

self by gradual cooling, and by centrifugal separation.

The size of butter globules in milk of ten breeds under various conditions, winter and summer.

The centrifugal separation of cream from milk in relation to quantity from different breeds.

The question of butter-making in winter, with special reference to creameries.

The chemical analysis of milk from different breeds of cattle.

The cheese curd from milk of ten different breeds of cattle, during winter and summer.

Ensilage corn in the production of milk, cream, butter, and cheese.

Turnips in the production of milk, cream, butter, and cheese.

The feeding of calves on skimmed milk, in connection with sending cream to butter factories.

All these now are purely with regard to experiments in connection with what is promising to be one of the largest industries in this country—

#### THE DAIRYING INDUSTRY.

Our cheese has taken a place second only to that of cattle, and with the efforts we are making for the improvement of our butter products I have no doubt we will be able to show as valuable results from our experiments as we have done from our experiments with cattle. The value of the experiments and the manner in which they are appreciated are shown by the avidity with which the farmers read the annual reports. Is there one report more sought for than that of the Agricultural College and Experimental Farm? If it is such an unsatisfactory report, and if it is so flagrant and foolish as the hon. gentleman would have us believe, would agriculturists themselves be so eager to see these reports to see the results of experiments carried on there? I think I am only saying what is true when I say that there is no report of any branch of our work more sought after, or more appreciated by the public, than that of the Agricultural College and Experimental Farm. Then we have laid down at the same page—200—other experiments which are to be carried on, such as:—

Fattening a score of common store steers from 1,000 to 1,350 lbs., in six months of winter, for the British market.

The possibility of making yearling beef fit for exportation.

The Shorthorn, Hereford, Aberdeen Poll—beefing contest at the Ontario Experimental Farm.

Fattened shearing wethers of six distinct grades—their cost, wool, weight, and value, for the British market.

The experiment of raising a suitable class of yearling beef for exportation is a new thing, which Prof. Brown thinks he can make successful, and if he succeeds in proving that breeders can bring up and feed yearling steers for the British market I say it will be worth more to the province than every dollar ever expended on the Experimental Farm. Then there are to be experiments carried on with different grades of sheep, and so on, but I will not weary the House by reading all these. I merely give what I have read to show the scope and character of the experiments, and I do not think there is another person in the country but the hon. gentleman himself who would take the ground that a financial profit could be expected from carrying on this kind of work. Now, the hon. gentleman went into

#### A COMPARISON

of the Ontario Agricultural College and some of the agricultural educational institutions in the United States. I could not take down all his figures, but from some few I have got, I think I will be able to show that there was no fairness in the comparison he made. In the first place he took the College in the State of Maine, and showed that the outlay was kept better within the revenue than it was at our College. That institution is insignificant in comparison with ours. They have only ninety students, while we have two hundred; they have only 376 acres, while we have over 500; and they carry on no experimental work such as the great bulk of the expenditure is made for in connection with our institution. Then he took us to Mississippi, and made comparisons there, and he himself stated that in a letter he had received from the Principal of that institution that they had no time for experiments, and yet at the same time the hon. gentleman attempted to contrast it with our Model Farm, which is mainly experimental; but after all, in 1882-3, the Legislature of Mississippi voted for that college no less a sum than \$120,000. (Hear, hear.) If we were to make a proposition for such an expenditure as that here the hon. gentleman would think we were going out of our senses. (Laughter.) Next he spoke of the Kansas Agricultural College, and stated that the outlay was less than ours, but at the same time he admitted that they had only three breeds of cattle, no sheep at all, and that only \$450 was expended in experiments, including \$250 for printing. Yet he attempted to make a comparison with that institution, and claimed that because they only spent \$450 that our money expended in experiments was money thrown away. I say that if we were to reduce our expenditure to that sum it would be better to close up the Agricultural College altogether. Then he took us to Iowa and said that the Legislature there were carrying on their institution at a less cost than we were in Ontario. What comparison can be made between the two? They carry on no general experimental work such as we do here, and have no farm such as ours. They have a creamery and seventy-five cows, and the agricultural work is mainly devoted to dairying. Their receipts will therefore show much better

than ours, for our work is not remunerative while theirs is. But notwithstanding the smallness of the institution we find that there are no less than twenty-two instructors employed for only 150 students, against our 200. Then he goes to Michigan, and says the College there is more nearly like ours. Well, it is, but they are not doing one-tenth of the experimental work that we are. I have the report of the State Board of Michigan, which gives the report of the Agricultural College, from which I think the House will be able to judge of their work, when I state that the whole experiments, the results of which they have given to the whole world, are comprised in about three pages of their report. They have no experimental feeding of cattle, and their whole purchases of stock in 1883 was confined to one merino ram. Michigan college has only 300 acres under cultivation; we are cultivating over 400 acres. Michigan has only 185 students.

Hon. gentlemen opposite—Hear, hear.  
Hon. A. M. ROSS—The hon. gentleman said that the education of their students cost less than ours, and I will be able to show that ours cost less than theirs. (Hear, hear.) He says the Ontario College cost, including capital and the cost of maintaining buildings, which is put in the repairs and maintenance account, \$63,714. In Michigan the expenditure in 1883 was \$56,801. Their receipts were from Farm Horticultural department, &c., \$7,795; from fees and incidentals, \$5,730, which deducted from the total cost leaves the net cost \$43,286 for their 185 students. Our total cost for farm and college maintenance is, as before stated, \$63,714; deducting our receipts, \$17,000, leaves \$46,705 for our 188 students. But there is a further sum that we are entitled to deduct to make the comparison fair, and here I say is a point in which the hon. gentleman

#### DEALT UNFAIRLY

with the House. He never drew attention to the fact that Michigan is expending nothing in regard to board of students. They board themselves.

Mr. CARNEGIE—I pointed that out.  
Hon. A. M. ROSS—Yes, afterwards, when you were calling attention to the purchase of the cooking-range, but at the time you were making the comparison of the cost you never drew attention to the fact that Ontario was paying out about \$11,000 for board.

Mr. CARNEGIE—I always understood that the expenditure for board was included.

Hon. A. M. ROSS—It is not included as a part of the gross expenditure which the hon. gentleman endeavoured to excite the House about. I say that deducting this it would leave the net cost of our College \$35,705, as against \$43,286 on the part of Michigan College. That is exclusive of the large expenditure that must necessarily be involved in our extensive experiments, which Michigan is not carrying on, and has therefore no corresponding outlay. Then another thing which he drew attention to in connection with our College was that we were unable to raise sufficient food for our cattle while they were able to raise food for theirs, but he did not draw attention to the fact that their whole live stock only amounted to \$16,000 while we have \$39,000 worth. It was only because I happened to have the report of the Michigan State Board here that I was enabled to check the erroneous statements which the hon. gentleman made, and if we find that he is making such an unfair comparison in regard to an institution for which we have the figures, I ask what reliance can we place upon his statements with regard to those institutions of which we have not the figures? (Hear, hear.)

#### PRACTICAL AND SCIENTIFIC FARMING

will pay, say the hon. gentleman. That is just what the College is doing, but he is asking too much from the College to suppose that an institution of this kind is going to give much actual financial results. Does he expect it of all the educational institutions to pay its own way? The Experimental Farm is just as much an educational institution as the School of Practical Science, where we expend five or six thousand dollars for the purpose of giving young men instruction in science, and yet the revenue is only \$900. Does he say that the School of Practical Science should be abolished? Again take the high schools. Does he say that they should be abolished because the revenue from them is so small? And yet the Agricultural College is as much an educational institution as these. In his charges of waste and extravagance against the college he went into particulars as to the colleges in the United States, but the fact that some are not carrying on experiments or only to a very small extent, he completely overlooked. In the Florida Agricultural College there are in attendance only 30 students, against 188 in the Ontario college, while \$7,800 is paid for professor, against \$7,480 in our college. In Kansas I find that they have only 271 acres in the farm, while we have 550; they have 7 professors and 5 assistants, while we have only 4 and one assistant; they pay \$11,900 to the professors and 4,100 for the assistant, against \$7,486 for professors and \$750 for assistant. I shall not repeat what I have said with regard to Ontario. In Maine they have 376 acres in the farm, 8 professors and 2 assistants, with \$11,000 for professors' salaries and \$1,100 for assistants, while they have only 91 students. In Mississippi they have 8 professors and 16

assistants paid \$16,000 and \$6,000; with 230 students. In Virginia there are 7 professors, 2 assistants whose salaries are \$10,500 and \$500, and only 150 students. Now I contend that all these figures show that we are more economical and doing our work more cheaply than the colleges on the other side to which he appealed for support, although we are doing work of far greater importance and magnitude than any of these. I have not found any place carry on experiments to the same extent as Ontario, and I question very much if any institution has attracted such attention in the Old Country as this of ours. It is clear that the hon. gentleman either has not sufficiently informed himself, or he has refused giving the House the information he should have possessed before instituting such an attack. The hon. gentleman made a comparison as to the students in attendance, and attempted to show that there had not been progress, but a falling off. The number of students attending that College were:—

Year.	During Year.	Fall Term.
1876.....	53	32
1877.....	87	40
1878.....	146	87
1879.....	152	84
1880.....	176	125
1881.....	217	126
1882.....	206	129
1883.....	202	112
1884.....	183	108

The figures show that we have progressed largely. Although last year our attendance was not as high as the largest, yet the reason for this is obvious, and was alluded to last session when the entrance fees for non-residents of Ontario were raised from \$50 to \$100. It was reasonable that this result was to be expected, and that we should not have as large a number of outside students enter as formerly. I had two objects in making the increase—one was to secure a smaller proportion of students outside Ontario, and the other was to show that farmers outside Ontario were willing to pay \$100 for what Ontario farmers could get for \$50. There is another thing in which I think he did not deal fairly with the House. He said the whole revenue of the farm outside stock was \$103, but the hon. gentleman knew perfectly well that in addition there was the sum of \$1,678 for food supplied by the farm to the college. Again he omitted to state that there was \$1,463 value of farm products used in boarding the students, and I ask if that was not just as much a legitimate farm product as grain? He also referred to the very large expenditure for the creamery and asserted that our whole receipts were \$461 71, but that is only the cash receipts, and he knew very well that according to the report a portion had been sent to Great Britain, New York, etc., and the returns in cash had not been received and that a considerable portion was not sold and was now in hand.

Mr. BRODER—And yet you give the price.

Hon. A. M. ROSS—The cash remittances have not been received. The total product was 4,000 pounds, and at 27 cents a pound the average price of that sold would surely be over \$1,000. Then he referred to the wool and said there were no receipts from that article although we had many sheep, but I can tell him that the wool is on hand and the estimated value of it is \$2,000. He referred to the dogs and no receipts from them, or at least I think he gave \$7 as the amount. Well, now I am free to confess that I am at one with him on the question of dogs, and I have given Mr. Brown instructions to sell them all off, except what he really needs for the farm. He attempts also to show a discrepancy between the Public Accounts and the report. This has been repeatedly explained to be a mere question of bookkeeping, and arises from the college accounts not being fully made up at the same time as the Provincial accounts.

Mr. CARNEGIE—But the receipts do not amount to the sum mentioned as being realized at the sales.

Hon. A. M. ROSS—It may be that as notes were taken for some of the stock that some of them have not been met. He says that during 1884 we laid out for feed \$3,046, and though we had 49 head of cattle there were no returns. Does he not know that the feed was bought for cattle feeding last fall, and they not having been sold the returns have not yet come in? Then he says the statement that he got does not show any sheep having been sold. The return shows the amount received was for stock, and farmers generally included sheep in stock. He also referred to the classification in the Public Accounts. I may say that I am not satisfied with the present classification, and hon. gentlemen will see that I have in the estimates given more particulars, and I will endeavour to keep the same classification in the Public Accounts. The payments to the parties are now placed alphabetically with the total amount opposite their names, and this has been done with a view of showing at a glance what each person receives instead of scattering the amounts through the Public Accounts under the different heads. If we had done so we would, doubtless, have been blamed by the Opposition for covering up the amounts the persons received. As I have said, you will see I have put a larger number of particulars in the estimates this year, and they shall be kept in the same way in the accounts. Not being a practical farmer myself it required some little time for me to get thoroughly acquainted with the details of this department, and I will admit further that I think the expenditure ought to be reduced, but I don't want