clover and timothy and Hungarian hay and corn fodder all for winter dairy and teams, wheat and potatoes and apples and products of winter dairy for sale. The dairy would be dry four months of the busiest time in summer and would take little care, being out at pasture. This in brief would furnish regular remunerative work for a force of two or three men and four horses the year round. It would bring a good income. Sell only condensed and chiefly carbonaceous products that do not much exhaust the soil and make a royal lot of richest manure from some 24 cows, four horses and a few heller calves each year to replenish the dairy. This is my idea of one way of combining specialty farming with mixed farming so as to combine the excellencies of both. Only one kind of stock besides work teams, and a few pigs and chickens to pick up the waste of the dairy. Only a few crops or products for sale and those of the best possible quality. Large fields, few fences, pasture if possible all in one field, except calf lot. Land for rotation all in one field if possible and hoof of horse or cow never allowed on that field. Horses kept up most of the year and their manure carefully saved. Tillage thorough; clover freely used as an aid but not as a dependence. All necessary tools and machinery for the best handling and marketing of the few crops and products raised, which would be impossible if very many different kinds of crops and products were grown for market and various kinds of stock kept. That would also necessitate many small fields with increased expense of working and of fencing and for proper machinery for handling. This really covers my third point, viz.:

Third, the farming should not be so mixed as to multiply fields, fences and the kinds of machinery necessary for profitable work, or so as to waste time in changing from this to that or in puttering with small non-paying jobs. This point scarcely needs further remark.

Fourth, the farmer should make his money on his farm and not in outside work or speculation. Mixed farming properly managed will enable him to do this. He should not mix his farming too much, as I have said; that is, he should concentrate his best thought, study and work upon a few things and excel in these, rather than divide his energies too much, or scatter fire like my father's old flint-lock musket that would "scatter" the fellow that fired it all over the barnyard. Some farmers make their farms simply a basis of their trading operations. Trade everything they can lay hands on; act as agents for all farm implements, fertilizers and supplies; join stock companies for this and for that; trade horses in particular, and come home with a new one at least once a week, or even trade with the professional gypsy trader that comes along. You hardly know how universal this spirit of dicker and trade is among the farmers in sections.

The point I am trying to make is this, that the farmer should make his money on his farm, and by legitimate farming, not by outside work or speculation, and that "mixed farming" of the general kind I have described, i.e., a combination of animal industry with cropping is the only kind of farming that can furnish steady employment, remunerative the year round and keep up the farm's fertility. Of course, a successful farmer may be legitimately called away from his farming wholly or in part. My effort in all my writings and lectures is to keep this fact sharply in mind, and to recommend to the actual farmer such things and such only as I practiced when I was actually and only a farmer, and as I hope to practice if I return to my farm in partnership with one of my sons when this harder, more anxious and exacting work I am now doing, shall have worn me out once more as it did over twenty years ago.

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Summer and Winter Feeding Compared.

[By A. O. Fox, of Oregon, Dane Co.]

The nature of my subject is such that it can hardly be treated under the title of "Summer and Winter Feeding," because of its scope, its great diversity and its varied bearing upon the different branches of farming. I will therefore speak upon "The Problem of Cattle Feeding in Southern Wisconsin."

To the general farmer the cattle business of Southern Wisconsin is divided into two branches, that of dairying, and feeding for beef. I will speak only of the latter. Leaving the technical subject of breeds undiscussed, there comes the vital propositions: What class of cattle are best adapted to our needs for making beef? How can we produce
them the cheapest and feed them with the greatest economy? At what age had we best sell, and at what time or times of the year shall we sell? In determining these questions we are at once presented with the prime economical factors of the demand, supply and cost of production. From about the first of September to the end of each year, may be seen train load after train load of Western grass cattle, amounting to thousands daily, sold upon the Chicago market. The net return to their growers is found by only deducting from their selling price the commissions, cost of labor, transportation, and interest on capital. Now, add to this the interest on the money invested in our farms, and the exorbitant real estate taxes which we have to pay, and we have approximated the price which we would have to get from the same cattle. It is plain to see the folly of our attempting to raise and sell this class of cattle, or compete against them. We must produce a class of cattle which they cannot, and place them upon the market at such times of the year as are impracticable for them to get there with theirs. We need only spend a day in the Chicago stock yards to learn which class of cattle are the most sought, the hardest got and fetching the highest price. Our question was, “What class of cattle are the most sought, and fetching the highest price?” Here is a copy of the Chicago Drpver’s Journal. I guess every stockman in Wisconsin knows that paper. In its review of the cattle market it says, “Values were strong for choice qualities, while inferior cattle sold slowly. There were some rough cattle that were extremely hard to sell.” This paragraph has a great weight of meaning in it, and affords us a splendid lesson if we will only learn it.

Among their sales they quote as follows. In order to make comparisons of their qualities I have selected two sales from each sort as near an average as possible and cattle whose weights are nearly the same. There were 37 shipping steers averaging 1,190 sold for 4.15 while 39 dressed beef steers averaging 1,185 (only 5 lbs less) sold for 3.60, a difference of 55c per hundred. Another lot of shipping averaging 1,520 sold for 4.61 while a lot of dressed beef cattle averaging 1,521 (1 lb heavier) sold for 4.25 a difference of 37c per hundred. Again those choice grade yearlings averaging 1,557 sold for 5.50 while a lot of dressed beef steers averaging 1,375 (18 lbs heavier) sold for $3.30, a difference of 60c per hundred. These sales serve to show us that the price is not governed wholly by the weight. It is the finish, the quality and ripeness, the ability to dress the most net meat which makes it valuable. Another fact, those heaviest steers are 3 or 4 years old and the last years gain is exceedingly small in proportion to the enormous amount of food consumed. So that if sold at the same, or even a higher price than the medium weight steers—which are a year younger—they do not net near so much money. This I know from my own experience, and I believe I am backed by the better authority of the most successful farmers in the States, among whom are Mr. Gillett, of Illinois, who has made the statement that a steer must not be kept longer than 24 to 30 months old if he is to secure the greatest net value to his feeder.

If we would reap the high prices, our steers must be of the fine-boned, blocky, short-legged sort, with a deep, well-filled heart and shoulder, a straight back, well-ribbed up and straight line underneath, a smooth, deep hip, not too wide, with heavy flanks carried well down to the hocks, their heads should be set well up on a short, well created neck, there should be a ruddy, lusty look about their faces with bright pleasant eyes, they must be soft handlers in the skin which should be covered with a fine, thick, mossy coat of hair. I think Mr. Randall in his book “American Sheep Husbandry,” quotes some one as giving the three great requisites of a good sheep in these words: 1st. Constitution. 2d. Constitution. 3d. Constitution. We may make a like comparison with our cattle, and require, 1st. Substance. 2d. Substance. 3d. Substance.

Now I want to describe our scrub cattle, to make the distinction clear as noonday, and to do so, I will quote the language of one of the most successful breeders and feeders of cattle in Europe, Mr. Wm. McCombie, of Tillyfowe, Aberdeen, Scotland. Chiefly to whose energy, foresight and grand judgment, coupled with that of Mr. Hugh Watson, we have to-day the splendid Polled Angus
breed of cattle. In an essay of his upon the subject of Cattle and Cattle news, delivered before the Chamber of Agriculture he was describing the difference then existing between the native Galloways and the Aberdeen and Angus cattle. In speaking of the Galloways he said: "They have too much thickness of skin and too much timber in their legs. They are too thick in their tails, too deep in their necks and too sunken in the eye for being the very best feeders. It is difficult to make them ripe. You can bring them three-fourths fat, and then they stack. You can't fatten a fanning-mill by pouring oats through it. Neither can you fatten a beast if he has not power of assimilation." Again he says: "Thick legs, thick tails, sunken eyes and deep necks, with thick skins and bristly hair, always point to sluggish breeders."

The next proposition is, "how can we produce and mature our cattle with the greatest economy of time and feed, with the smallest possible amount of capital." This brings us to the various systems of feeding, all of whom probably have their especially good features, varied by peculiar location. I have never had any experience in a high system of stall feeding. I presume nearly all cattlemen in this State are like myself, more vitally interested in the plan of feeding in the straw yards with sheds, and of summer feeding and grazing. I will speak more particularly of these latter systems. I will discuss only such systems as you can all follow without a dollar's outlay, and give facts and figures that you can take home and use in your own barnyard. The out-door system commends itself especially to men of small capital who have no large barns nor expensive appliances and are not able to build any. There is also great economy of help; two men cared for 200 cattle for me. They must, of necessity, keep all their money in their stock.

Having settled the question that we must all grow the best class of stock, we must now market it so as to meet the least competition. We know that the great drive of all the Western stock, and the poorest stock in our own country, is marketed in the fall months of September, October, November, and some in December. Now, if nearly everybody is trying to get rid of their surplus at that time, why had not we better try to sell at some other time? Earlier than they can get ready, or later than they can hold? That gives us the benefit of the summer market—from June 1st to the middle of August; and again, the winter market—from Christmas to the middle of March. I say the middle of March, because there is sometimes a very bad market from the middle of March till the middle of May, on account of a great many corn-fed cattle being sent forward to get them out of the way before spring work. By this plan we can generally manage to have a few good cattle ready for the winter market, and others following that will be ready to sell in summer. But the cattle that are intended to go onto grass should be wintered with special care, to avoid loss of weight in the spring. I was early taught to believe that a beast intended to go onto grass in the spring should not be crowded with high feeding in the winter. My own experience has demonstrated the truth of this.

If he has been fed to high there will be a dead loss for at least thirty days, and frequently longer; especially if the season is wet and the pasture composed of new seedling of timothy and clover. If, however, it is old timothy sod or blue grass sod, they will not fall away so much, and when they once begin to gain it will be very rapid.

To illustrate I will give you my scale weights, made upon three different bunches, last spring and summer. It will bring out one statement for which I expect to be closely criticised, but my scales have demonstrated for the past eight years, and I am now fully convinced that, although clover is one of our most valuable grasses, it will not put on the pounds and ounces of thick butchers' meat, nearly so well as our old June grass sod; or old timothy and June grass mixed. We will go back to our weights again, to show the gains and losses met with upon turning cattle out in the spring.

Last spring, on May 5th, I turned to pasture twenty-five head of steers that had been fed pretty full rations, although not at all forced. The pasture was composed of timothy and as like about four years old. The cattle were from 20 to 26 months old, or what would commonly be called two-year-olds in the spring. The twenty-five weighed, when turned out, 28,920 pounds, aver-
Such cattle generally make from 2½ to 3½ pounds gain per day from the middle of May till the middle of August without any rations. The question of feeding grain in troughs in the field in summer, depends so largely upon the condition of the pasture and of the cattle, also on the price of grain in the locality, that it hardly admits of treatment here, only to say, that from our own experience I think that moderate rations of grain fed in pasture to first-class cattle is always money safely invested, and that rather than resort to heavy force feeding in the cold winter months, we are safer to keep part of the grain for summer use. By this course I have had cattle net me, free of all expense, $5 per month per steer for fifty days. Computing their cost, their selling price, feed and interest, it figured up at the rate of just 150 per cent per year, but having made such rapid gains early in the season it would have been ruinous to hold them in anticipation of their keeping it up.

Having given you some facts and figures on summer feeding I will now speak of

WINTER FEEDING.

For winter feeding I am very partial to the shock corn system, with hogs as an auxiliary. I believe it is the cheapest feed we can produce, and there are several strong economical advantages connected with its use. In the first place, we need little or no hay; without it we must have hay. Ear corn without hay is not a suitable ration with which to feed for any length of time. Even with good straw the cattle soon tire of it. They will not fatten well without greater and better variety of feed. The fodder of the corn when properly cut is nearly equal to the best tame hay in nutrient. This fact has been developed by the best feeders and is backed by analysis of our best chemists; from those researches we can learn a great deal of value to us, concerning the proper mixing of the various foods, their relative digestibility and nutritive qualities. If you husk your corn it is done late in the fall when the days are short and usually so late that the ground can't be plowed until spring. If your help is careless or the weather bad and corn down under the snow, as is often the case, a portion of it never gets into the wagon. In Wisconsin it takes a good average husker to husk an acre a
day—few will do more. An acre of corn hucked the old way, leaving the stocks and fodder in the field to make manure, is worth from $12 to $14 at the orb. The stalks left in the field generally make manure by flying to pieces, and scattering all over your neighbor’s land.

It will take a good acre of hay with the acre of corn to winter one steer. The hay is worth $12. The corn and hay together are worth about $25, and have required about two acres of your good land to produce them.

Suppose you cut and shock your corn. If you cut it the land can be fall-plowed. The men can start cutting across, and the plow can start behind. The work is done in early fall, when the days are long, bright and cool. A good average hand will cut and shock an acre and a half a day. (I have men who have averaged two acres a day), but any good fair hand will average an acre and a half a day, at $1 a day, by which one operation you not only secure your corn (every ear of it, too), but you also gather your hay crop in the shock, getting both done for one-third less cost than you used to pay for just your husking alone.

Now, I am going to demonstrate to you that one acre of good shock corn will fatten your steer in fine shape; so that your acre of corn is doing the work which took the other two acres to perform, leaving you half as much more land for pasture or other uses. The ear of shock corn being enveloped in the husk, is much easier chewed by the steers, and is more toothsome to them; they are less liable to get off their feed, and will gain, during the six months of winter feeding, an average of two pounds a day, besides keeping one shoot, which follows each steer.

I will now give you a few figures: Last year I had a yard of thirtyyearlings that averaged better than two pounds a day a part of the time. During the clear steady weather many made gains up to three pounds a day but the fearfully cold and stormy weather of January made the gains very small for that period. They averaged, when yarded, 982 pounds. They were sold in 140 days averaging 1.266 pounds equal to a gain of 285 pounds to the the steer, or just five pounds over two pounds gain per day per steer. It took fourteen shocks o corn to the steer to produce this gain of 285 pounds.

There are twenty shocks to the acre the way we cut them, so that 14 20 or 7-10 of an acre, put on 285 pounds in 140 days, and the sale of the cattle brought me just $22.00 per acre for the corn, besides the keeping for me of the shoats, and a nice lot of manure left in the yard, sufficient to manure six acres heavily. (With the manure we make we are able to broadcast thickly thirty acres or qr.) We find it takes the excernent of about five head of cattle to manure one acre.

We find we cannot put on such certain nor as good gains in winter as on grass in the summer, without very heavy feeding; but the light gain of the steer is made up in a great measure by the carrying of the hogs, and the grand body of manure left after the winter feeding is over.

We therefore follow both systems of summer and winter feeding, for the two combine nicely, and serve to give us better opportunities to reap the benefit of the best markets at both seasons of the year.

I regard our stock growing as a vast, diversified and, when managed like business, a very lucrative business. Cattle feeding is one of its most important branches, and I hope the time is near when I and all my fellow stockmen will have become so well up in it, that we shall no longer tremble at the competition which now is driving us hard, but that we shall understand every avenue of our business and will know to a certainty how cheapest to produce the greatest substance and the best quality of that which commands the highest prices, and how to do it in the shortest possible time. We must work less with our hands and more with our heads. We must mix brains with our business, mix brains with our corn, mix brains with the culture of everything that grows if we would succeed. When these changes shall have been accomplished, then may we hope that the generation of sons who next succeed us, will not come home from college with their minds stuffed with the "vulgar errors of the wise."

Practical Hints on Poultry Culture.
[By L. A. Bishop, M. D., Fond du Lac.]

It has been truly said that we are a nation of egg eaters. We consume on an average 50,000,000 of eggs daily, of a