loss of fertility of $1.15; therefore, 14,000 lbs. of milk per acre (Professor Brown's estimate) would produce an exhaustion of 1.15 × 14 = $16.10 per acre; or his permanent pasture becomes exhausted 3⅓ times more rapidly than the soil under an average crop of wheat (20 bushels per acre); or at least 1½ times faster than exhaustion can take place under the most intensive system of wheat growing. It will be safe to assert that under the most intensive system of soiling, at least 50 percent more milk could be obtained from an acre than from Prof. Brown's permanent pasture, so that the total yield of milk per acre would then be 21,000 lbs. instead of 14,000, showing a soil exhaustion of $24.15 per acre, instead of $16.10. Under maximum yields of wheat growing, the soil cannot be exhausted at a greater rate than $5 or $6 per acre, while dairying in its most intensive form may exhaust the soil at the rate of $24 per acre.

In the same manner, if two steers are pastured on an acre, instead of one steer on four acres, as in our foregoing calculation, the soil will become exhausted at the rate of 1.03 × 8 = $8.24 per acre.

It will be observed that we have made no allowance in the average estimates for waste of manure during the winter months, which, under ordinary management, has been variously estimated at one-half to three-fourths of the total excrements voided. Taking the former waste as a basis and calculating that an average animal will void a ton of manure per month, worth $1.60 per ton, we get a still further exhaustion of $1.20 per acre, to be added to the exhaustion produced by the cows and steers respectively under the average conditions, and $2.40 per acre under the more intensive system.

(To be continued.)

In Britain the loss occasioned by attacks of the ox-warble fly amounts to upwards of £2,000,000 sterling annually. This loss is preventable.

England's importation of frozen meats from Australia have increased very largely. In 1881 the number of carcasses received was 150,000, while in 1886 they reached 800,000.

Relative Profits in Dairying and Beef Growing.

In order to arrive at a basis for calculating the relation between these two branches of stock raising, it is necessary to estimate the cost of both steers and cows from calfhood to their life's end, and not only pick out that portion of their life that may be most profitable. Calves, whether they are intended to be fed for the block or raised for dairy purposes, receive the same treatment for the first two years, the cost of which would be as follows:

TABLE SHOWING COST OF STEER:

	$ c.	$
400 lbs. whole milk	4 00	
1500 " skim "	4 50	
100 " grain	1 00	
100 " bran	60	
30 " oil cake	50	
Grass, hay and pasture	2 00	
Total for 1st summer		12 60
500 lbs. hay	2 50	
500 " bran	3 00	
350 " grain	3 50	
600 " roots	1 00	
45 " oil cake	75	
Total for 1st winter		10 75
Six months' pasture	9 00	
2000 lbs. straw	4 00	
500 " bran	3 00	
2000 " roots	3 35	
500 " grain	5 00	
Total for second year		24 35
Six months' pasture	9 00	
900 lbs. straw	2 25	
900 " hay	4 50	
800 " bran	4 80	
1440 " grain	14 40	
3600 " roots	6 00	
240 " oil cake	4 25	
Total for third year		45 20
Total cost of three-year-old steer		93 90

A good steer, fed as indicated above, should gain from 1½ to 1¾ pounds per day, or should weigh, at the end of three years, 1,640 lbs. to 1,920 lbs. and, if disposed of at 5c. per pound, would realize from $82 to $96, the former sum being a loss of $11.90, and the latter a gain of $2.10.

In the above calculations no labor for attendance, interest on capital, risks, rent for stables, etc., have been debited, nor has the manure been credited. It is estimated that one person, earning $30 a month, including board, can attend 50 head of cattle, representing $10 for each steer from birth. The interest of 6% on the capital invested in the steers as food consumed by them is $7, the interest and depreciation on stables, etc., $5, and risks, including veterinary surgeon, fees, etc., $2, making a sum total of $24 of extra charges for each 3-year-old steer, which is to be deducted from the value of their manure. During their lifetime the steers consumed 8,400 lbs. of dry matter in their food, of which on the average 44% will be found as dry matter, in the solid excrements about 3,700 lbs., and 6%, or about 500 lbs. in their urine. The solid excrements would contain about 83% of water, making a bulk of a little over 21,700 lbs., containing 63 lbs. of nitrogen, 21 lbs. of potash and 36 lbs. of phosphoric acid, which at the market prices of commercial fertilizers would realize as follows:

VALUE OF THE SOLID EXCREMENTS.

63 lbs. of nitrogen @ 15c	$ 9 55
21 " of potash @4½c	94
36 " of phosphoric acid @ 6c	2 16
Total	$12 65

Urine of cattle contains about 93% of water; a bulk of that substance containing 500 lbs. of solid matter, would therefore weigh 7,140 lbs., of which 50 lbs. are nitrogen and 35 lbs. potash.

VALUE OF URINE OF THREE-YEAR-OLD STEERS.

50 lbs. of nitrogen @ 17c	$ 8 50
35 " of potash @4½c	1 57
Total	$10 07

The entire value of the manure, $12.63 + $10.07 = $22.72, is therefore $1.28 less than the cost of attendance, interest, risk, etc., and this amount must be deducted from the profits or added to the loss of feeding, which leaves a loss of $13.18 in the one case and a gain of 82c. in the other.

The heifers would consume the same quantity of food as the steers did for the first two years, being equivalent to $47.70. Their feed for the third, and each subsequent year, would, however, be less.

TABLE SHOWING COST OF HEIFERS.

	$ c.	$ c.
Cost of 1st year		23 35
Cost of 2nd year		24 35
Six months' pasture	9 00	
1700 lbs. straw	3 00	
750 " hay	3 75	
2700 " roots	4 50	
900 " bran	5 40	
500 " grain	5 00	
Cost of third year		30 65
Total cost at three years		78 35

To this cost of $78.35 must be added $1.28, the amount by which the attendance, risks, interest, etc. overbalances the manure, making a cost of $79.63, before any returns in milk are given. This cost, with its interest, must be equally distributed over the lactation period of the cow, so that when her usefulness is over her cost has been repaid. If this period be 10 years and interest 6%, then each yearly instalment will be $10.70. If profitable, this amount, together with risks, attendance and stabling, added to her yearly food, charged at market prices, should not exceed the value of her milk and manure for that period.

COST OF ONE YEAR'S MILK.

One year's food	$30 65
Attendance in winter	3 60
Cost of milking	5 00
Risks, etc	1 00
Stabling, etc	1 75
Yearly instalments on the cost of cow	10 70
Total cost	$52 70

During this time a good cow well cared for will give from about 5,400 to 6,200 lbs. of milk, which will realize, on an average, about 8c. per pound at the cheese factories, or $43 to $50 for the year's milk. The total dry matter consumed by the cow in her food for the year is 3,440 lbs., of which 38 % = 1,300 lbs., are found in the solid excrements, and 5% = 170 lbs. in the urine. The solid excrements having about 83% of water, would therefore weigh 7,700 lbs., of which 0.29% or 22.3 lbs. are nitrogen, 0.1%, or 7.7 lbs., potash, and 0.17%, or 9.7 lbs., phosphoric acid, which at their respective market prices of 15, 4½ and 6 cents, would realize $4.28. The urine containing about 93% of water, would, with 170 lbs. of dry matter, weigh 2.430 lbs., of which 0.58% or 12 lbs. would be nitrogen, and 0.49% or 11 lbs. potash. These, at 17 and 4½ cents respectively, have a value of $2.53. The entire value of the manure is therefore $4.28 + $2.53 = $6.81. This amount added to the value of the milk, $43 to $50, would leave the returns to be from $49.81 to $56.81, which with $52.70 as total costs, leave a loss of $2.89 in one case, and a gain of $4.11 is the other.

Some authorities calculate a much larger profit in dairying than beef growing, but our figures do not do this, and are practically substantiated by Mr. J. B. Lane, one of our most progressive farmers in Middlesex, in our July issue.

The calves the dairy cows produce cannot be credited to them, as their value at birth is no more than will cover the services of their sire, for there is no profit in veal raising. The 82c. profit shown in the one estimate of beef growing will be more than counterbalanced by the cost of the calf at birth, which has not been debited in the above estimates.