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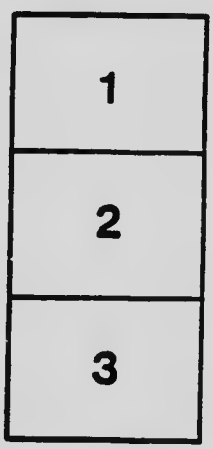

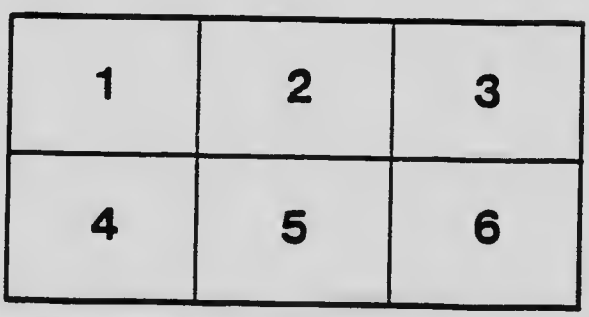

Dr. Robertson's Work for the Training of Canadian Farmers

By George Iles

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Dr. Robertson's Work for the Training of Canadian Farmers

DR. ROBERTSON'S WORK FOR THE TRAINING OF CANADIAN FARMERS.

BY GEORGE ILES.

(Author of "Inventors at Work.")

OF yore the educator was wont to look at the work-a-day world from afar, and somewhat askance. At college he had passed from the student's desk to tutoring, from tutoring to a professor's chair. He was accustomed to regard men and things chiefly as depicted in books, tabulated in statistics, or reported in the proceedings of legislatures and courts. How the college looked from outside, wherein it failed to prepare its graduates for the toil and tug of actual life, he knew not. And thus usually the college staffs of a generation ago were leaven indeed, but leaven that kept to its own corner, secluded from the lump. In contrast to these aloof educators of times past are thousands of teachers throughout the technical and agricultural schools of America to-day. They stand for a revolution profoundly affecting all other schools. Not many years ago all boys were educated as if to become clerks, or pass to the professions of law, the ministry, or medicine. But most boys must earn their bread at farming or railroading, in the factory, or workshop; why not, therefore, begin at school to teach how these life tasks may be performed faithfully and well? And why not, also, bring out the significance of these tasks, involving as they do principles of the highest importance and interest?

DR. JAMES WILSON ROBERTSON.

(Principal of the Macdonald College, Ste. Anne de Bellevue, Quebec, Canada.)

A notable leader in this work, whose career is here sketched, came from the wheatfield, the milkroom, the warehouse, thence deriving golden lessons, and thither returning to broaden the knowledge of practical men with the winnings of the laboratory and the experimental plot. His labors, ever rising in width and dignity, declare a public-spirited pioneer of the first order; he asks: What great opportunities are there for good to all the people? How best may these opportunities be developed?

James Wilson Robertson, a farmer's son, was born in Dunlop, Scotland, in 1857. From fourteen to seventeen he was clerk to a firm in Glasgow, where he learned much that has since stood him in good stead. He was taught to keep accounts accurately; to write letters promptly, clearly, and civilly; he was impressed with the essential morality of living up to an agreement. Every day, and especially at the annual stock-takings, he came to a sense of values; he saw how depreciation may overtake well-bought goods, how wear and tear bring down the worth of buildings, machinery, fittings.

In 1875 Robertson's father, with his family, emigrated to Canada, taking up the Maple Grove farm, three miles from London, Ontario, in the center of a rich agricultural

district. Here the elder Robertson resumed his business as a farmer, and began exporting farm produce to Great Britain, in all this being assisted by his son. Young Robertson soon remarked that cheese and butter were in active demand across the Atlantic, that their markets promised wide extension if supplied with prime qualities. But how was this excellence to be secured? At that time but little Canadian butter and cheese was of the first grade; most brands, indeed, were below medium quality. Young Robertson resolved that, as far as possible, the making of inferior grades should cease. Near Ingersoll, Ont., he found a first-rate factory where he could thoroughly learn how the best export cheese was made; he took service at $13 a month. Soon, through his employer's illness, he was given charge of the place. His management was a success from the start; he had uncommon ability, energy, and conscience; he turned out products which won the respect of his farming critics.

Before long, at Cotswold, Wellington County, not far away, he took charge of a factory for a joint stock company of farmers, but it was not big enough to keep him busy. In a few months he was looking after eight similar factories, and doing well by them all. His talent for initiative, for administration, was already in evidence. Then from many dairymen, whose output was second-rate, came questions as to his working methods. In winter evenings he told them, first in groups of a dozen or twenty, then in assemblies that rose to 100 or more. He laid stress on cleanliness, on the use of the thermometer. He pointed out that hay, a common crop for export, grievously impoverished the soil, while dairying withdrew from land hardly any mineral values. He showed that corn is a cheap and good fodder; he distributed seed that his hearers might prove this at home. He demonstrated simple tests for the quality of milk, which decide whether a cow should be kept at work or sent to the butcher; and he offered prizes for the cows yielding most rich milk. He attracted and held his hearers because he was one of themselves, speaking their own and not an academic tongue. Not long before he had shared their ignorances and perplexities; he rejoiced to tell them the way out, that they might exchange a lean wage for a decent profit. In dexterity and information Robertson has his peers; in good will, in the passion to have his neighbor thrive as himself, I know not his equal.

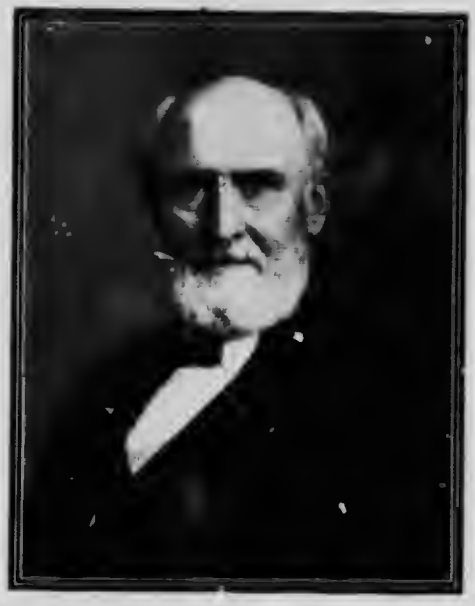
CALLED TO A COLLEGE CHAIR.

Once his labors were interrupted, but only that they might be renewed with more zest and discernment than before. During the winter of 1878-79 he attended the college at Woodstock, Ont., where he received an inestimable impulse at the hands of that born teacher, Prof. S. J. McKee, now of Brandon, Man. Robertson, returning home, resumed his dairying, and continued his informal talks far and near, gaining power as an expositor, growing constantly in the confidence and regard of the people. Naturally enough, many of his auditors told their representatives in the Ontario Parliament of his mastery of an industry vital to the province, of his faculty to make others as proficient in the milkroom as himself. In 1886 the Ontario Government asked Robertson to become professor of dairy husbandry at the Agricultural College at Guelph, to promote and advance the dairying of the province at large. During his stay at Guelph the college sought more earnestly than ever before to further the welfare of farmers at home. Its staff went the length and breadth of Ontario addressing the farmers' institutes, which flourish there as nowhere else on the continent. As a rule, each institute meets four times a year; the speakers on dairying, live stock, field crops, or other topics are men of successful practice. In this work, of course, Robertson took part, growing still happier in making plain to his hearers how care and intelligence, order and cleanliness could better their products and lighten their toil. As his stay in Guelph drew to a close the college began to organize its famous traveling dairies. In this task Robertson had a share, glad that appliances simple and good should take their way through the villages of Ontario for the behoof of thousands of farmers who otherwise might never be stirred to reform.

BRINGS IMPROVED METHODS FROM ABROAD.

More than once Robertson accompanied shipments from Canadian farms and dairies to the markets of Great Britain. There he saw the butter of Denmark, the bacon of Ireland, the eggs and poultry of France, the apples from the United States, all better than the Canadian exports. Why were they better? Because produced with more skill and transported with more care. He came home informed as to improved strains of cattle and swine, their best housing and feeding; the latest apparatus for creameries and cheese

factories; instruction as to how chickens should be fattened, killed, shaped, and shipped for the tables of London, Manchester, and Glasgow. He sketched how Canadian butter, cheese, and poultry should be packed and forwarded at low temperatures, so that no link should be wanting or weak betwixt a farm or factory in Canada and a shop counter in Liverpool or Leeds. With persistence and address he carried these projects to complete adoption; he had studied the situation as a whole; he persuaded all concerned to a long pull, a strong pull, and a pull all together. Soon Canadian farmers, dairymen, railroad managers, and steamship owners joined hands to develop a trade which grew fast to stupendous proportions. Backed throughout by the Dominion Treasury, the dairy exports which in 1890 were but $9,700,000 rose, in 1900, to $25,000,000, and in 1906 reached $31,500,000. The man who chiefly wrought this great result had a national helm in his hands. In 1890 Robertson was appointed Commissioner of Dairying for the Dominion, so that the good practice of Ontario might extend to her sister provinces. In 1895 he was given the additional post of Commissioner of Agriculture for the Dominion. Loyally did he discharge his trusts. From ocean to ocean he lifted farming and dairying to new excellence, until his ambition to see their methods at the highest level seems fast approaching fulfilment. And his hour is fortunate. New areas for the plow in the United States are too few for national needs, and the scarcely broached wheat-belt of Canada invites the settler as Minnesota and the Dakotas did a generation ago. At a bound this influx has opened a new era in the Dominion, and thoroughly aroused her farmers to the gifts proffered by the new education.



SIR WILLIAM MACDONALD.

PRIZES FOR SELECTED SEED.

While Robertson journeyed from his home in Ottawa to Prince Edward Island, thence stage by stage to British Columbia and back again, he steadily gained experience as an educator, but of adults solely. Would it not be well, he thought, to give lessons to and boys, who, after all, are somewhat more plastic and teachable than their parents? In 1890, accordingly, he addressed himself to Young Canada: he had seen the profit in scientific dairying, he knew that equal gain awaited the twin pursuit of farming through sowing selected seed. He offered $100 in prizes to girls and boys who would send him the largest heads from the sturdiest wheat and oats from their fathers' farms. So gratifying were the responses that he enlisted the sympathetic aid of Sir William Macdonald, of Montreal. This wise and generous friend of education had given technological departments to McGill University, at a cost of more than $2,000,000. He at once offered $10,000 as prizes to girls and boys who from the most vigorous plants on home farms should select the largest heads, and grow seed from these on plots of their own. By 1903 the yield of spring wheat thus sown and reaped was 28 per cent. heavier than that of three years before from unselected seed: in oats the increase was 27 per cent., area for area. All told, 1500 entries were received, 450 young folk rounding out three years' work, their parents always among the best farmers in their counties.

Of course, part of the recorded gain in yield was owing to improved cultivation; but the chief part was unquestionably due to systematic selection of seed. And the rule was confirmed which regards a plant as a whole, and restricts the choice of seed to only the most vigorous plants. It may be asked, when, in 1903, the prizes ceased, did selection come to an end? No. A Seed Growers' Association was formed, of seniors as well as juniors. In 1906, at their annual

meeting, they reported manifold gains; kernels had been improved in size and quality, harvests had matured more evenly, strains had become better adapted to local conditions, more resistant to disease and more productive. It is estimated that in 1906 the crops directly bettered by the Macdonald seed-grain competition, were increased in value by half a million dollars. And immensely more is under way. In the Canadian Northwest, Red Fife is the best variety of wheat to sow. In 1903, outside the experimental farms there was not known to be more than 360 acres in reasonably pure Red Fife in that vast territory. There was plenty of No. 1 hard wheat for marketing, but the seed grain had become mixed, had lost quality. To-day, thanks to the 360 acres just mentioned, to the experimental farms, and to the Macdonald competition, no less than 34,000 acres are sown with reasonably pure Red Fife with the expectation that in about five years the whole Canadian Northwest will be seeded with wheat true to name and true to strain.

MANUAL TRAINING INTRODUCED.

Sir William Macdonald, warmly interested in the higher education, also earnestly desired to aid primary schools especially those in country districts. He took counsel with Dr. Robertson, who reviewed their problems in the light of wide observation, and then, as is his wont, inquired: "Where are the best examples for our guidance?" He examined kindergartens, and classes in manual training, nature study, and domestic science in the United States and England, that their best methods might be adapted to Canada. He was convinced that Canadian elementary schools were too bookish, that they did not appeal, as they should, to the skill of hand and eye which fully call out intelligence, and prepare for the home, the farm, the workshop, the mill, where most girls and boys as they grow up must do their work. With Dr. Robertson as planner and counsellor, Sir William Macdonald founded throughout Canada manual training centers at twenty-one places, attended by 7000 children, and costing $3600 a month for teachers' salaries during three years. At the end of that term the local authorities were free to continue the schools if they pleased. In every province manual training has been continued, and with constantly widening popularity. In Nova Scotia, for instance, more than twenty school centers of the Macdonald type have arisen, built and conducted with local funds. Ontario had at first Macdonald schools in three cities; now, counting their progeny, she has forty manual-training centers. What more can apostle desire than to gather disciples in such telling fashion? To-day about

THE MANUAL TRAINING ROOM OF THE MACDONALD CONSOLIDATED SCHOOL, GUELPH.

THE MACDONALD CONSOLIDATED SCHOOL, GUELPH, ONTARIO.

(Coaches used for the transporting of pupils in the foreground.)

22,000 children are attending manual training classes in Canada, and that instruction now forms part of the normal school courses throughout the Dominion.

CONSOLIDATION AND REFORM OF COUNTRY SCHOOLS.

In Canadian townships the schools were long sadly inadequate, chiefly through being too small, and out of touch with home life, with parental occupations. Most of them were attended by as few as twenty to thirty pupils, and, as a rule, one teacher taught as best she could boys and girls all the way from seven to fourteen years of age. Here, surely, were defects crying for remedy. Hand in hand Sir William Macdonald and Dr. Robertson went to work with a will. They investigated how in Ohio, and other States of the Union, many petty schools had been superseded by consolidated schools at central points. In many cases it was found that the consolidators had continued much the same courses, and methods of study, which had prevailed in the one-room schools of old. It was deemed well that in Canada consolidation should be chiefly a means of enriching the whole round of instruction by school gardening, by sewing and cooking classes, by carefully chosen courses in manual training. All these to be of the very essence of a school, not merely tacked on as extras, to be pursued or omitted at will.

A prime necessity of the reform was, of course, in providing transportation. How this might easily be accomplished had been shown long before as individual dairies had given place to creameries and cheese factories. If routes for the carriage of their milk and cream could be readily established and maintained, why not similar routes for the conveyance of children to a consolidated school? There they would receive varied and complete instruction, the classes graded as in cities, every teacher, as in Montreal or Toronto, keeping to subjects she had thoroughly mastered. Four consolidated schools were founded by Sir William Macdonald, in Ontario, New Brunswick, Nova Scotia, and Prince Edward Island, with classes in manual training, household science, and nature study, based on work in school gardens. The cost of preparing special teachers, of erecting and equipping the schools, and of meeting all the expenses beyond those previously borne by the twenty-six districts concerned, was $180,000 for three years. This capital example had the usual effect of inciting onlookers to do likewise. At Riverside and Florenceville, New Brunswick, are handsome consolidated schools, reared and sustained by these communities for themselves;

Nova Scotia has now twenty-two consolidations in the room of fifty-three schools of the old and inferior scale. On an average the daily attendance at the Macdonald consolidated schools has been 55 per cent. more than at the schools they supplanted; at Kingston, New Brunswick, the figure is 140 per cent. Thanks to the Macdonald movement, sound education in rural Canada is acquiring the force of fashion. Yet a few years and the Dominion will rank with Scotland herself, the land of good schools.

SCHOOL GARDENS.

A moment ago it was said that every Macdonald school has a school garden. Besides those at the four original consolidated schools, a garden was laid out at each of five rural schools in each of five provinces, twenty-five in all. A trained instructor took charge of every group of five, giving one day every week to each school in his circuit. The outlay during three years grew to $40,000. The plots varied from 15 to 120 square feet, the smallest being assigned to little tots. A wide variety of grains and grasses, vegetables and flowers were sown, with the incidental effect of adding much beauty to school grounds. At Hillsboro, Prince Edward Island, partnership was one year introduced with happy effect. While each pupil was responsible for his own plot, he shared with three others the work of keeping in order the intervening paths, of making the whole cooperative area as handsome as possible.

Everywhere these gardens prove with what delight and profit children may begin at school the work of later life, how principles of unending interest may be unfolded in simple tasks of sowing and pruning, hoeing and reaping. Here, harking back to noteworthy experiments, selected seeds are sown, with the striking contrast between their harvests and the crops reaped from ordinary seeds. Not less instructive is it to compare two plots planted with potatoes, one sprayed against blight, the other neglected and so only producing a few under-sized tubers. In the course of four years a special area, of, say, twenty-five square yards, is cropped the first year with wheat, the second with clover, the third with grass for pasture, and the fourth with a cultivated crop as Indian corn or potatoes. All to illustrate the profit of a rotation which in four years works much less exhaustion to the soil, yields larger crops, and leaves the land freer from weeds, than if only grain had been sown year after year. These simple lessons form what Dr. Robertson calls the tripod of good farming: (1) sowing selected seed on prepared soil; (2) protecting crops against insects and fungous diseases; (3) a rotation of crops adapted to the soil and to the markets. At Tryon School Garden, Prince Edward Island, the children reaped 32 per cent. more wheat from a plot sown with selected seed than was borne on an adjoining plot sown with unselected seed. When barley followed clover it yielded 17 per cent. more than when barley followed a cereal without clover stubble having been plowed in. As remarkable as these results in crops are the effects on the young sowers and reapers themselves. Uniform examinations for entrance to high schools are held throughout Ontario in July. In 1906 in Carleton County from schools without gardens 49 per cent. of the candidates were successful; from five Macdonald schools, where all candidates had been school gardeners for three consecutive years, 71 per cent. were admitted, mostly with high standing. As in all such education it was shown that when part of a school-day is given to toil with the hands, at the bench and out of doors, the book work at the desk takes on a fresh meaning, and inspires a new zest.

TRAINING TEACHERS.

Sir William Macdonald and Dr. Robertson had now entered upon an educational reform so broad and deep, so novel in many details, that it demanded teachers trained on purpose. Recognizing this need Sir William Macdonald provided at the Ontario Agricultural College, Guelph, two large buildings, equipped for the due instruction of teachers. Here are headquarters for manual training and household science, with brief courses in cooking, sewing and other domestic arts. Short courses in nature study and school gardening are free to teachers. To promote their attendance four Provincial Governments have granted scholarships which have already enabled two hundred teachers to take elected instruction. In one important regard this College at Guelph has an enviable record: Two out of every three of its graduates return to the farm. This dividend back to the land is considerably higher than is usual at other such institutions.

MACDONALD COLLEGE AT STE. ANNE'S.

Taking many a sterling lesson from the college at Guelph, from sister colleges throughout the Union, has arisen the Macdonald

SCHOOL CHILDREN SPRAYING POTATOES.

(Illustration plots of grain and potatoes.)

College at Ste. Anne de Bellevue, on the Ottawa River, twenty miles west of Montreal. The grounds, through which pass the main lines of the Canadian Pacific and the Grand Trunk railroads, are 561 acres in extent, arranged in three areas: First, the campus, with plots for illustration and research in grains, grasses and flowers, 74 acres; second, the small-cultures farm of 100 acres, for horticulture and poultry keeping; third, the live stock and grain farm of 387 acres. All the buildings are of fireproof construction, in stone, brick, steel, and concrete, with red tile roofing. Every building is heated, lighted and furnished with water from a power-house having six horizontal tubular boilers, each of 150 horsepower. The college, now about to be opened, has Dr. Robertson for its principal or president. It is understood to have cost Sir William Macdonald about $2,000,000. He has placed its administration in the hands of the trustees of McGill University, Montreal, with a sum exceeding $2,000,000 as endowment. Some of the courses at the college lead to degrees from McGill University.

Macdonald College has three departments: First, the School for Teachers, which takes the place of the Protestant Normal School, removed from Montreal. Special regard is paid the needs of rural districts. Second, the School of Agriculture, which aims to provide thorough training both in theory and practice. Third, the School of Household Science, to impart instruction in all that concerns good housekeeping. In engaging his staff, in discussing item by item the programs of study, Dr. Robertson has sought to profit by the widest available experience. He stands ready to modify any detail in which the future may show an opening for improvement. There is no charge for tuition. Board costs, with a room to oneself, $3.50 a week; where two share a room, $3.25 each.

THE MACDONALD SCHOOL GARDEN, BOWESVILLE, NEAR OTTAWA, ONTARIO.

THE BUILDINGS OF THE MACDONALD COLLEGE, STE. ANNE DE BELLEVUE, QUEBEC.

Next year the college farms will be worked, in part, by apprentice-students, who will have an opportunity to earn enough in six months to pay for their board the following winter.

THE SCHOOL OF AGRICULTURE.

This school offers many courses; let it suffice to mention the two-years' course. It includes field and cereal husbandry, animal and poultry husbandry, home dairying, and horticulture. Farm machinery will be taken apart, reassembled and tested; at need mowers, self-binders, and the like will be repaired. Object lessons of the first order are given on the main farm; its 387 acres are thoroughly drained and cultivated, and have good roads. Its buildings comprise a farmhouse, several cottages and barns, with stables for horses and cattle, and a sanitary piggery of concrete. The equipment for the study of cattle and swine is capital; a fair example is the dairy herd of pure-bred Ayrshires, one of the best in America.

The small-cultures farm of 100 acres is for productive work, for investigations in fruits large and small, in vegetables and poultry. There are several acres of apple orchard, displaying the Fameuse and other leading varieties. Spacious poultry runs accommodate about a thousand fowls.

Last August on the college grounds I saw the results of an experiment which might well be repeated by school gardeners throughout America: Five adjoining plots had been sown with wheat; one on the earliest possible day; the others at intervals each one week later than the sowing next before it. The plot first sown bore much the largest and best crop. This lesson, added to Dr. Robertson's "tripod," already outlined, clearly proves that the farmer who puts

BROODER HOUSES FOR CHICKENS.
(Colony houses for hens in the background.)

THE DOMESTIC SCIENCE ROOM, MACDONALD CONSOLIDATED SCHOOL, GUELPH.

brains and energy into his business can readily earn a dollar where a careless farmer finds 50 cents.

SCHOOLS FOR TEACHERS AND HOUSEKEEPERS.

A word as to the School for Teachers, which proffers a comprehensive and thoroughly practical training in the art and science of teaching. Its five classes are (1) elementary, (2) advanced elementary, (3) kindergartening, (4) model-school instruction, (5) pedagogy, including study of the history of educational theories and practice, of educational methods and philosophy, the organization and management of schools. On the campus is a school for the village of Ste. Anne's, embodying the best rural methods; its classes are available for teachers-in-training. In addition, they have access to schools in Montreal, easily reached in less than an hour.

The School of Household Science affords a wide range of instruction, an important feature being the housekeeping of the college itself, in which students bear part. The one-year courses embrace the study of foods, cooking, household economics, clothing materials, dressmaking, and millinery; fuels, ventilation and house sanitation; home nursing and hygiene, and home art. These courses admirably supplement those of the sister School of Agriculture, which show how wealth is won from the soil and the dairy, the cattle barn and the poultry shed. How to earn a good income is taught in one school, in the other school is learned the equally important art of using an income with economy, good sense, and good taste withal.

In all its departments the college offers excellent short courses, adapted to the needs of young men and women limited in means and time. Such courses are among the most useful afforded by the agricultural colleges of Ontario, Wisconsin, and Iowa, and similar institutions of mark. Education, it would seem, may in many cases come too early. When a learner, in the fulness of his powers, comes to great principles, unstaled by premature familiarity, he may have reason to rejoice in the lateness of his lessons.

Much, too, is learned by the interested visitor at such a college as that at Ste. Anne's. Negotiations are afoot which next year will offer excursions to Macdonald College at nominal rates, following the example of the Guelph College, which welcomes every year, in June, no fewer than 30,000 visitors.