

AGRICULTURAL.

A Cheap Farm Barn.

Our illustration is of a farm barn adapted to the needs of a small farmer who keeps a few cows as well as horses. It may be made 30 ft. long, and the main part 20 ft. wide. The annex or shed can be divided up into stalls for cows, and compartments for the calves, brood sows or ewes. This part has no mow. The main part has a row of



A CHEAP FARM BARN.

stalls along the outside for horses. On this side next the annex or shed are arranged harness rooms, feed bins, etc., as may be required. A space is left for a feedway in front of the mangers. As shown in the illustration the room for hay in the mow is limited. However, the corner post can be made higher than here given, in order to furnish all the room desired. This barn can be put up for \$350 or \$400.

Education Required to Farm.

How many people are under the impression that little or no education is required for farmers. I may say just the opposite. No work or industry requires as much education as farming. I may define education under two heads, viz., artificial, that is from books, and practical, that is from practice or experience. We need both, and lots of both, but especially the latter. How many questions does the farmer have to answer? Did you ever think of this? Is there a man in any industry that has as many questions to answer for himself? Let us look at this for a moment. All farmers have more business transactions than they can fully remember hence some kind of a book must be kept. It must be kept in such a way as to answer in case of a dispute in law. Every farmer has more or less checks, notes, letters, etc., to write, so he must be a penman in order to keep his books and do his writing. He must be a good mathematician to figure profits, expenses, and hold his own in the commercial world. He must be a grammarian, in order to write and speak for his own in public places. He must be a politician, in order to understand governmental affairs, and hold the agricultural interests in the right place. He must be a good reader, in order to keep posted in political and commercial matters, especially markets. Thus you see the farmer must answer for every point of school education. But this is not half; he must study the markets, and know just when to sell each thing; when and where to buy articles he needs; what kind of implements are the best for his particular use; what breeds of hogs are the best, how to keep them healthy, and a hundred other questions are brought for him to answer; likewise with cattle, horses, sheep, poultry, bees, grains, and in fact there is a sufficient amount of study in each individual division of agricultural pursuits, to keep any man or woman in honest, honorable toil from the cradle to the grave. It has often been said, "Any fool can farm;" true, they can, with misery to themselves, to their neighbors and to their stock.

I feel safe to say that no one can make a very great or the best result in farming, by trying to "do it all." That is, trying to raise everything. This many times turns to nothing in the end. Every person has an ideal, or rather something on the farm that they like most. Some fancy the cows; they like to feed and handle cows; they delight in making the cows look well, and just put such great attention into the cows that other things are neglected. Suppose such a farmer would quit raising much of anything else but cows, just devote all his time to dairy work; he would study, read and write about cows and their products, and watch the markets. Do you think he could find enough to do; and do you think he could make any money at such work? Of course, there is no question about that. But suppose that man would try to raise hogs altogether? Would he make as much money as he would with his cows? No, never. But over there is a neighbor that just thinks hogs are above everything else; he keeps cows, a few for family use, but his best time is devoted to his hogs; he reads and writes about them, he watches the markets and is just doing well. Suppose he tries to raise cows, and nothing but cows, what will be the results? A complete failure. I might compare every branch of agriculture in this way, but you plainly see the difference, hence I will go no further.

The main point is this, let natural education have its course. No man can learn a trade from a book; he must have practice, as this is nature's mode of education. Whoever you are, or wherever you are, you have some particular industry which you fancy. Take that for life's job. God has one universal programme, made and printed on "the pages white and fair," and upon this programme is everybody's name, and as I think of this I imagine something for everybody to do, just opposite their name. Surely he did not intend for anyone to be idle. But my friends may ask, "How will I know what is on the programme for me to do?" Let everybody ask that; ask Him and he will tell you, for He has promised that "he that asketh shall receive; he that knocketh, it shall be opened unto him." Is this not plain? Afterwards He says, "All things work together for good to them that fear God." Is this not sufficient proof, that any true person that "fears Him" will be crowned with success? Whatever your industry is, a very important factor is to "fear Him." Farmers need this, especially so they need Divine education, practical education and artificial education. Do not try to do something that you really don't like. But whatever your lot may be, be proud of it, be ready to speak or write about it. Don't be backward. Protect yourself, and you are sure to win.

One great thing to learn is yourself. What are you fit for; what are you calculated for? Answer this reverently, honestly, and honorably, and you will soon find your job. You often see boys who delight to raise chickens. You give that boy a chance; get him some good books on raising, get some eggs of other varieties of chickens, keep him right at it; don't make him think he has got to do this, but have

him think you love to see him raise chickens. And what kind of a man will you have; an expert poultry man, a benefit to himself and everybody else; a real self-made man. But suppose you say, "Ah Johnnie, there is no money in raising chickens, why don't you go to college, and learn to be a short-hand man or a school teacher?" What sort of a man will you make out of him? A half cut at something. Probably you have another boy who wants to be a book-keeper; do you think you can make a real first class stock breeder out of him? No sir, not out of a million. Thus you see the farmer has much to learn what branch of agriculture he is programme for. Do what you are calculated to do, and you will succeed. Do something else, and you will make a fizzle, sure. — James Parson in Practical Farmer.

Possibly With an "If"

A noted writer expresses it as his opinion that a strictly pure blood of any breed will fit into the conditions of but few farms, and to the many dairymen an infusion of several bloods will give, as a rule, a better cow with more stamina and vigor, and such cattle will be cheaper and preserved more easily. In one sense, there may be a certain amount of truth, and perhaps more profit in such cows, but the danger lies in the fact that the farmer at large, who is to breed these cattle, will not be governed by a code of rules that is necessary to maintain the excellence of such mixed bloods, and in the "mixing" is liable to introduce such violent crosses that desirable qualities already obtained will be relegated to the background and "confusion" among qualities will result. It is the breeder, after all, who can closely scan and unite crosses that are in harmony, and has a certain type in mind and is breeding towards it—creating a new breed, so to speak—with as much care as would be taken in maintaining excellence in cattle already thoroughbred, who can in mixed bloods succeed and maintain qualities that will not retrograde. The fault with the present common stock of the country is that they unite too many bloods already, and the mating was, and is not being done with a strict view and purpose, guided by knowledge of uniting the best qualities, and the result has been that undesirable things have obtained equality, often mastery, and the common cow of the country is a failure because of this blending of too many desirable qualities; in fact, the virtues of stamina and vigor have the mastery at the expense of dairy qualities in too great a measure. Mixing the pure bloods of the breeds is, in fact, a compromise at best, and only the wisest of breeders can make progress by its practice. Better by far, we think it preferable to grade up the common cows by closely following one line of blood than to add to the already too blooded stock we now have by frequent change, with the view of uniting the best qualities of several breeds.

Middle White Pigs.

The terms, Large White, Middle White and Small White, are better known in England than with us. There they are used to denote distinct breeds, the Middle Whites being the last to be accepted. They are a cross between the Large and Small Whites, and while resembling the Berkshires in size, they have deeper sides and are considered to be quicker feeders, making greater weights at the same age. Their general appearance is well shown in the accompanying illustration. The face



MIDDLE WHITE PIGS.

is, as will be noted, rather short and broad—not so stubby as the Small Whites' nor so long as that of the Large. The pigs shown herewith are noted prize-winners at English Shows. The one in the upper left hand side is Castlecroft Marigold; lower on the same side, Castlecroft King 1515; upper right hand, Fairy 2664; and lower right side, Castlecroft Deacon 2849. They are all owned by A. C. Twentyman, Castlecroft, England.

How to Churn Quick.

A bright New York dairyman is out with the idea that quick churning is a result of breeding in the cow that produces the milk, quite as much as the mechanical part of the operation. It is argued that family characteristics are imparted from dam to heifer, and that easy separation of the fats from the milk is not out of the reasonable supposition at least. It is well known that the fats do churn out much more readily from some cows than others, and cows are found, that making butter from their milk and cream is impossible, while some cream can only be churned by giving it high heat. It is asserted by some of the experts, that the globules of fat vary in size in the milk of various cows, and the average of breeds for that matter, and that the size of the globule of fat is in some way related to the length of time required to churn. This is true, that try and plan as we may, there is no fixing a rule by which one may gauge the time of churning, and so there is a sort of work by thumb rule after all about it. The experts will say: "You will have to fix on the best temperature at which to churn, as we cannot be supposed to know the conditions that govern these particular cases," which shows that so far as the physical conditions of the cream is involved, its peculiarities are not in complete control, and it is along these lines

that the losses of creaming and churning occur. The idea of this investigator is that in addition to our latest and best mechanisms of the dairy, there needs to be a breeding for improved physical conditions of the milk, and when breeding cows that are not only good butter producers, but remarkable in the shortness of time and completeness of separation of the fats from the milk, to sires that had mothers of like good qualities then, and only then, will the perfection of, butter making be secured.

In Winter.

It is often thought that in Winter it is not necessary to churn as often as in warmer weather, for the reason that it takes cream longer to "sour," but if close notice is taken it is seen that in the main, flavor of Winter butter is below that of Summer, or rather, it has a sharper, often approaching a bitter taste, and it is now a matter of remark, that this proceeds from the longer time of ripening, and the ferment is not the true one, but one of lower order and the flavor is not genuine. This then, suggests that as soon as the cream is in the crock or pans it should be set in some reasonably warm place and have an addition of at least a pint of sour skim milk to each gallon of cream and the attempt made to have the cream ripened in 24 hours. This skim milk starter is best made by putting some fresh skim milk in a fruit jar and keeping it both covered and warm for a few hours until it commences to thicken, when it should be added at once to the cream. It is as desirable that cream should be as quickly ripened in the Winter as in the Summer and to do it there must be some artificial method introduced in the way of continuous warmth, sour milk and good cream cans.

Shelter for Stock.

Not one farmer in a hundred understands the importance of shelter for stock. This has much to do with success or failure of tens of thousands of farmers. Animals fairly sheltered consume 10 to 40 per cent. less food, increase more in weight, come out in Spring far healthier, and working and milk producing animals are much better able to render effective service. The loss of one or more working horses or oxen, or of cows or other farm stock is often a staggering blow to those scarcely able to make the ends of the year meet, and the large majority of such losses of animals are traced to diseases due directly or indirectly to improper protection in Autumn, Winter or Spring. Of the food eaten, all the animals use up a large percentage in producing the natural heat of the body at all seasons, and heat enough to keep up 98° all through the body is absolutely essential. Only what food remains after this heat is provided in the system can go to increase growth and strength and to the manufacture of milk in cows and of eggs in fowls. When heat escapes rapidly from the surface, as in cold weather, more heat must be produced within and more food be thus consumed. In nature this is partly guarded against by thicker hair or fur in Winter.

Any thinking man will see that an animal either requires less food or has more left for other uses, if it is protected artificially against winds that carry off heat rapidly, and against storms that promote the loss of heat by evaporation of moisture from the surface of the body. A dozen cows, for example, will consume from two to six tons more of hay, if left exposed

IN FARTHER INDIA.

The Cantonments in Which the English Live—Utter Fearlessness the Secret of British Power in the East.

From time to time there are rumblings of uneasiness from farther India, and an occasional outburst of fanaticism, foreboding ill for the future peace of the country. The reported incendiary fires at Peshawar, resulting in the great loss of military stores, is an alarming note, if true, and may be the herald of immense trouble. The Peshawar Cantonment is described by Spencer Wilkinson, in the Nineteenth Century, as "the Ultima Thule of British India." The cantonment at an Indian town, the writer explains, means the place where the English live. The native town is usually enclosed by high walls, and accessible only by a few gates; it is brimful of people, who crowd its bazars or shop streets. Quite outside the town, and a mile or two away, is the cantonment.

AN UNWALLED DISTRICT.

where each house stands in its own inclosure or compound, and where the regiments, British or natives, are quartered in "lines" or rows of huts. The cantonment usually has wide, well-kept roads, with a grassy margin and avenues of fine trees giving it the appearance of a great park. To illustrate how this part of India is governed, Mr. Wilkinson may be quoted in his own words:—

"The town gate of Peshawar is a mile from the cantonment, and the morning after my arrival I drove in with no companion but a native interpreter. Peshawar, with its mud and wood houses, its lattice windows, and its multitude of men, is infinitely picturesque. But the impression of the first visit upon an Englishman is not due to the quaint appearance of the houses nor to the eastern dress of the inhabitants. There are about eighty thousand natives in the city. As soon as you are through the gate and inside the walls you are among them. Not another English man is to be seen, and possibly enough you are at the moment the only one in the town. Everyone looks at you. There is no staring and no rudeness, but you feel the eyes. The looks of the first half dozen men you pass, as they sit in their shops or stand in the street give you a

NEW AND STRANGE SENSATION.

You straighten yourself and hold your head up, with a resolve, of which you are hardly conscious till afterwards, that if a knife is plunged into your back you will not flinch. The eyes about you suggest that if there were no cantonment, no others to ask for an account of you, your throat would be cut and your corpse thrown away, and that the people in the street would look on without moving. You immediately feel that there is a responsibility in being an Englishman; you are a representative of your race, and all that you do and say must be worthy of the position. The first duty is to not mind the eighty thousand Peshawar nor anything they may do. Those first five minutes in the Peshawar bazaar reveal to you the secret of British power in the East. It is impossible without utter fearlessness."

There is undoubted hostility here, but it is explained that what one finds among a portion of the population of Peshawar is not representative of any general feeling in India. "But I have seen," the writer goes on, "the same expression, and had the same feelings resulting from it in Multan and Lucknow. Each of these cities was the scene and bears the

MARKS OF A BITTER CONFLICT;

Multan of the murder of Agnew and Anderson, and the subsequent siege; and Lucknow of the siege and relief of the residency. I was startled, however, to observe the same expression, unmistakable, on the faces of Begalis at Calcutta."

From a watch tower in the fort at Peshawar one sees the valley of the Kabul River which is the only opening in a circle of mountains surrounding the spacious plain. Opposite is a semi-circle of black, ragged hills, about fifteen miles away, seeming to rise straight up out of the plain and shut it in like a wall. No outlets are visible, but to the south is the Kobat Pass, to the west the Bazaar Valley and the Khyber, to the right of which the Kabul River issues from the mountains. The flat ground beneath is British territory; but the mountains all round are Afghan. Here in the plain the Queen's peace is kept; there in the mountains live Pathan tribes who acknowledge neither Queen nor Ameer. It is the edge of the Empire.

These Khyber Pathans, living in mountain fastnesses from 5,000 to 10,000 feet high, exist partly by levying toll from all who go through the Pass; and they regard these dues as a traditional, inalienable right. During the first Afghan war they took rent in lieu of Pass dues from the British, and caused trouble only when they believed they were being defrauded. Since the last Afghan war the same arrangement has been renewed. Each tribe receives an annual payment from the British Government, in return for which the Pass is free to all authorized travellers on certain days in the week. There is also a modern device by which the good relation between the British Government and the tribes is increased. A corps of troops called

THE KHYBER RIFLES

is recruited from the tribesmen, and occupied to guard the Pass on the open days and to supply escorts to caravans and travellers. The pay of the men, of course, finds its way to their villages, and the whole population grows accustomed to a sort of respect for British authority.

British engineers have made the Khyber Pass an excellent roadway, but in a military sense it is still difficult and dangerous. The solution of the great problem how to subdue the tribes and bring India and Kabul into accord is thought to be the locomotive, and already the Khyber country has been reconnoitred for a railway line from a fortified position on the hills to Peshawar. It may be that these preparations for the defeat of mountain difficulties and the circumvention of the Pathan tribes has aroused a resentment, which finds expression in acts of violence, such as the burnings described in the despatch. To such cause is the attack more probably attributable than to the stolid demeanor of that portion of the Peshawar people who are sullen but undisturbed.

The flimsy paper called tissue paper was originally made to place between tissue cloth of gold or silver, to prevent its fraying or tarnishing when folded.

ENGLAND ON THE ZAMBESI.

The Defeat of the Matabeles May Make Britain Responsible for the Protection of Other Tribes.

For the first time in their lives the Matabeles are hunted fugitives. They have found that assegais are no match for guns, and they are now skulking among the great granite Matopos Hills, that nearly bisect their country from northeast to southeast. They may pluck up heart to make another stand, but this is doubtful. Only two courses are really open to them. One is to surrender, take what the white men will give them, and forget, if they can, that they were once absolute masters where they have now been crushed to the earth. The other course is to retreat to the northwest and make new homes for themselves beyond the Zambesi.

The recent statement that all avenues of escape for these defeated natives have been cut off is not quite accurate. More than once the Matabeles have crossed the thirsty but not impassable plains to the Zambesi in the northwest. That route is open to them now, and it will not be surprising if in a short time it is thronged by thousands of Matabele warriors, women, and children of the nation.

If they escape to the Zambesi instead of being forced by the British to settle down in some corner of their old domain, a humbled and a subject tribe, a question will arise that has not before confronted

WHITE MEN IN AFRICA.

Few blame the British South Africa Company for taking up arms against the Matabeles. The war was not of their seeking. They were forced into it by the natives who, in their ignorance, thought they could conquer the whites as they had the Mashonas. But if the issue of war forces the natives to the Zambesi, and they fall as they certainly will if they flee at all, upon the Barotse nation, will not the British be morally responsible for the protection of this great Zambesi tribe?

The only outlet for the Matabeles is straight to that part of the Upper Zambesi Valley where King Lewanika rules the Barotse. These natives are not admirable in their history or their characteristics. They inhabit the large region where they conquered and almost exterminated the Makololos, who had just helped a humble missionary to cross the continent on that journey which made the name of Livingstone known to all the world. They are great slave raiders, and are a terror to the surrounding tribes. But they are no match for the Matabeles, and they are worthy of sympathy now, for progress toward better things is apparent among them.

It will be no trifling matter to see the Matabeles, invincible so far as native enemies are concerned,

TURNED LOOSE

upon this land where missionaries have obtained a firm foothold, and where flourishing schools have been planted. It is here that the work of Coillard, the French Protestant who saved the life of the explorer Serpo Pinto, is bearing fruit. Here are numbers of white teachers who have recently welcomed the first evidences that their toil is not in vain. They will be swept away, and so will hundreds of helpless people, young and old, if the Matabeles are permitted to descend upon them like a swarm of locusts.

Eighty years ago a great Zulu band, defeated by a faction of their own people, retreated far north, across the Zambesi, to the Lake Nyassa region, where they scourged the country far and wide, and are today the curse of all that district except at points where growing white influences have erected effectual barriers against them.

The Matabeles are the brothers of the Angonis of Nyassa Land. Their fathers fought side by side in the battles of Chaka who made the greatness of the Zulu nation. It will not be an edifying spectacle if the Matabeles, driven from their homes, like the Angonis, are now permitted to begin a new career of murder and rapine on the Upper Zambesi.

The whites have saved the Mashonas and the Bechuanas from future raids like those which have decimated them in the past. The Matabele question should be settled on their own soil. It seems to be the plain duty of the British, whose growing empire in South Africa has precipitated this war, to exert every energy to keep these defeated Zulus in some district of their present territory, under restrictions that will make them harmless.

BEHEADED.

Shocking Details of a German Execution.

On Monday, for the first time for many years, a woman was beheaded in Germany. The prisoner had murdered her husband by poisoning him, after he had brutally ill-treated her and her children. At the trial the woman said she would reserve her defence, but she was sentenced to death, and the Emperor confirmed the sentence. On Sunday the woman, whose name was Zillman, was informed that she was to die. She had hoped to be pardoned, and burst into tears. She was taken to Plotzensee, where the execution took place. There she asked for coffee and a well-done beef-steak, saying, "I should like to eat as much as I like once more." To the chaplain the woman declared her innocence to the last moment. In the night she spoke continually of her miserable married life and of her five children. In the morning, however, she was quite apathetic while being prepared for the execution. Her dress was cut out at the neck down to the shoulders, and her hair fastened up in a knot, her shoulders being then covered with a shawl. At eight the inspector of the prison entered Zillman's cell, and found her completely prostrated, and not capable of putting one foot before the other. Two warders raised her up and led her to the block. Without a sound she removed the shawl from her shoulders and three minutes after eight the executioner had done his work.

The bituminous or soft coal output in the United States now aggregates 100,000,000 tons annually.

Chloride of lime, diluted with water, will be found a most efficacious and safe wash for dogs infested with vermin.

That May marriages are unlucky is a superstition as old as Ovid's time, and had then passed into a proverb among the people, which puzzled even Plutarch.