

proposal to introduce a system of manual training in the public schools is opposed by the representatives of the unions through fear that it may add to the competition in the labor market, and that some of the "botches" which it is claimed such a system would produce might upplant some of the skilled union laborers. One delegate is reported to have said that "The element he most feared was the theoretical mechanic, who, having friends and influence, crowded practical mechanics out in the cold." Could anything be more absurd than such a method of reasoning? It is a well known fact that a botch cannot do the work of a skillful mechanic, and that a theorist cannot fill the place of a mechanic trained in the school of practical experience. Yet here we have the spectacle of men calling themselves practical skilled mechanics, acknowledging themselves afraid of the competition of a lot of botches and theorists. Surely such men show but little confidence in their own mechanical ability, and will have no cause to complain if employers of skilled labor take them at their own estimate.

The tenor of the discussion throughout clearly showed that the delegates to the Congress misunderstood the objects of the system of training which the Minister of Education proposes to introduce. It is not the intention, we believe, to attempt to teach trades in the public schools. Such a proposal would be impracticable in the short period which a boy usually devotes to acquiring an elementary education in the public school. The purpose of the Minister of Education, as we understand it, is simply to make the pupil familiar with the underlying principles of mechanical laws, provide means by which he may become acquainted with the purpose for which different tools are used, and perhaps acquire a certain amount of adaptability in their use. This we believe to be the very outside limit to which such a system of instruction could be carried in the public schools, and the effect of it would be to give the boy who intends to learn a trade a start under more advantageous circumstances than at present. It can readily be seen that a boy who enters the work-shop possessed of such a preparatory training, will make more rapid progress and ultimately develop into a more intelligent and competent workman, than the lad who commences to learn a trade without any knowledge whatever of mechanical theory, and is compelled to grope for years in the dark before finding out the why and wherefore of things. The youth who would be most benefited by such a course of instruction would be the sons of mechanics, who are in many instances without the means to pursue a University course and enter the ranks of the over-crowded professions. In view of this, the opposition of those professing to speak on behalf of skilled labor, seems singularly ill-advised and ungrateful. It would be interesting to have a definition of the "judicious system of technical education" favored by the Trades and Labor Congress.

WE have received, too late for insertion in this number, copy for a change of advertisement from the Hercules Mfg. Co., of Petrolia, Ont., in which they inform Canadian millers that they have made arrangements to manufacture the Cochrane roller mill, and are in a position to fill all orders promptly and satisfactorily. Millers will consult their own interest by addressing the company for full particulars, and noting their future announcements in this journal.

WE wish to express our regret that an error should have appeared in the advertisement of the Ball Electric Light Co. in our last issue. One of the cuts designed to illustrate a cut-out for street lamp was described as a "street lamp." The error, which was overlooked in the hurry consequent upon going to press, was fortunately one which any person familiar with electrical appliances would readily perceive at first sight.

WHEN the idea was first put forward that it was possible to operate high candle power incandescent lamps, in series with arc lamps, it was looked upon with suspicion by the electrical fraternity, but within the last year there has been quite a change of opinion as it has been clearly demonstrated that by using a properly constructed cut-out, the incandescent lamps can not only be successfully but economically operated on the arc circuits. Of course this system can never be as satisfactory as either the direct or alternating systems, but for small towns, where the number of incandescent lamps is not sufficient to warrant the purchase of a separate plant, it fills the bill to a nicety.

IT is time that the Bell Telephone Co. of Canada began to recognize the fact that the only way to make their monopoly popular, is to render good and efficient service. There are some of the largest cities in Canada where it is next to impossible to hold a conver-

sation over the majority of the lines with anything like satisfaction. We would not refer to the subject so openly were it not for the fact that we know that the Canadian Co. put out if anything better instruments than the American Co., and we also know of several Canadian towns where the service rendered is excellent in every respect, so that we are forced to conclude that the trouble is not the fault of the equipment, but that it is due entirely to unqualified local management in the towns and cities where the bad service exists.

Our Western Letter.

IN my last letter I made estimates of the probable wheat crop of Manitoba for 1889, based on the official crop report of the Manitoba Government. The Government report placed the average percentage for the Province at 14.8 bushels per acre, on an area of 623,245 acres. This would give about 9,000,000 bushels of wheat, to which could be added about 1,000,000 bushels from the territory west of the Manitoba boundary, and not included in the official report of the Manitoba Government. Since giving these figures, based on the Government report, I have had a run through some of the principal wheat districts of the Province, and from personal observation I have come to the conclusion that former estimates are too high. I do not now look for a total crop reaching the amount indicated by the Government figures, by probably 2,000,000 bushels, perhaps more. This year's crop, however, is a very difficult one to estimate even approximately, as within a limited area, the greatest diversity in the condition of crops existed. There are streaks of good crops and streaks of very poor crops all over the country, and this uneven condition renders an aggregate crop estimate the merest guess. In a few districts the crops are really fine, and individual yields of 40 bushels per acre and more are occasionally found. But large districts on the other hand have decidedly poor crops, and the average for the Province must be light.

In one particular the crop of 1889 is entirely satisfactory to everybody, and that is in point of quality. A better crop as to quality has never been harvested. The harvest has been concluded under very favorable conditions, and a large amount of threshing has been done, showing the grain everywhere to be of fine quality. The grain is very hard this year, and is fit for grinding right from the thresher. The millers will therefore be able to turn out a fine quality of flour this season. A little smut in some samples of wheat is the only drawback to the quality of the grain heard of.

Gophers and drought, it is well known, are accountable for the light crop this year. These two agents always come together. In a wet year the gophers do not attack the grain to any extent, but in a dry year, as soon as the grass becomes dry, they leave the prairie and attack the grain crops, which are more moist and green than the prairie grass. This year, fields of grain which were eaten down by the gophers, took a second growth after the rains in July, and some fields so far matured as to be cut. The most of the fields, however, were very late, and were caught by frost about the second week in September, so that they were not much good. At the time the crop was eaten down, farmers did not expect that the grain would grow again, and this second growth was quite a surprise. A good many fields which were badly damaged by gophers in the early summer, were plowed up at once, and consequently were not given an opportunity to recover.

Farmers feel very much disappointed at the low prices being offered for wheat here this season. Up to the time of writing, prices to farmers at country points here have ranged between 60 and 65 cents per bushel. After the high prices paid here last year, ranging as high as \$1.15 per bushel, the prices offered this year seem very low to the producers. The result is, that though a good deal of wheat has been delivered by farmers, at some country points, very little has yet changed hands. The farmers are hauling in the wheat and storing it in the elevators, where they intend holding it for a rise in prices. They are encouraged to this policy by some of the country newspapers, whose editors really know nothing about the wheat situation, but who predict higher prices, probably from the reason that "the wish is father to the thought." On the other hand, the grain men, most of whom were bitten badly by the foolish "bull" boom of last fall and winter, are inclined to be very cautious, and they are not likely to pay higher prices this year than the current prices in outside markets will admit of being paid here. Last year it is well known that wheat prices throughout the spring wheat region north and west of Chicago averaged very considerably higher than export values during the greater portion of

the season, and higher proportionately than ruling prices in eastern and southern fall wheat markets. As a result of this peculiar course of prices, the past season has been an unprofitable one to millers throughout the western spring wheat region both in Canada and the United States. Manitoba grain dealers have also lost heavily by their operation in last year's wheat crop. Manitoba wheat is now held at Port Arthur and Montreal, which cost from \$1.20 to \$1.30 per bushel delivered at the latter place, and which is not now worth over 90 to 95 cents at Montreal. This shows the loss Manitoba grain men have sustained in their operations for the past year. It was very lucky for them that our wheat crop of last year turned out much smaller than had been expected. If the crop had been a large one, western grain men would have been ruined, for the more wheat they had, the worse they were off.

One result of the fancy prices paid for wheat in Manitoba last year is the loss of the British Columbia markets to our millers. Manitoba millers had about succeeded in driving out Oregon millers from British Columbia, but prices for wheat have ruled so much higher in Manitoba during the past year, than relative values in the Pacific Coast States, that the Oregon millers were enabled to once more gain control of British Columbia markets. Now that prices have returned to a reasonable basis here, in comparison with export values, our millers hope to soon again resume shipments on a considerable scale to British Columbia.

MANUAL TRAINING.

THE subject of industrial education has been brought prominently before the public by the opening recently of a Manual Training School in connection with Woodstock College, at Woodstock, Ont. During the past six years many such schools have been established in various parts of the States, notably in New York City, Philadelphia, Cincinnati, Cleveland, Toledo, Chicago, St. Louis and New Orleans. These schools are all more or less intimately connected with high schools or colleges in which the student receives training during part of the day in the ordinary branches of a liberal education.

A brief description of the Woodstock School, the first to be established in Canada, will undoubtedly be of interest to our readers. A brick building, two and a half stories high, 32 by 80 feet, thoroughly lighted, has been erected. On the first floor is a ten horse power gas engine, connected with suitable line shafting to drive a combination planer, moulder and matcher, a combination rip and cross-cut circular saw, a large 20 inch wood lathe and a scroll saw, in the wood turning department; a scroll lathe, a planer, an emery wheel and a milling machine, with gear cutting attachments, in the iron working department; a forge and anvil in the blacksmith department, to which many more will be added as soon as the first class reach that stage in their course. On the second floor are benches and very complete kits of carpenters' tools, for a class of twenty. During the winter a dozen wood lathes will be fitted up. A roomy attic is used for storage.

Regularly the class will spend the day until three p. m. in the College class rooms, and from three to five in the Manual Training School. They begin with carpentry, proceed to wood turning, wood carving, forging and machine work, through a four years' course. From the beginning, drawing will form an important feature of the course. Every piece of work attempted, be it small or large, must be fully and accurately drawn to scale. No expectation of deriving any revenue from the sale of manufactured articles is entertained. The object is to utilize tools, machinery and material in the education of the practical side of the boy. In the morning the pupil is discussing the theoretical side, in the afternoon the practical; in the morning he investigates principles in the abstract, in the afternoon he applies those principles to the concrete, the wood stone or metal.

The object is not to teach a trade, but to give an all round and practical education. At the same time the pupil will gain some degree of dexterity in the use of both wood-working and iron-working tools, some considerable ability to express any thought by means of the draughtsman's pencil, and to interpret drawings, a fair knowledge of woods and metals, which will be of the greatest value to him in after life. Should he afterwards enter a factory, his intelligence and knowledge of principles would soon advance him from the bench to the position of foreman, and from the position of foreman to that of master. Brains are in demand in our shops.

Persons wishing further information about the manual training department of Woodstock College will obtain it by addressing the Principal, W. H. Huston, M. A., or F. Wolverton, B. A., the Superintendent of the Manual Training Course.