PRACTICAL FARMING

The Bacon Hog.

The fashions change in domestic animals, as well as in clothing. Men are very much like sheep. They blindly follow leaders and for that reason do not

always find good pasture. A leader among short-horn breeders sets the fashion of red color, and red becomes a craze, color counting for more than quality. A breeder of jerseys wants black points and fawn and performance at the pails counts for nothing if these fads are lacking. In hundreds of ways, men overlook the practical and useful, and waste time and money on fancy points of no real moment. This has been true of swine, probably, less than any other domestic animal, as swine are bred for money and not for their beauty of form or disposition. But swine breeders have made many mistakes, which are apparent in weak constitution and liability to disease, and decreased fertility, as evidenced by the small litters of most modern breeds. Too exclusive a corn diet and continued selection with a view to early maturity, and intensifying the tendency to put on fat, have so far sapped vigor and vitality that whole herds fall a prey to disease, and if they survive and are carved up in due time by the butcher's knife, there is such an excess of fat that the term "lard hog" gives a correct idea of the uses to which they come at last.

So common is this excess of fat in pork placed on the market for food, that there is an outcry against it among consumers, and packers are calling and pay an extra price for pigs of light weight with sides well streaked with lean, and there is growing up a distinction between lard and bacon hogs, with the latter decidedly in favor.

To produce a bacon pig from the breeds that, from continued feeding, for generations, on corn and other fat producing foods, have become predisposed to excessive fat, it is necessary to feed light. This checks growth, and sends a light pig to market, and farmers are, therefore, looking for a sort that will convert food into flesh instead of fat. Such a sort would naturally be found in England where corn will not grow, and in Canada, where peas, barley and roots are quite as important a crop as corn, and make up a large part of the feed on which pigs are fed from birth to market. In both, the Tamworth and the Large Improved, and Middle Yorkshire (or Large and Middle Whites, as they are called in England), are the leading bacon hogs and the favorites with packers and consumers. The Tamworth is reddish in color, large, and coarse, but very vigorous and prolific. The Middle Yorkshire is medium in size, and much like the breed known as Cheshires in this country. The Improved Yorkshire is the favorite bacon hog in England and is exported to the continent, in large numbers, to improve the local breeds, and the demand for this purpose is yearly growing. They have also been brought into Canada in large numbers, and are already one of the leading breeds there, working their way steadily to the front, and as they are, as a rule, in the hands of experienced breeders, they are becoming more uniform in type and smoother, without the loss, apparently, of any of their good qualities.

The approved form of the Improved Yorkshire is described as follows:

Head medium, with considerable dish above snout.

Jowl rather light, ears medium, drooping at the tip.

Neck rather long and thin.

Shoulder medium, deep rather than broad, but not narrow.

Back moderately broad, and straight or slightly arched.

Side deep and rather long.

Hind quarters long and deep and of about equal width with fore quarters.

Leg medium in length and strong, hind legs set well apart.

Hair long, fine and plentiful.

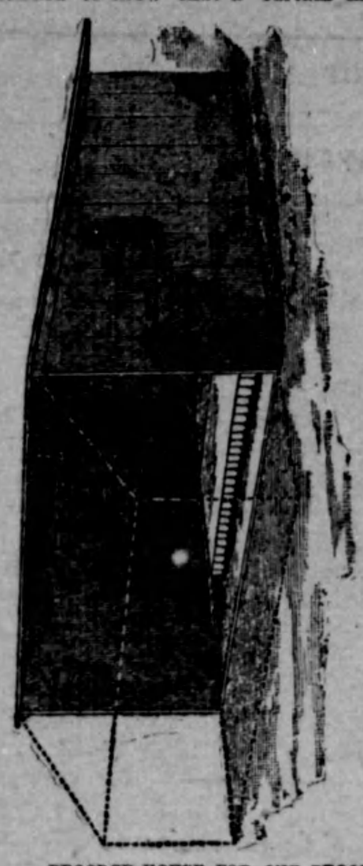
The Improved Yorkshires have been found hardy and prolific to a marked degree on the farms of Canada.

Referring to this matter of breeds the North Western Agriculturist of Minneapolis says:—No breed excels Improved Yorkshire in these respects, and there seems to be no reason why they would not prove an acquisition in the Northwest, particularly north of the corn belt, where the food grown for them would be much the same as that which makes the Canadian hams and bacons preferred in the English markets. The pigs grow with wonderful rapidity, and while they do not mature earlier than the Poland Chinas and Berkshires, they bear crowding well, and reach good weights at seven to nine months, without taking an excess of fat.

In other words, they increase in weight without becoming too fat for choice bacon. A cross upon the Poland China, Berkshire and Small Yorkshire, produces a desirable pig, infusing vigor and strength of form and constitution when it has been impaired by generations of corn diet. The sows resulting from one or two crosses would be invaluable as breeders. It is a singular fact that in the United States, the greatest pork producing country in the world, the Improved Yorkshire is little known, and yet this breed is the modern representative of the Large Yorkshire of England, the acknowledged progenitors of most, if not all, the favorite breeds, both black and white, of England at this day, in every case giving vitality, vigorous constitutions and wonderful fecundity. It is remarkable that so shrewd a people as the Americans have not tested the quality of so famous a breed and strengthened the constitutions and reinforced the vitality of their favorite breeds from a sort that has always transmitted these qualities with certainty. The American hog has run too much to fat. It may be the mission of the Improved Yorkshire to make a bacon hog out of him. Time will tell."

Brooder-House for one Breed.

A brooder-house for one hundred chicks may be constructed at a small cost, the illustration (front view) showing where to place the brooder, although it may be placed nearer the rear wall if desired, leaving six inches of space between the wall and the brooder, so as to permit the chicks to come from under the brooder at all sides. Any kind of brooder that is intended for one hundred chicks will answer, the object being to illustrate the brooder-house rather than the brooder. The brooders made at present usually have a piece of cloth, cut into hanging strips two or three inches wide, which hang down on the sides of the brooder. The brooder-house should be ten feet square, seven feet high in front and five feet high at the rear, tarred paper roof, the building to be of upright boards, lined inside with heavy paper, so as to have the building warm. The dotted lines, seen at the end view and on the front view, are intended to show that a curtain made of



BROODER-HOUSE FOR ONE BROOD.

heavy muslin may be arranged at the front, to guard against storms and winds, or it may be of glass. Glass is better, but muslin is cheaper, and may be arranged so as to roll up in favorable weather. In very cold climates the muslin will not answer, however. The position of the brooder is also shown. The design of the brooder-house is of a cheap one, and for those who have a small incubator, which requires but one brooder.

Biggest Railroad Station in England.

The enlargement of Liverpool street station, London, is proceeding apace, and when the alterations are quite completed the station will be the largest in the country—almost the largest in the world. The station will have eighteen platforms and twenty lines. At the narrowest part of the approach there will be six lines, and with the new signal arrangements and short blocks it will be possible to run trains in or out every two minutes. At present between 700 and 800 trains are run in and out daily, but the enlargement will enable the company to run in and out 1,000 trains a day. All the iron work is English. In the roof the glass is secured by copper, and there is not a bit of putty in the whole. Handsome open arches form a support for the new roof at the point where it joins the old building. A feature is the new parcels office, 188 feet long by 60 feet wide, with the roadways, in and out, each 30 feet wide. Also, a feature will be the enormous addition to the circulating space; that is the area between the entrance halls and booking offices and the platform. Space will be gained in one way by placing all the lavatories underground. The station is to be lighted throughout with the electric light.—[Westminster Gazette.

RESCUE OF ARCTIC EXPLORERS.

The Proposed Expedition to Find Bjorling and Kallstenius in Ellesmereland.

Robert Stein, of the United States geological survey, Washington, has secured the co-operation of many individuals and societies in the proposed expedition for the the rescue of Alfred Bjorling and Evald Kallstenius, the young Swedish explorers, who are lost in the Arctic and who have not been heard from since the finding of a letter dated Oct. 12, 1892. After losing their vessel, the Ripple, which went aground on the Carey islands, the party started northward toward Foulke fiord, with the intention of depositing further records in Pandora harbor. It is the intention to send as quickly as possible to Clarence Head, and to combine the exploration of Ellesmereland with the search for the Bjorling pary. A permanent refuge station will be established for whalers and explorers, rendering disaster practically impossible in Northern Baffin bay, the most frequented part of the Arctic, and a base of operations will be provided from which exploration can be carried on leisurely and without risk. It is expected that in addition to the valuable scientific observations, extending over a series of years, the discovery of valuable minerals and new whaling grounds will be made. So far $7,000 has been promised, about half the sum needed for the work.

Buying Eggs of Pure Breeds.

Order your eggs early, so as to avoid delay. Remember that the breeder may have no eggs when you write him, and must wait for his hens to lay them. He wil always fill the orders that reach him first in preference, and delay may result, for which he is not responsible. Do not wait until a hen becomes broody. It is better to send the order for the eggs and take the risk of procuring a sitting hen when the eggs arrive. If they reach you too soon, keep them in a cool place and turn them daily. Do not delay your order, however, as you will not receive them too soon.

Here's Another.

Little Johnny—"What does 'sustain mean, pa?"

Pa—"To sustain is to help."

Little Johnny—"But the paper says a man sustained an accident. Isn't an accident something you can't help?"

Pa—"I think I hear your mother calling you, Johnny. Run along; I'm very busy now."

CANADIAN NICKEL MINES.

An Interesting Chapter in their Early History.

The Original Discovery of Nickel—Tests of the Metal—Experiments in the United States Navy Yard.

A representative of a Toronto paper the other day met Mr. S. J. Ritchie, of Akron, O., at the Rossin House of that city, and had a very interesting talk with him on the nickel interests of the Province, in which that gentleman is extensively interested. The effect of Mr. Ritchie's remarks was as follows:

During the progress of the litigation still going on between those at present in control of the Canadian Copper Company and the Anglo-American Iron Company and myself, I have frequently stated in my testimony the origin of the discovery of nickel in the Sudbury ores, but these facts may not have come to the knowledge of your readers, and so I can probably best answer your questions by repeating, in substance, what I have already stated. As you know, when these great deposits were first discovered, and until a considerable quantity of the ore was shipped to the Orford Copper Company, of New York, they were supposed to contain only copper. Nothing whatever was known of their carrying nickel. When the Orford Company put these ores into their furnaces their behavior was so peculiar that the men in charge of the furnace were quite unable to account for it. Mr. Robert M. Thompson, the President of the Company, was equally unable to account for the strange appearance of the product coming from the furnace, so he directed his chemist to make a complete analysis of the ore. I happened to have been in the laboratory when that analysis was completed and handed to Mr. Thompson. I very well recollect his surprise. Without showing me at the moment what the result of the analysis was, he began to badger me by telling me that "before doing anything further with these ores I had better see what was in them, and determine whether they were worth working or not, and when I had fully examined them I would probably be very much disappointed about them, as he certainly was." I supposed that he referred to arsenic, and assured him that they did not contain any arsenic, that I had already had them examined by the chemist of the Toronto University, by the chemists of the Dominion Geological Survey at Ottawa, by the Sheffield School of Science of Yale College, and by the Smithsonian Institute at Washington, as well as by the laboratory of Carnegie Bros. & Company and many other chemists. But he insisted that all their

ANALYSES WERE USELESS,

as well as those formerly made by himself, and that I would find it so when I came to make a complete instead of a partial examination of them. After gratifying himself at the expense of my curiosity for some time, he finally showed me the chemist's report. The fact was that he was himself unable longer to restrain his own wonder about the matter, and told me so great was this discovery that the importance of these deposits as copper mines, although they were doubtless the greatest copper deposits of the world, would be completely lost sight of by this discovery of nickel. This was, I think, probably, in July, 1887. This is the history of this discovery, and the chemist in the laboratory of the Orford Copper Company at New York, acting under the direction of Robert M. Thompson, the president of the company, was the discoverer. This discovery raised the question what to do with the vast amount of nickel which these analyses showed was contained in these great deposits of ore. While thinking of this, I recalled an experiment which I had seen made at the United States Navy Yard at Washington some ten years previous to that time, or in the spring of 1876 or 1877. At that time yellow fever existed in several of the towns bordering on the Lower Mississippi and the Gulf of Mexico. It is well known that the germs of this disease are killed by frost, and that the prevalence of the disease ceases when the frost comes. At this time—1876 and 1877—I was in Washington a good deal of the time, and stopping at the same hotel at which I did there was a sort of a universal genius by the names of John Gamgee. He was one of the most fertile-brained men I have ever met. He was not only a man of fertile brain, but he was a fine scholar. He seemed to be at home in every branch of science. Our rooms immediately adjoined, and he was much of the time in my room. He conceived the idea of building a ship which at would once be a great refrigerator and a floating hospital, and that he would sail this ship back and forwards to these ports, and take those sick with the fever on board this hospital. The Senate Committe on Epidemic Diseases reported a bill to the Senate to appropriate two hundred thousand dollars for the building of such a ship. It required expensive machinery. As you doubtless know, ammonia is used in the production of artificial ice, and Gamgee had to build an immense machine for the manipulation of this ammonia in securing the low temperature necessary for his ship. You may not be aware of the fact that liquid ammonia

WILL GENERATE GAS

at a low temperature, even down to 10 or 15 degrees below zero of Fahrenheit's scale. The difference between this point and the temperature of the hot climate of the Southern States gave an enormous expansive agency to Gamgee's ammonia, so much so, indeed, that the gases from it would permeate and go through any ordinary cast-iron, and he tried many kinds of alloys to overcome this porosity in the iron, and to get a body of sufficient strength and closeness of texture to retain and hold those gases. Months of effort and scores of experiments resulted in nothing but failure. One morning he said to me: "I have been thinking what a close, compact body meteoric iron has, and you know that all meteoric iron contains a considerable percentage of nickel, and I have sent and bought a few pounds of nickel, and am going to make a cast to-day, in which I am going to mix some of this nickel with the iron, and I want you to go to the Navy Yard with me and see the experiment."

Well, I did not know at the time what meteoric iron contained, and your readers may not know that all the meteoric iron found in its natural state probably comes from some source outside our own planet. But I went to Navy Yard with him, where he was conducting all his experiments, and where he had built an immense ammonia engine. I had many times been there with him before, watching his experiments. I helped him to handle his ladles to make his mixture and his cast, and when the cast cooled to try the several different pieces of iron to which varying percentages of nickel had been added with the cold chisel and with the sledge upon an anvil. Being pretty strong, I did the principal part of the sledging. I shall never forget the surprise of Gamgee at the results obtained from those experiments, which continued over two or three days. Gamgee asked me to invite the members of the Senate who were on the Committee on Epidemic Diseases to come to the Navy Yard and see the result of his experiments. This I did, and Senator Harris, of Tennessee, who, I think, was the chairman of this committee, and several others of its members, went with me to the Navy Yard to see Gamgee's final success. No patent for this alloy was ever taken out by Gamgee, and some dispute between him and the Senate Committee as to the management of this ship finally prevented the appropriation being made, and the whole enterprise fell through. But he had made a great discovery, and one which was bound to revolutionize the metallurgy of the world, but he, poor fellow, has never received a penny for his discovery. If you will go into the Geological Museum at Ottawa you will see a very handsome specimen of meteoric iron which was found in the neighborhood of Madoc, in Hastings County. Now, is it not a wonderful thought that, although Canada has many millions of tons of both iron and nickel, some other world, millions of miles away, had to send her through the laboratory of the skies, such samples of its own material as would teach her how to utilize her own; and is it not even more wonderful, if anything that is suggestive is wonderful, that it should be thrown from the heavens to the neighborhood of Madoc, as if to say, here is the form in which you can utilize these great stores of ores which are now useless to you? Does there not seem here to be a marvellous blending of the ideal with the real, a striking combination of fact and imagination? Is it not also wonderful that the formula for the manufactures of our great steel plants and workshops should be furnished us by some far-away and unknown world?

In 1889 I brought to General Tracy's notice a knowledge of Gamgee's

EXPERIMENTS AT THE NAVY YARD

some twelve or thirteen years previous to that time. George Tracy was then Secretary of the Navy, and he at once set out to find Gamgee, instituting a search all over the United States and Europe for him, but he was nowhere to be found, and he was reported to be dead. Last summer, however, I learned his whereabouts and wrote to him, and received a long letter from him. He is still experimenting in other fields, and others will receive the benefit of his labors. As I stated before, I told Secretary Tracy of what I had seen a number of years previous to that time in our own Navy Yard, and said to him that I was going to Europe to see what progress had been made with this alloy there, as I had noticed that the Iron and Steel Institute of Great Britain had during the previous year—1888—directed some experiments to be made with it, and that a report of these experiments had been made to this institute by one James Riley, who was the Manager of the Steel Company of Scotland. He told me that the department would like to send an expert with me, who would accompany me to all points that I might visit. Accordingly, Lieut. B.H. Buckingham, of the navy, who was at that time connected with the American Minister's office in London, was detailed to go all over Europe with me and to examine into this subject of nickel steel. After our trip he made a report to the Secretary of the Navy. Upon my return home I also gave to the Secretary all the information I had gained, and urged upon him the importance of the Government adopting nickel steel for its armor plates. He finally ordered three plates from Europe—two from France and one from England. The one from England was of the character then used by all the British iron-clad men-of-war ships. One of those ordered from France was of plain steel and one was of nickel steel. These three plates were taken to the navy testing grounds at Annapolis, and set up side by side, and were then fired at by six and eight-inch guns at a distance of less than fifty feet. The result was that the British plate was smashed to pieces, the French plain steel plate was badly cracked and battered up, while the nickel steel plate suffered comparatively little injury. This result was a wonderful triumph for nickel steel, and was telegraphed to the newspaper press all over the civilized world. Congress promptly voted a million dollars for the purchase of nickel matte, and the department changed all it contracts for the manufacture of armor plate to be made of nickel steel. The whole of that million dollars has been used in making these experiments, and in the purchase of this nickel matte. In short, the Congress of the United States appropriated and spent a million dollars for the development of the Sudbury mines, and for determining the uses and the utility of nickel. In contrast to this liberality of the United States Government, two or three of those at present in charge of these great properties have for years been resorting to every means to render all these properties unremunerative, and

TO DESTROY THE VALUE

both of the products and the properties themselves, with the view of being able to gather them in to themselves, and in the carrying out of this policy they have made them thus far of comparatively little worth to the country in which they are located.

I did not intend to say a word upon this matter, and, if the result of this contest were wholly personal to myself, I would not, but this city and this country are all interested in the outcome.

I want to go back far enough to say that after Secretary Tracy had fully satisfied himself of the great superiority of nickel steel, after Congress had voted him a million dollars for the purchase of nickel matte, he was even then afraid to change the whole policy of the navy by the adoption of nickel steel alone, instead of ordering steel, until he had assured himself of the sufficiency of the supply of nickel, so he said to me that he wanted to send a commission of his own to examine the property and to make a report to him, and he wished to have me go with them, and show them all over the property, as well as all the processes through which the material was put from the time it was dug out of the ground until it was converted into matte. To this I agreed. Accordingly, Commodore Folger and Lieut. B. H. Buckingham, the latter the same party who had accompanied me through Europe, were selected by the Secretary to go and examine the property. They came here, and, after spending four or five days going all over it, they made the report to the Secretary which you have seen. They reported, as you are aware, that there were six hundred and fifty millions of tons of ore in sight You probably do not take in the full meaning of these tremendous figures, and you cannot in any other way than by comparison. They mean a tonnage more than five times as great as all the iron ore which has ever been shipped out of the whole Lake Superior region, including the States of Michigan, Wisconsin and Minnesota, from the time the first ton was mined up to this day. That is a pretty nice stake for two or three men to conspire together and ask the courts of another country to help them to appropriate to themselves. These figures are no idle bubble; they are the official report of an expert commission sent out by the United States Government, and all the tests since made prove the accuracy of their report. Very many tests of armor plates have been made since the first one of which I have spoken. The most important results yet obtained were those of the Bethlehem Iron Company last week. At this trial a ten-inch gun was used. A solid conical steel shot, weighing five hundred pounds, was hurled against a plate of their manufacture, driven by a charge of one hundred and seventy-two pounds of powder, without going through or even injuring the back of the plate. This plate had not been subjected to the Harveying process, so

THIS WONDERFUL RESULT

must be credited wholly to the nickel. Still more wonderful is the character of this metal when it is known that it possesses an elastic limit of 45 per cent.; that is to say, that if a piece of it were put into a testing machine it would stretch 45 per cent. of its original length, and all this when the metal was cold. Its tensile strength was equally great with its elastic limit. These results are far the most important of any yet obtained, and plainly prove the important place this metal is bound to take in the commercial world outside of its use for warships and guns. It is a strange fact that every great improvement in metallurgy, from the time of the Damascus and Toledo blades until the present day, has first been utilized for war purposes, and nickel steel is no exception.

Speaking of meteorities, I can tell you

THE MARVELOUS RESULTS

which the Bethlehem Iron Company obtained last week from nickel steel, and of which I have just told you, will be certain to have a most important bearing upon the Sudbury properties in more ways than one. As you know, England is making large expenditures to increase the efficiency of her navy, as are all other European naval powers. England has no armor on any of her war vessels that can even approach in power of resistance that now being produced by the Bethlehem Iron Company, and there is no known way for her to secure such invulnerable character for her ships but to clothe them with such material as the Bethlehem Company is now producing, viz., nickel steel. Outside of Canada, France controls the balance of the world's supply of nickel, and it is not likely that England would be dependent upon the one country with which she is liable at any time to be engaged in conflict for the supplies which are indispensable to bring her navy up to the standard of efficiency of the present day, when she can absolutely control the whole situation by virtue of the great supply of this metal in her own greatest colony. I little thought, when helping John Gamgee, sixteen or eighteen years ago, to melt five or six pounds of nickel in a little crucible in the United States Navy Yard at Washington, and pouring this metal in with the molten iron, what great and far-reaching results were one day to follow the success of this experiment. I little thought that a few years later the United States Government would be astonishing the metallurgists and steel manufacturers of the whole civilized world by making known to them the wonderful properties of the alloy which we were then attempting to produce on so small a scale, following the formula furnished us by the meteor from the skies. I little thought at that time that the navy clothing herself with this material would make herself mistress of the world. Ten or a dozen years had passed away, and the whole incident passed out of my mind with it, until the discovery of nickel in the Sudbury ores, when I at once recalled the whole affair. This is some of the history connected with one of Canada's great natural resources, and in a very short time your people will know that at least with reference to this interest reality is stranger than fiction.

Fattening the Chickens.

The old hens, if they have been well cared for, need no special preparation for killing; but the chickens, and especially the cockerels, may need a little extra feeding. The following plan we have seen followed with excellent results: A lady whom we know, and whose chickens had a reputation of being fat, used to shut fifteen or twenty cockerels in a house made with a tight roof and tight back, the ends and sides being upright laths, nailed to a simple frame and placed about two inches apart. The house might be eight by ten feet on the ground. It was moderately dark, and yet not very dark, as the light came in from numerous slits between the laths on three sides. The furniture of this house consisted of a roost, a feeding trough and a drinking vessel. The cockerels had all the water they wished to drink and all the sound yellow flint corn they cared to eat. Corn and water for breakfast, water and corn for dinner and corn and water for supper made their rations. And yet cockerels, lean when they went into the house, were fat when they came out at the end of two or three weeks. A still better method of feeding is to give the chickens a warm diet of corn meal mixed with scalding water and allowed to cook through.

For 107 years the Philadelphia Dispensary has been quietly performing its work. During the last fiscal year 20,642 patients were treated by the institution.