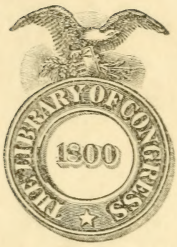
THE NEW BUSINESS OF FARMING

JULIAN A. DIMOCK



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BY

JULIAN A. DIMOCK

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INTRODUCTION

The tale of the small bonanza farm, where the owner makes a fortune from three acres, is dear to the heart of the magazine editor and the city reader, but it is "bunkum."

The individual may make a lot of money for a year or two, but if the chance exists for another to do the same thing in that region the claim will have been preëmpted by a neighbor long before the quick-footed city man can reach the spot. Production will increase until the opportunity is overwhelmed. The produce will flood the market until the producer cannot give it away. Profits will drop out of sight. If the space writer again visits his wonderland

he will be confronted by the signs, "To Let" and "For Sale." He will wonder what was the trouble, for he remembers that he took every precaution to verify his information. He pondered over the balance sheets and footed up the debit and credit columns of the farmers' accounts.

Every one is looking for a gold mine, and big returns from a small investment in land look about as good as a mine. Actual mines, however, are limited in number, but the acres of land are limitless and the production thereof is governed by the demand. An acre of ground will grow four tons of hay whenever the price of that commodity justifies the expense of making it do so. In the meantime it will yield scarcely better than one ton. If a man makes a thousand dollars a year profit from an acre of celery or strawberries there will be a rush to that mining-field. People will flock in, and competition will turn the profits into losses. The first man on the job had better sell out to the newcomers before the big crops flood the market. If his profits come from acres of ap-

ples he may safely hold the property much longer, for it takes many years to raise apple-trees to the bearing age, and competition will be delayed.

There are plenty of individual opportunities in farming as in everything else. The best equipped will win out. One man succeeds where another fails. If you want to farm, for heaven's sake farm! Do not be discouraged by the obstacles, for they make the fun. Seventy per cent. of city business men fail at some period of their lives, but comparatively few farmers have a visit from the sheriff. Although many city men who go back to the land live in dread of such a visit they rarely go to their neighbors for advice. They keep on with their "modern methods" instead of owning up that their neighbors know more than they do. If it pays to add two tons of fertilizer to the hay-field, the farmer will do it. If it doesn't pay, the farmer will not do it. The city man will try it out if he can figure out a profit, but the bets are even that his figuring is wrong, that he has omitted

some vital factor. He may figure in this fashion:

Normal yield, 1 ton per acre..		$15.00
Forced yield, 3 tons.....	$45.00	
Cost of fertilizer	25.00	20.00
Net revenue from fertilizer...		$5.00

His neighbor will tell him that he "hasn't found it paid to put phosphate on old seeding." He doesn't always know why, but it doesn't pay.

In the above figuring the city man has omitted the charge for applying the fertilizer and the harvesting cost of two tons of hay. These items will make his use of chemicals an actual loss instead of profit. He can even quote many bulletins in support of his position; but, bulletins or no bulletins, his neighbor was right.

The principles underlying the business of farming are beginning to be understood. They are as simple as any fundamental principles, but because of the complexities entering into

farm life it has been difficult to extract them. One man may raise an acre of violets and sell them far above the cost of production because of some novel advertising scheme which connects him with the wearer of flowers. His income arises from his ability as an advertiser and not as a raiser of violets. Moreover, if a few more acres of violets were raised, the market would be so flooded with the flowers that a bunch would be given away with each copy of a penny newspaper.

Special crops and special markets do not enter into the discussion of general principles. Competition will take care of the first in quick order and will gradually suck the excessive profit from the latter.

Farming is a conservative business, with small chance of large loss. No man on earth can change the economic law that the return on the investment from such a business will be small.

The itemized capital account of 759 typical farms in New York will show just how conservative is the investment:

73%	Real Estate
16%	Live Stock
7%	Machinery and Tools
2%	Feed and Seed
1%	Produce (unsold)
1%	Cash
100%	

Nine hundred and ninety-nine business men out of a thousand, on simply looking over that statement, would write across its face: "Slow Returns."

And yet those very same men would buy a farm for $100,000.00, one-half of which would be for fine dwellings, magnificent views, fancy barns and what not, and plan out a system of farming which was to show a net profit of $10,000.00 the first year.

It cannot be done.

More than one man has built a dairy barn at a cost per cow of a thousand dollars. Interest, insurance, depreciation, will make an annual charge of $100.00 per animal for housing alone. Few cows bring in this sum gross in a year. A

building sufficiently good for the production of certified milk, with some thought for architectural design, can be erected for a charge of $100.00 per cow. This is the fair "farm value" of a barn for cows, unchanged by its actual cost.

We must differentiate clearly between the business of farming and the purchase or making of a home. Any expense which one can afford is justified in the latter, but every last cent should be counted in the reckoning of the former. When one selects a site for a manufacturing plant, no report is made of the magnificent sunset over the bay. The bay is spoken of in terms of cheap transportation.

It was only when the investigators collected the data from a large number of farms and worked out their principles from facts rather than deducing them from theories that they found out how simple the fundamentals were.

The more capital, the bigger will be the returns; the larger the business, the more economies that can be introduced and consequently the higher the ratio of profits; the more hours of the man's time profitably employed, the

greater the labor income; the greater the diversity of work (within limits), the better the yearly use of labor; the larger the farm, the less per acre cost of machinery and the more efficient its use. Every office boy can quote these business axioms; but farming did not seem like a business and such rules were thought not to apply.

Many a city man has written to an agricultural college for help. He has announced that he has saved five thousand dollars and wishes to buy a farm. Until he is ready to undertake the job himself he wishes to hire a graduate to manage the farm. Will they please advise as to farms and recommend a graduate capable of the contract.

How many well-paid managers would a conservative city business of five thousand dollars' capital support? And remember that in farming the capital is turned over only once a year, at the best.

Gulliver proclaimed the benefit to humanity of raising two blades of grass where but one grew before. It sounded too good to be dis-

puted, and has come down through the years since as an agricultural gospel. Any engineer could have told us about the cost of overcoming inertia, and it would not have been hard to figure that it might be expensive to speed up the land. Only nobody thought of it that way.

Every one who reads the magazines remembers the tale of the minister who made fifteen acres of land care for thirty head of livestock. His books showed a profit, but his bank account did not reflect the same ratio of prosperty. Today the Farm Management experts can show us how this farmer would have made a much larger income if he had taken his capital back to any good farming section and used it in the regular methods employed in that region. No pyrotechnics, no unprecedented yields, just a regular weekly profit would have been rolling in fifty-two times a year.

These principles of agriculture, simple business rules, are the factors that make success in farming.

CHAPTER I

SIZE OF THE FARM FROM A BUSINESS STANDPOINT

When Abraham Lincoln was asked how long a man's legs should be, he made his famous reply that they should be long enough to reach from the man's body to the ground. In like manner a man's farm should be big enough to supply him with work—steady, efficient, economical work. His job is to raise food for the human family as cheaply as possible. His business is to make a profit for himself in doing it.

The world wants cheap food. Every cent that can be cut from the cost of the twenty million breakfast tables of this country leaves so much more to be spent in other ways. If the food of the family costs less, the children can have warmer clothing, the talking-machine can have a few extra cans of Caruso or Mme. Sem-

brich, or the whole family can take an occasional joy ride.

We have those things to-day because food does cost less than it did generations ago. Then it took the farmer's family and their united efforts to raise enough food for themselves, with very little to spare. It required weeks for the New Hampshire farmer to haul a single load of produce to the Boston market. It is obvious that there was not much time to devote to luxuries

The Chinese do not have these luxuries because they are too busy raising food to support life. The production per man is so low that seventy-five per cent. of the population are farmers. Only one man out of every four is left free to do other work, and that will not supply an abundance of automobiles or build many miles of railroad.

In a few years only fifteen per cent. of Americans will be farmers. That is, six out of every seven will be free for other business. In China each farmer has two acres of land. In America each farm has one hundred and forty acres.

America has plenty of farm land. Labor costs more than land. So the economic factor in farming is not the amount of produce which an acre of land will raise but the amount which a *man* can produce. It is the man who raises two blades of grass where man raised but one before who is the benefactor of his race; not the one who forces a given spot of ground to double its production. That may cost too much in human labor, and human labor is what we wish to save.

In building up a farm business, then, we must consider land in terms of labor. It is not good business to have so little land that labor is wasted or, for any reason, used inefficiently. It is better to have a few acres of land idle at an interest cost of a dollar or two an acre rather than to have a three-hundred-dollar man sitting around in front of the stove.

It costs nearly as much to keep a team of horses as it does to keep a hired man. But a horse will do ten times the field work that a man can do. So, to adapt the size of the farm

to economical horse labor is even more important than to adapt it to man labor.

If a man is alone on a farm he is working at a disadvantage in numberless ways. The horses are idle while he is doing chores. If he takes a trip to town the whole machinery of the farm stops, for horses, tools, and man are all off their work. There are a thousand and one little jobs that two men can do in a minute that would take one man fifteen to do alone.

A man is non-divisible; he cannot do two jobs at once. But part of the cost of a horse is the necessary oversight of its work by a driver. That can be divided, for one man can drive four horses as well as he can one. And much of the modern machinery is made for the use of a three- or a four-horse team. The result of this is shown in the census figures for ten years. In 1880 a man cared for twenty-three acres of crops, but in 1890 he was caring for thirty-one acres. This simply meant that by the use of four-horse teams a man was covering more land in the same length of time, for during that period the amount of land that a

horse could care for was unchanged. The saving was in the time of the driver.

If one man tries to care for ten cows and two horses, the team will be idle much of the time while the man is doing chores. But if two men care for twenty cows and four horses, the team can be kept busy all the time and there will be a direct saving in the time required for the care of the cows, for it does not take twice as long to look after twenty cows as it does to care for ten. The economic unit of man labor on a farm is not one man but two. The economic unit of horse labor is not a two-horse team, but a four-horse team.

This brings us to the unit of size for the farm. It should have at least enough acres to keep two men and four horses busy all the year round. Upon this as a basis we can build until we strike other factors which limit the profitable size.

Labor on a farm cannot be organized as can that in a factory. It is of a character that requires individual initiative and is rarely of a kind so that a gang of men can work together.

One man, or two, work by themselves, perhaps out of sight and sound of the next man. Exigencies of weather, insects, or other conditions may cause a complete change of work at an hour's notice and the whole organization be upset. An overseer in a factory can inspect the work of a thousand employees in thirty minutes, but it would take him a year really to inspect the work of a thousand men on a farm. Moreover the distance to the fields from the barn becomes a serious factor before we multiply that first unit of size very many times.

The biggest saving is between the farm too small to be efficient and the first unit of size, for the area farmed by one hundred dollars' worth of labor is five times as great on a hundred-and-seventy-five-acre farm as on one of thirty acres.

Horse labor is more efficient on the large than on the small area. On a fifty-acre farm one horse cares for twenty-one acres of cultivated crops, but on a two-hundred-and-sixty-acre farm one horse will care for forty-nine acres of crops. While a man will produce twice as much

on a hundred-and-fifty-acre farm as on one of only fifty acres. On the larger farms, then, the labor of horses and men, the chief items of cost in raising crops, is cut in half.

The small farm cannot afford sufficient machinery to do the work economically; but neither can the farmer afford to be without the machinery. He must overload his investment, per acre, in tools, for the same tools that are required to farm two hundred and fifty acres are needed for a farm of fifty. But in the latter case the investment, per acre, would be five times as much.

The equipment for one hundred and twenty-five acres of land—horses, men and tools—will, with very little additional cost, farm one hundred and seventy-five acres. It is not surprising to find that the farmer's labor income jumps fifty-eight per cent. with this additional fifty acres. When the farm runs above two hundred acres in size, some duplication in machinery is required and the proportion of increased return to the farmer becomes smaller. At about three hundred acres, the duplication is

necessary all around and the limit of economy under one management is reached.

The relative capital tied up in barns and house is much greater on the small farm than on the large one.

The records show that in one county in New York State the average farmer having eighty acres of land earned only $370.00 for his own labor, while the one farming a hundred and seventy-five acres received $635.00 for his time; and the farmer cultivating two hundred and sixty acres received a labor income of $1,000.00. Less than 3% of the farmers having only one hundred acres made a labor income of $1,000.00, but 33% of those using two hundred acres or more earned $1,000.00. It is true that a man on a large farm has a chance to lose more than the one on a small farm, but he has, at least, a much greater chance to make more.

We must not go to the other extreme and decide that the larger the farm the bigger the return. At a certain place complete duplication of equipment becomes necessary and the distances between fields will more than offset

the economies practicable, and at this point it is better to divide the large acreage up into separate farms. But as between the farm of fifty acres and that of two hundred the difference is not the difference of a few men and many, but in half-time and full-time work for the same number.

Profit is the difference between the selling price and the cost of production. The producer makes in proportion to the difference between these two. The passerby is impressed by the sight of idle land. The horses eating their heads off inside the barn are not in evidence. It is therefore a popular conception that idle land means poor farming. Really it is the fat, sleek, underworked, well-groomed horses that mean poor farming and the men spending their time around the stove in the store instead of riding on a gang-plow behind a four-horse team.

Land is only the vehicle for work. It is the least part of the cost of producing crops. Labor is the chief item. So land should be subordinated to labor. The size of the farm should be

that on which a given amount of labor will produce the greatest result.

The figures given in this sketch are taken from statistics published concerning New York State conditions, but will hold, with due allowance for type of farming and topography, in any part of the country.

CHAPTER II

CAPITAL NECESSARY IN FARMING

The capital account of a farm is a measure of the size of the business. If all farms carried on the same type of farming and all farm land was worth the same price per acre, we could use the acre as a measure of size. But the florist, with a few acres of high-priced land under glass, may have more money invested in his business than the cattle raiser with a thousand acres of range land, or the truck grower may intensify until the cost of his crops from a single acre compares with that of a whole cotton farm in the South.

Analyses of farm accounts have shown that the farmer's return is in proportion to the capital invested, up to the amount where the size becomes unmanageable because of physical factors. That is, the larger the business, the big-

ger the return, and not only that, but the bigger the percentage of the return, because of economies in management which can be introduced in the larger business.

Such a statement belongs in the primary department of finance. Yet how many men believe it to-day? How many deluded city people go to the farm expecting big returns from little capital? There will be less trouble in the world when people have elemental facts clearly before them.

If a man invests his money in bonds or stocks, or puts it away in a savings bank he expects to receive interest for that money. If a man goes to an office every day he expects to receive a pay envelope at the end of the week. If he invests his money in the concern for which he works he will expect pay for his money and pay for his work. Capital is needed to provide an opportunity for the man to work, but man's work is required to give capital an opportunity to earn interest. Each must pay the other and any system of accounting must take cognizance of this fact.

The farm owner puts both capital and work into his farm business and he should be paid for both—interest on his money and wages for his time.

When we realize that farming is a conservative business, and the rate of return therefore low, we begin to see why the small farm cannot pay.

Because of unusual ability the individual may be capable of earning a large wage, but that capability is very much more likely to bring rewards in a less conservative business than farming. There are opportunities for speculation in agriculture. If the farmer devotes his whole place to raising potatoes in a year when that crop brings a high price he will receive the return of speculation.

Without sufficient money the farmer cannot even earn interest on that which he has, let alone earn a wage for himself. In the city a man may run a business on other people's capital and be, in reality, an employee. The lawyer is a clerk for his clients, the insurance agent is an employee, the stock broker is working for

his customers on commission which is merely a euphonious name for wages. But the farmer is neither an employee nor a broker; he is working for himself and must supply all the capital needed in his business.

The charge for the farmer's labor takes precedent of every other. The money invested in a farm cannot hope to bring in a return except through a man's labor. It is illogical to expect a small capital to pay a man three hundred dollars a year and earn interest besides. Indeed, it is asking dollars to be unusually nimble to expect them even to provide a man with the opportunity to earn day wages unless they are present in sufficient numbers.

How does this theory work out in practice? In one section in New York State not a single man who had less than four thousand dollars invested in his farm made a labor income of $1,000.00, and only one made $800.00. When we reach those with an investment of from $4,000.00 to $6,000.00 we find one man in twelve making three dollars a day for his time and work. But when we look among the farmers

who have an investment of $15,000.00 we find that forty-six per cent. of them made more than $1,000.00 a year, over and above inte on their investment. The mere use of that amount of money in the business allowed them to pay interest on it and to receive a good wage their time.

The small farms were not big enough businesses to pay. When the total income of a man is $500.00 it is difficult to make much of a net income. Even fifty per cent. profit will not pay him the wages of a hired man, to say nothing of interest.

The need for money is more pressing than is the need for its proper distribution. A man without capital is almost helpless, but the one who invests it with poor judgment is simply handicapped. The average cost for labor on the farms of the country is somewhere in the vicinity of forty per cent. of all costs, but we have found that on the large farms one hundred dollars' worth of labor farms five times the area that it will on the small farms. No wonder the big farmer makes money!

The most important factor in successful farming is the size of the business. The highest profits are made when size, diversity, and good production are combined in a well-balanced business; but it is almost impossible to make a large profit unless one has plenty of capital with which to work.

Illinois, Indiana, and Iowa are wealthy farming communities. The land is productive and conditions are propitious. Yet when all the farms in one county of each state were investigated it was found that one farmer out of every three was paying for the privilege of working on his own farm. He had to work with his money to make it pay interest. The family lived well because the capital invested paid enough to allow of good living but the head of the household was working for nothing.

The farmer does not talk in terms of finance but he knows more about the business of farming than people give him credit for. The Illinois owner of a farm does not exert himself to make a labor income, because he has enough to live on without it, but the tenant farmer of

that state exerts himself. His books are balanced for him each year. He must pay interest to the landlord and have enough to live on left over. His own investment is usually too small to pay any considerable part of his living, and there is little chance for him to misunderstand his position. The tenant farmer all over the country makes more money on his capital than does the owner.

The tenant farmer occupies a strong strategic position in the business of farming to-day. He has the advantage of the use of the combined capital furnished by himself and his landlord and he has the initiative furnished by the necessity for earning a labor income over and above the interest demanded by his landlord's investment.

The results found in Indiana, Illinois, and Iowa are only typical of those found elsewhere; for wherever a community becomes so prosperous that the farmers can live on the returns from their farm investment, the labor income begins to flatten out. Necessity ceases to push.

A hired manager rarely makes a farm pay.

It is seemingly impossible for one man to run a farm for another and make it a business success.

The city man who wishes to leave his present position to take up farming should remember that the average farmer, trained to the work from his youth, does not make day wages unless he has a capital investment of $4,000. And after a full day's toil the wages of a farm hand will not look very large to the man from the city when he compares them with the weekly check to which he has been accustomed.

There are various ways to decrease the farm capital. A fancy barn that costs more than a barn has any right to, judged by the capacity of the animals housed therein to make returns, is one way. A set of "model" chicken houses will cost more than the hens can hope to repay. Running a farm on land that has been exploited to more than its value for agricultural purposes is another way. Equipping a place with too many horses and keeping them sleek and well groomed is another method adapted to reducing the profits of a farm. Too many men

for the work is a certain way to the poor-house. Few farmers make these mistakes, while most city men make some of them.

There is a way to increase the capital and that is to rent a place and so let the landlord provide the real estate. Then all of the farmer's capital can be put into producing stock and equipment. This is a thoroughly practicable method and one that is being increasingly put into practice by young country-bred farmers all over the United States.

It is better to hire a good farm than to own a poor one.

The reader may be discouraged by this list of troubles in the way of the farmer. They are given because the knowledge may save him a lot of worry and any amount of tribulation if he decides to try farming.

CHAPTER III

DIVERSITY

THERE are three big reasons for diversity on the farm.

Diversity is an insurance against crop failure, it is a method of equalizing work throughout the season, and it almost automatically provides a rotation of crops.

There are three little reasons against diversity, and they are:

First, that the specialized workman becomes more skillful than the one who does many kinds of work. Second, a farm with one crop can have a better supply of tools adapted to that crop than can one with many industries. Third, a small farm can do business on a larger scale if all the product is in one specialty. It is sometimes given as a favorable factor for specialized farming that it is easier for the farmer

to get a vacation, but this is merely another way of stating that such farming does not provide work throughout the year.

Insurance against crop failure is especially important, because the risks are many. The manufacturer buys his raw material, makes it up into the finished product and sells that completed product. His risk is the chance that the selling price may be below the cost of the raw material plus the expense of finishing it. Weather conditions cannot prevent him from turning the crude article into the refined, and he can insure himself against fire and strikes.

The farmer puts his seed into the ground in hopeful anticipation that weather and insects will permit it to grow, that he will be allowed to harvest the crop, and finally, that he will be able to sell that crop at a price which will yield a profit. Continued rains may rot the seed; late frosts may kill the young shoots; bugs may devour the older plants; early freezes or hailstorms may destroy the crop at the last moment; or wet weather may interfere with harvesting.

Elementary business prudence suggests insurance or a division of risks; and that is one thing that diversity does for the farmer. Early rains will help the hay crop and hinder certain others; hot days and nights will make the corn grow but worry the cows; late rains may give an extra cut of rowen even while they cause the potatoes to decay in the ground. The price of any one crop may be abnormally low in any given year, but the chance of hitting a wrong market with many is reduced with every additional crop. It is better to have the income distributed throughout the year, for it is then easier to make it meet the demands. If capital is limited, money must be borrowed to meet the expenses and then paid off at the end of the season when the crops are sold. This is unpleasant, for one likes to have the "feel" of a little money once in a while. If enough money is within reach to pay expenses, then a lump sum in the bank is dangerous, as it begets the habit of spending. More than either of these is the mental effect of having small amounts dribbling in throughout the year. It keeps up a

man's courage and makes him face the world with a twinkle in his eye. This phase of the matter is especially important for a man from the city, accustomed to weekly or monthly checks. Despise not the cow, with her daily yield of milk and butter.

Diversity equalizes the farm work and spreads it over a larger part of the season. Even the cautious writers of the Bureau of Farm Management at Washington forget their habitual care when writing of diversity. One of them says: "If the working equipment can be all kept busy on paying enterprises, success is almost assured."

Labor is the chief item of cost in farming. Large area contributes to economy in labor; therefore the size of the farm is important. Capital is needed to buy the large farm or to intensify the few acres of the florist or the truck gardener so as to economize labor. Diversity is as important as either size or capital, because it contributes to economy of labor and the utilization of equipment. It corresponds in business to the use of the by-product which often makes the whole profit of the concern,

while the main product is simply run at cost or even a little below.

The hardest problem which the farmer has is to plan the various enterprises on his farm to yield the greatest yearly return. It is easy enough to pick out the one most profitable enterprise, but he must determine the combination which, taken together, will produce the biggest profit, and that means very largely the most persistent and profitable use of men and horses.

The old-time farmer answered it with the single crop of the dairy. Milking kept him fairly busy throughout the year, and the harvest season found him overworked for a few weeks. He could milk ten cows and have plenty of time to drive to the creamery and stop a while at the store. It was pleasant and profitable, but it was too simple and competition entered into the game. The production of milk and butter increased until they were sold at a price that did not pay the producer full-time wages for half-time work. This is the condition on many farms to-day, for all of the owners have not learned to change their ways,

and the average cow does not pay at the present price of milk or butter. But the cow can be the most valuable animal on the place. If she is to be kept as the single crop of the farm she must be unusually good to pay; but if she is to be used simply as the principal product, then she is profitable to the whole organization even if she herself does not produce a profit, for she keeps the organization and the organization can be used with small added expense to produce by-products that will yield a profit to the farmer.

The simplest way to understand the results of diversity is to study a couple of actual farm accounts. These are not presented as typical farms but are used simply to illustrate the point in discussion.

FARM NUMBER ONE. 211 ACRES

Capital

4 horses, 31 cows, 30 sheep, other stock	$3,497.00	
Land, tools, etc.	11,562.00	
		$15,059.00

Receipts

Wheat	$ 357.00	
Oats	366.00	
Buckwheat	20.00	
Hay	110.00	
Potatoes	1,797.00	
Apples	12.00	
Cabbage	118.00	
Milk	3,841.00	
Cattle	536.00	
Eggs	69.00	
Lambs	224.00	
Wool	63.00	
		$7,513.00

Expenses

Labor and board	$1,286.00	
Seed	90.00	
Feeds	1,193.00	
Fertilizer	78.00	
Machinery	93.00	
Buildings and fences	150.00	
Miscellaneous	319.00	
		$3,209.00
Farm income		$4,304.00
Interest on capital at 5%		753.00
Labor income		$3,551.00

If this farmer had sold only milk and cattle his receipts would have been $4,377.00, which would have left him a labor income of only $415.00. Or, taking out all the expenses which could possibly be charged against the additional crops:

Extra labor	$500.00	
Seeds	75.00	
Fertilizer	78.00	$415.00
Machinery (½)	46.50	
Miscel. (½)	159.50	
		859.00
Labor income		$1,274.00

as against $3,551 for the diversified farm. In business parlance this difference is the value of the by-products.

FARM NUMBER TWO. 225 ACRES

Capital

6 horses, 30 cows, 20 heifers, 3 bulls, other stock.	$5,036.00
Real estate, tools, etc.	16,750.00
	$21,786.00

Receipts		
Milk retailed	$6,400.00	
Cattle	2,255.00	
Miscel.	641.00	
		$9,296.00
Expenses		
Labor and board	$525.00	
Seeds	50.00	
Feeds	570.00	
Lime	50.00	
Buildings and repairs	500.00	
Machinery and repairs	85.00	
All else	110.00	
		$1,890.00
Farm income		$7,406.00
Interest 5%		1,089.00
Family labor		100.00
Labor income (father and son)		$6,217.00

Apparently this farmer specialized on dairying, but in reality he diversified, for he (1) produced market milk, (2) raised pure-bred cattle, (3) retailed milk.

Let us figure on the additional profit which this diversification brought to him.

If his cows had done as well as those on Farm No. 1 he would have received for milk at wholesale $3,900.00. If his stock had sold for the same price as those on Farm No. 1 he would have had a cattle income of $750.00. The miscellaneous items would have remained the same, giving total receipts of

Expenses		$5,291.00
Farm Income		1,890.00
		$3,401.00
Interest	$1,089.00	
Family labor	100.00	
		1,189.00
Labor income		$2,212.00

The diversity of retailing the milk and raising pure-bred stock made an additional profit of $4,005.00.

These are extreme cases and must not be taken as typical, but they serve to show the ad-

vantage of diversity in farm management. An increase of 25% to 100% in receipts, with very little added cost, is, however, fairly representative.

CHAPTER IV

BIG CROPS *vs.* NORMAL

Pliny quotes a maxim of the ancients: "Nothing is so disadvantageous as to cultivate the land in the highest style of perfection."

Modern theorists advocate intensive cultivation of the land. Back-to-the-landers have set forth to prove this contention. They have raised two hundred bushels where but one grew before and have felt that they were teaching the community a lesson in agriculture.

I remember the feeling of elation with which I compared potato yields with the shrewdest farmer in the neighborhood. At this moment I can see the twinkle in his eye as he nodded his head in approval and said, "Pretty good yield, that." The next year his potato yield remained at the same old figure of one hundred bushels.

He did not profit by the lesson; but I did, for I began to figure up the costs.

I raised two hundred bushels of potatoes and sold them for seventy-five cents a bushel. My receipts were $150.00. But the costs were $148.00. I made a profit of $2.00 on the transaction.

My neighbor had one hundred bushels to sell for which he received $75.00. His expenses were $66.00, and his profit $9.00.

Neither of us got the best possible return. If he had used imported seed and a little more fertilizer, probably his returns would have been higher, while it is quite possible that I could have cut my fertilizer bill and my spraying costs to advantage. But the point is not what might have happened but what did. The way to make money on potatoes is to have the cost per bushel less than the price at which they are sold. My neighbor beat me; his farming experience was a better business asset than my imported ideas of big yields.

The next year I raised my yield and incidentally the costs. My land produced three

hundred bushels of potatoes, but I established a market for my product at a higher price than my neighbor could command. And I did it because of the confidence which the good yield gave me. I became a salesman. I sold to the best stores at a higher price and held a quantity of potatoes for sale as "seed" at a price determined by the quantity produced per acre in my field.

My neighbor was the better farmer, but I was the better salesman. We each won out in our own specialty.

Our section is not a potato region; neither soil nor physical characteristics are adapted to their economical cultivation, and so the cost figures have no value save to illustrate a single concrete instance of Yankee shrewdness *vs.* undigested "book learning."

The beginner is sure to overestimate the importance of large returns per acre. He cannot banish from his mind the image of the big crop as a badge of success in agriculture. He will point to the comparative per acre yield of potatoes in this country and Germany and conclude

that the American farmer does not know his business, for "made in Germany" was once the slogan of constructive ability.

Here are some of the figures taken from New York farms:

	Potatoes	*Oats*	*Hay*
Rent of land.....	$4.42	$4.09	$3.78
Cost of man, horse and equipment labor	42.19	11.15	4.49
Other costs	22.00	6.28	3.44
Total costs	$68.61	$21.52	$11.71

The use of the land is about one-sixteenth the cost of growing potatoes. It is less than one-fifth the cost of the oat crop and a third that of the cost of a hay crop. If the farmer troubles himself about the cost of the land for the potato crop he may overlook some other figures.

A man cannot plant more than an acre a day by hand, but a man, a team, and a $50.00 machine can plant five acres in a day. A man cannot dig an acre of potatoes in less than six days, and he will be mighty tired at the end of the sixth day even at that. But a man, a four-

horse team and a $100.00 digger will put the potatoes from six acres on top of the ground inside of ten hours.

Besides the direct saving in costs, which amounts to many times the land rent, is the item of insurance; for, when a crop is ready to harvest, the sooner it is put under cover the fewer the chances for loss from the elements.

The problem of Germany has been to be self-sustaining on a given amount of land; the problem of the American farmer is entirely different. Each knows his own business.

The following table of costs of increasing the wheat yield is taken from a report of Sir John Lawes and covers experiments over a period of fifty years. Wheat is figured at a dollar a bushel and 43 pounds of nitrogen at $6.50.

	Yield	*Gain*	*Value of gain*	*Cost of gain in nitrogen*	*Profit*
Plot No. 5	15				
Plot No. 6	24	9	$9.00	$6.50	$2.50
Plot No. 7	33	9	9.00	6.50	2.50
Plot No. 8	36¾	3¾	3.75	6.50	Loss 2.75

The practical farmer will figure on the net cost before he concludes to add nitrogen to his land. It will cost him fifty cents a bushel to raise wheat; so instead of showing a profit every bushel of increased yield in the above table shows an actual loss. The old fellows were right: it *is* "disadvantageous to cultivate land in the highest style of perfection."

It is only when a shortage of land and an increased supply of labor changes the proportion between labor costs and land rent that it is wise to begin to economize in land by putting more labor on each acre to increase its yield. The slow working of the factors controlling this principle are to be seen in the crop yields in this country to-day. Land is rising in value while the productive cost of labor, thanks to modern machinery, has fallen; therefore the trend on production is upward. Man is conservative and does not keep up with the procession; so we have the result that the best farmers are raising 25% more crops per acre than the average. Which is merely another way

of saying that the poorer farmers are lagging behind the economical unit of yield.

In China land is high and labor low, so we have the extreme case of transplanting separate plants of wheat so as to get the highest possible yield from the acre, a practice that is beyond the conception of the American mind.

No rule, save the general one that 125% of the average yield of this country is usually desirable, can be given for the amount of crops which land in the United States should produce. Each farmer must work out the profit and loss account for himself. His job is to make the largest possible difference between cost of production and selling price for his farm products. If a special market raises the selling price, the cost of production may rise correspondingly and yet the producer not lose money despite his uneconomic handling of his field costs. The law of compensation is pretty certain to care for most discrepancies, and the man who can sell to the best advantage seldom has the ability to produce in the most economical way.

A logical deduction is that in an era of high

prices the yield per acre increases. The higher the price at which wheat can be sold, the more fertilizer the farmer can afford to put on his land, the more work he can give his fields, and the bigger the yield to the acre. The reverse is true in practice. The higher the price of wheat the less the average yield per acre over a period of years.

The reason is not hard to discover. I made part of it myself. When the war put wheat over the dollar mark I planted wheat on land that was not adapted to it. My yield was away below the average of the country. What I did on my farm, farmers everywhere did. Farmers know how to increase production, and the cheapest way is to plant more land, not to spend more money on land already in use.

The farmer knew more about the subject than the economist, although he could not express himself in terms of diminishing returns or vanishing profits. His bank account was less liable to make errors than the theories of his advisers.

When cotton sells at five cents per pound it can be profitably raised only on such land as is

especially adapted to its culture. The yield per acre will be high because the land will be fertile. When cotton brings ten cents per pound it can be raised successfully on a still greater acreage because it will not take as fertile land to keep the cost under ten cents as under five. When it can be sold for fifteen cents a large acreage is given over to its production. The higher the price, the lower the average yield per acre.

Long staple cotton was only successfully raised on the Sea Islands of the Carolinas. The suitable land was strictly limited. When the price went up, the yield per acre went up too.

CHAPTER V

ROTATION OF CROPS

The worth in dollars and cents of a good system of rotation is suggested by some experiments conducted at the Minnesota University Farm.

One acre on which wheat was grown continuously yielded a product worth $13.08 per year. The cost, including rent of land, labor, hire of machinery, etc. was $9.94, leaving a net profit of $3.14.

On another acre wheat was grown in the standard five-year rotation and the average gross value of the crops for the five years amounted to $15.89, produced at a cost of $10.02. This left a net profit of $5.87 per acre, per year.

An analysis of the soil showed that the rotation system had added both nitrogen and carbon, while the continuous cropping had reduced

the supply of both, and the soil was in better tilth, or mechanical condition, because of the various crops. In other words, the crops paid the farmer for the privilege of adding fertility to his soil.

When a business man discovers new machinery that will add 87% to his net profits and at the same time improve the condition of his plant, he promptly scraps his old machinery and installs the new style.

The rotation used at the Minnesota Farm did several things. It raised the yield of wheat from 17.8 bushels per acre to 26. It increased the corn yield from 21.4 bushels to 50.9. It diversified crops by adding oats, hay, and pasture, to corn and wheat. A further profit, a by-product of the business, could have been added by feeding these stuffs to live stock, thus further increasing the benefit of rotation. The use of labor was spread over a longer period and the order of crops was so arranged as to lower the cost of each. The grass seed was sown with the wheat, thus one preparation of the ground served for the two crops. Pas-

ture followed the hay and was merely another crop gathered from the same planting. The one-crop system belongs in the farm scrap-heap.

For planning a system of crop rotation the farmer has need of a degree of intelligence that is not often let loose in this world. He must take the attitude that everybody is mostly right but a little wrong. His neighbors have had the practical experience with the local conditions, while the scientists have collected a vast amount of knowledge unknown to the average farmer. A judicious blending of the two is presumably the best. But it is very risky to believe the system in any region to be radically wrong. The farm practice in Chester County, Pennsylvania, has not changed materially in a century and a quarter, and the experts have no radical changes to suggest to the farmers in that region to-day.

I went straight to my farm from a four weeks' course at an agricultural college. If ever a smattering of knowledge is a dangerous possession it is in farming. I looked at the milk pails of the old owner, who had run the place

for forty-seven years, and I gazed at the steep pastures. "Cows cannot pay on this place," was my off-hand decision. I watched the old man handle his apple crop. His trees were not properly pruned; the orchard was sprayed at, if the fishing season did not interfere; the picking was done carelessly by rough, uninstructed help; and the sorting and packing was carried out in a medieval way. "Hiram is wasting money every year right here," was my instant conclusion. To get rid of the cows and devote the time to the orchard was the obvious procedure. I learned all that in four weeks. It has taken me a good many years to unlearn it. To-day I have a dairy—not Hiram's cows, however—and I am running a general farm in combination with a carefully conducted orchard. Now I am making up the money that I lost by overthrowing, instead of improving upon, Hiram's system of cropping.

The odds are in favor of your neighbors' being right. The experts at the colleges have the general principles down pat. Draw cards from both sources, but do not believe that you

have a royal flush if you have gone against the advice of either.

There are so many factors entering into the planning of any place that it requires the keenest perception to balance them properly. Dr. Warren, one of the leading authorities on farm management in the country, presents the case for rotation thus:

"There are many reasons why crop rotation is a good thing. The final factor that forces farmers to change crops is usually either weeds, insects, or diseases. Crop rotation (1) helps to control these enemies; (2) may provide for keeping up the humus supply of the soil; (3) may provide for the growth of grass or legumes on each field; (4) often saves labor; (5) may keep the land occupied with crops a greater part of the time; (6) allows for the alternation of deep and shallow-rooted crops; (7) may provide for a balanced removal of plant food; (8) may control toxic substances; (9) systematizes farming."

These are self-explanatory to even laymen; save, possibly, number eight. It is believed that

the roots of plants give off substances that are poisonous to plants of the same species. By a change of crops these toxines are neutralized and the soil is made wholesome once more for the original crop.

Plant food, to be available for the growing crop, must be supplied in a soluble form in contact with the roots of the plant. Plant food is made soluble by the decomposition of organic matter and disintegration of mineral matter. Humus, or vegetable matter, in the soil hastens this process. Moisture is usually present when humus or partially decayed manure is in the soil, and such material permits a free circulation of air and prevents baking or packing of the ground. Decomposition of vegetable matter takes place as the result of bacterial action. These bacteria can only work in the presence of air and moisture, hence the necessity of humus. This decomposition forms acids which, in turn, disintegrate mineral matter.

The entirely supposititious case of the Standard Oil Company's throwing away aniline dyes and purchasing coloring matter for their kero-

sene would be quite analogous to the case of the farmer who decided against the use of a rotation of crops and bought commercial fertilizers to keep up the fertility of his land.

Diversity and rotation of crops tackle the same proposition from different angles but they arrive at much the same result. Rotation is diversity to a degree, but diversity is not necessarily rotation. Diversity, *ipso facto,* is a purely business proposition. It does not take account of the fertility of the soil or of its conservation or improvement. It divides the risks of crop failures, and makes a profitable distribution of labor. Rotation is designed, primarily, to increase crops without corresponding cost, but with it goes the corollary of increased fertility. Incidentally it does produce diversity with the consequent efficient use of labor.

When crops, per acre, can be increased without additional cost for fertilization or cultivation, the profits rise more rapidly than the yields.

The following figures are taken from careful experiments:

Yield of Wheat	*Value*	*Cost*	*Profit*
10 bushels	$7.42	$7.31	$ .11
14 bushels	10.39	7.43	2.96
16 bushels	11.87	7.49	4.38
20 bushels	14.84	7.61	7.23

The one additional charge against the higher yield is the cost of harvesting. Land rent, tool hire, labor costs, preparation of soil, are all the same.

In planning a farm cropping system there are certain general principles to keep in mind.

A regular rotation gives each year the same number of acres to each crop, hence provides more constant and efficient use for the machinery. With a fairly constant supply of crops the amount of stock which can be profitably kept is more easily determined.

If each field is given the same treatment through each series of years, the supply of humus will be added at regular intervals and an evenly distributed amount of decaying vegetable matter be kept in the soil. Thus every part of the farm will be working at efficient speed.

As large an acreage as possible should be provided each year for the most profitable crop of the region. In Illinois, the maximum acreage possible should be devoted to corn, while in New York and New England much attention should be devoted to hay, and this regardless of the main business of the farms.

In nine cases out of ten this is simply repeating what we have said before—follow your neighbors but cut the production costs by every practicable method.

CHAPTER VI

COMPETITION AND THE LAWS OF PRICES

Land is practically unlimited, and labor can always be had at a price; therefore competition in farming will always be keen. Crops will be produced at cost, giving the farmer but a fair return for his work and the use of his capital.

The city householder pays 12 cents a quart for milk for which the dairyman receives but 6 cents. If all delivery charges could be eliminated the city breakfast tables would be supplied with milk at 6, or at the outside 7, cents a quart. Raise the price even a quarter of a cent and the contributing territory would expand in every direction. If the present limit of profitable haul is three miles, the additional price would bring milk from the farm four miles from the railroad. If the present longest run of a milk train is one hundred miles, the additional

price would send the trains a hundred and twenty-five miles after milk. A perfect flood of milk would be diverted from the cheese factory and the butter maker and flow to the city.

The problem of the middleman (or more properly the middle charges, is a problem for the consumer. With the abolition of all unnecessary costs between the farm and the kitchen, the whole advantage will ultimately go to the consumer. Every time that a housewife orders a quart of potatoes over the telephone she is paying for her own shiftless method several times the value of the potatoes.

Competition will always limit the returns from any simple conservative operation. If big crops, alone, meant success, there would be a flood of big crops; if big farms meant big returns, small farms would be forced out of business; if a lot of money assured the farmer a high rate of return, capital would gravitate toward the farm.

The owner of an orange grove was in the possession of a fortune until the certainty of the profit brought sharp competition. Prices

dropped until it was not worth while to pick and pack the fruit on many groves. To meet this condition, growers' organizations were formed, which bridged some of the existing gap between producer and consumer. Such share of the additional price as rightfully belonged to the grower went back to him. If this becomes excessive, further competition will again reduce the price.

The Oregon apple orchard was reckoned with Government bonds for safety and a gold mine for yield. The owner sat at ease and his dividends rolled in upon him. It was too easy; a few years ago the apples were sold at less than cost. Competition took away the profits and put the orchards on the bargain-counter.

Land, labor, orange groves, apple-trees, cows, sheep, can be had in any amount; but alone they do not make success. The supply of brains that can organize a profitable farm business is strictly limited, and the city can outbid the country for them; for, in the nature of farming, it is a small enterprise compared with a city business. The farmer needs the type of mind

that can utilize the by-product to the *n*th power.

The inherent weakness in the Western orchard was the one-crop system. The distance to market was a further limiting factor, for only high-class fruit could be shipped across the continent; and thus we have the orchardist limited not alone to one crop but to one grade of that crop. Westerners are natural boosters and the apple growers proceeded to advertise their wares and to create a market for them. With fine business they utilized the box pack and set a standard in grading apples that put the Oregon fruit on a pedestal. It is not especially difficult to raise apples. Your neighbors and the local experiment station can supply you with all needful information. If there is an organization for packing and selling the fruit, anybody can raise high-grade apples. Inevitably there was a rush to the apple field. City men, without the first idea of agriculture, staked out claims in this field of gold. "Apple land" brought hundreds and even thousands of dollars an acre. Competition was unrestricted; but the market for high-grade fruit was limited. When

the new orchards came into bearing the slump occurred.

It took less time for the new orchards to grow under the impetus of Western soil conditions than it took the idea of apple raising to permeate the consciousness of the Eastern farmer. Apple land in New England costs ten dollars an acre. There is a market for high-grade fruit and a practically unlimited market for the lower grades within reach. There is a saving in freight of forty-five cents a box and in time of five days, in favor of the New England grower of apples. There is every opportunity for diversity of crops, from the dairy to the raising of beans, open to the Eastern man. But it takes intelligence to plan a diversified farm. The supply of brains is limited. The orchard of the general farm in the East is a factor of permanent importance.

There is no secure ground under the feet of the specialist in selling. Special markets are desirable, but the possessor of one must keep paddling his craft or he will suddenly find himself in the trough of the sea instead of on the

crest. Other men will find ways to supply the demand at cost. One man may possess the ability to breed cattle of unusual worth. The high price at which he may sell these creatures is secured because of his knowledge and the money price which it is worth. When other men learn the trick the price will come down to cost.

A big business is built up by attention to details. A jitney bus, with a five-cent fare, is likely to make more than the taxi-cab with a dollar ante. The Standard Oil Company probably gets the larger part of its revenue from once unconsidered trifles. Gasoline was at one time a waste product, aniline dyes, paraffin, petroleum jelly, and a multitude of other minor products now swell the receipts.

When the orchard owner sandwiches the work on the trees between the chinks of other farm work, has his regular men prune through the winter between milking jobs, and arranges his crops so that the spraying of the orchard comes after the planting of one lot of acres and before that of another batch, he is beginning to

put the cost of his apples where it is hopeless for the specialized orchardist to compete.

The Prince of Monaco has found that a certain percentage charged against each bet made in his palaces will bring him in a fortune. The deluded players look only for the big returns and, in the aggregate, are sure to lose. The wise farmer will work out the best system of farming for his particular conditions and will stick to it, knowing that in the long run he will make more money by so doing than by trying to hit the high spots each season. It is not sufficient that his combination pays him a profit; it must pay him the best profit of any combination of crops, to be the right one for him to follow.

After a year of good prices the newspapers use up any amount of perfectly good paper in urging the farmers to increase their crops, and statisticians begin to figure on the added wealth that would come to the State if the farmers would only double up on production. Fortunately it is only the city people who accept this gratuitous advice, and so it doesn't matter. One year cabbages may sell for sixty dollars a ton

and the next be so low that they are left to rot in the field. The law of supply and demand is not directed from editorial sanctums.

In 1891 the yield of potatoes was 94 bushels per acre and the value per acre was $34.00. In 1892 the yield was 62 bushels but the value per acre rose to $41.00. In 1894 the yield was the same as in '92 but the value was only $33.00. But the next year the yield jumped to 101 bushels and the price dropped so suddenly that they were only worth $27.00, or one-half as much, per bushel.

In the corn belt the oat crop is raised as a by-product. It does not pay of itself but it fits into the rotation and employs labor at a time when it otherwise would be idle. Planting and harvesting the crop do not conflict with the care of the corn. A farmer can plant all the corn that he can cultivate and at the same time have many acres of oats. It is not a competitor of the corn crop, any more than aniline dye is a competitor of kerosene.

The local market is always the best so far as it goes. It is often used by the man with small

capital, who retails his stuff until he has accumulated enough money to go into the bigger business necessitating a wholesale outlet. Many small towns are short of vegetables and milk. A dairy section is the worst place in the world to get a household supply of milk. So long as competition is avoided the retailer has a tariff wall of two freight charges and two commissions fighting for him. To ship his stuff to a wholesale market he would have to pay one freight and one commission. To have stuff shipped in from outside, the purchaser would have one freight charge and one commission to pay. The producer who sells direct saves the double charge. The climate of Alaska is not adapted to the growing of vegetables, yet the raising of garden truck in that land is profitable. A tariff wall of freight charges surrounds the place.

Neither the ebullitions of editors' brains nor acts of Congress control prices for farm products. The farmer must look further than his daily paper or the city of Washington for the laws which govern his business.

CHAPTER VII

FITTING SCHEME TO CONDITIONS

The man who makes the best financial success of his farm is the one who best fits his system to his individual surroundings. Rules are made for average conditions, but the average is a composite of variations. No two farms will give the best returns from exactly the same system of farming.

Butter making on the farm is generally a losing proposition, but it is easy to imagine many conditions under which it would be profitable. The dairyman who uses extra care to keep his product clean is throwing away the fruit of his labors if he sells his cream where it is mixed with unclean supplies and thus brought down to the lower grade. The man who pays the creamery for making his butter while he spends the equivalent amount of time on the

road hauling his product to the creamery or at some other unproductive work is giving away the price of the work done at the creamery.

Butter made from clean cream under sanitary conditions is worth more than that made from the average creamery cream. The farmer who sells such butter receives more money for a better product and does not simply ask an additional price because the product goes out under his name. In this sense he is not seeking a special market. Whether or not the farmer's net income will be increased if he spends his time in cleanliness in the dairy and in converting his clean cream into a high-grade finished product is purely a matter of the individual conditions.

The ideal condition, it goes without saying, is the proper kind of coöperation between the farmers of the neighborhood.

Climate and soil are the most important factors to consider in determining what crops to grow. Freight and express rates to the best markets have a big finger in the pie; and the amount of land available to compete in produc-

tion must be considered. But all of these may be overcome if the price received for the crop pays for the added expense. Tomatoes and cucumbers are grown through the winter under glass in New York and under the sun in Florida. The cost of the greenhouse is offset by the transportation charge, and both are paid for by the out-of-season price.

The value of the Connecticut tobacco crop is surpassed by only four States in the Union, and each of the four has eight times the area of its New England competitor. The high quality of the Northern grown tobacco, combined with the limited area available for the growing of this particular grade, permits the expensive culture under cloth.

The Oregon orchardist met his heavy transportation charge by additional labor in the orchard, which produced the maximum percentage of high-grade fruit.

If a farm has soil especially adapted to corn but is so remote that the freight rate to a corn market eats up the profit, this condition can sometimes be entirely met by feeding all the

grain to live stock on the place. Pigs transform corn into pork and at the same time condense it. One pound of pork represents five to six pounds of corn. But the freight rate on pork is approximately only twice that on corn, so the rate per pound of corn as represented in pork is reduced to one-third what it would be if shipped in its original shape.

Again, if the corn is sold as grain, the fertility of the farm will decrease, and the yield per acre be less than if it is fed to live stock. If a field will produce 30 bushels of corn without manure and this corn is sold at 70 cents, the gross return will be $21.00. But if the same field, fertilized by having all the corn fed to live stock and the manure returned to the ground, can produce 80 bushels, this corn can be fed to live stock at a price of only 40 cents and yet the gross return will be $32.00.

Uncle David Enoch was right when he said, "I get the profit in two ways when I feed stock —the profit on my stock and the enrichment of my farm."

If he thus builds up the fertility of his land

the farmer is raising the productivity of his farm and by intensive cultivation increasing the size of his business.

The American farmer fits his scheme of farming to his conditions by increasing the yield per man. The Oriental cultivator of the soil lives by forcing the production per acre; for in America there is plenty of land and in China plenty of labor. It is not uncommon for a farm of two acres to support a Chinese family of twelve. Certain Western wheat farmers raise a crop on one-half of their land each year and plow the other half for the succeeding season's crop, thus increasing the area which one man can cultivate by extending the time of plowing over the whole season. The Chinese rice farmer raises the young plants in a seed bed, at the last moment transplanting them into the fields which have meantime been growing other crops. He thus adds 30 to 50 days' use of his land at a heavy cost of labor. The American is a bull on his own labor but a bear on land, while the Chinese reverses the attitude.

Competition and a desire for the ultimate dol-

lar of profit have forced business men to rigid economy in the details of work. Leaks that would ruin the American manufacturer or the Oriental farmer creep into every farm business in this country. Neither the Standard Oil Company nor the Ford Automobile concern could prosper if they wasted products as the farmers of the corn belt did when they threw away fertility by burning corn, or if they permitted the losses that the average farmer does in his handling of barn manure.

It is well to realize the different problems confronting the men who would plan his system of farming with the same care that the business man would use. The Bureau of Farm Management, before deciding on the desirability of an enterprise, takes into consideration the following factors:

(1) Profitableness as determined by general and local experience.

(2) The extent and distribution of the enterprises. This has much to do with the stability of the supply and demand.

(3) Location with reference to markets.

(4) Conditions existing in the market centers, especially combinations of dealers which control prices.

(5) Soil and climatic conditions.

(6) Cost of equipment required.

(7) Amount and character of labor required.

(8) Seasonal distribution of labor.

(9) Extent and possible market for the product and the probable effect of a considerable increase in the supply on market prices.

(10) Effect of the enterprise on the fertility of the soil.

In studying any particular crop the Bureau seeks to know:

(1) Kind and number of operations required by the crop.

(2) Number of men, horses, and machines that may or must be used for them.

(3) Dates between which these operations may or must be performed.

(4) Amount of work each man, horse, or machine can do in a day.

(5) Proportion of days which will be lost by weather, condition of soil, etc.

With such data at hand it is possible to work out a system of cropping which will provide the maximum amount of profitable work for men, horses, tools, and land for the year.

There is work for the mathematician in figuring out the additional cost of a field forty rods distant from the barn if the crop is of such a nature as to demand four trips between the field and barn for a man and team each year. To determine how much more expensive the distance becomes if the exigencies of the crop demand sixteen such trips is a problem which may tell why farmers keep certain crops near the barn.

Compared with the selling of grain, the agronomist must consider that a small proportion of the fertility leaves the place when dairy products such as butter and cheese are sold.

The economist can easily find that an inexpensive way to purchase fertilizing material for the farm is to buy it in the form of feed stuff. Good cattle will live on the purchased food, im-

prove the fertility of the farm, and pay the farmer for the privilege of doing it.

No wonder that Horace Greeley said: "By and by it will be generally realized that few men live or have lived who cannot find scope and profitable employment for all their intellect on a two-hundred-acre farm."

We must remember that "the larger return is won by the farmer who is qualitatively more efficient because he shows greater skill in performing his work. He uses better judgment in planning his farm operations, in regulating his field system, in selecting seeds, in choosing tools and machinery with which to do the work, or in the breeding and feeding of live stock."

CHAPTER VIII

COÖRDINATION OF ENTERPRISES

THERE are three hundred and thirteen work days in the year. The farmer who wishes to succeed must so arrange his work as to put to profitable use as many as possible of these hours.

The day laborer counts his time as well spent when he works for and receives a wage for every day of the year. If he does not work his income ceases.

But the farmer's income apparently suffers no interruption if he happens to spend a few hours riding around the country in his automobile or if from some cause beyond his control he is compelled to stop work for a time. He thinks that his cows work for him, or that his fields raise crops without demanding a full return in work. It is an insidious line of reason-

ing. Horace Greeley recognized it when he said: "The one great error that misleads and corrupts mankind is the presumption that something may be had for nothing . . . the law that requires each to pay for all he gets and reap only where he has sown . . . will not submit to defiance or evasion."

The farmer whose system of farming gives him profitable work for only half of the year will receive pay for only the time spent in toil. Not alone is his labor wage reduced thereby, but the capital invested in the business is not returning its full value, for the wheels of the farm machine are not revolving.

The machines in the factory working with three shifts of men are never idle. The incoming shift stands behind the departing one and, at a signal, the men change places. The machines run steadily on and turn out their special products in an unceasing stream.

The average horse on a Northern farm works only three hours a day, and the average farmer probably works less than two hundred days a year. No factory in the world could survive un-

der such conditions. The manufacturer often makes his profit from a by-product and sometimes can better afford to make up goods at less than cost rather than to close his plant even for a few days.

It was merely applying this principle that led the Chief of the Bureau of Farm Management to say: "I believe that I can prove that if the cotton farmer had half a dozen things on which to lose money he would make more profit than he does."

Half pay for full time brings in as much money in the course of the year as full pay for half time.

The keeping of cows persists in the face of theoretical demonstration that they are kept at a loss. If poor cows are kept and the farmer has help in the milking he receives half pay for full time, as the dairy provides steady work during the winter as well as the summer. If good cows are kept and the dairyman does not have help in the milking he is working productively too few hours and is receiving full pay for half time. The weakness in the dairy is the

limiting factor of the few cows which one man can milk. A farmer can raise the crops to feed twice the herd that he can milk and the care of the additional creatures, apart from milking, is well within his capacity. As it is, he is kept on half-work throughout the year because of that one factor. The development of the milking machine may revolutionize the dairy.

While it is very easy to figure out that the dairyman does not receive a full wage for his time, it is more difficult to plan a system of farming which will supply him with work that will prove more profitable at the end of the year than the day in and day out work in the dairy.

Labor costs more than rent of land; consequently it is more important to utilize the full time of men and horses than it is to keep the production of the land on high gear. An interesting example of the necessity for efficiency in labor comes from the cotton and wheat fields. Each crop gives a fair division of labor throughout the season.

The cotton farmer, who works without hired

help, is kept busy from the beginning of the season until his crop is harvested. But he is limited in the area of cotton which he can grow to that which he and his family can pick. A man and one mule can plow and cultivate this amount of land. The farmer is kept busy all day and every day but he is walking behind one mule. He is like the dairyman who is not cultivating more crops to produce more milk because he cannot care for the cows. Both mark time because of a single limiting factor.

The wheat farmer in eastern Washington keeps busy from one end of the season to the other. The harvesting machine has removed the one-time limiting factor of his work. Now, one man can care for all the land which he can plow during the year. The Washington farmer extends this season by raising wheat on but half of his land each year. The balance of the land is prepared for next season's crop by plowing part of it in the spring and part in the fall. In this way the one-man wheat farm comprises 320 acres. But this man rides behind a team of five or six big horses, in contrast to the one

mule of his cotton rival. The net income of the mule farm is $263.00, while the team of five horses brings a net income of $1,563.00.

When the cotton is picked by a machine of efficiency equal to the harvester, the cotton and wheat farmers will meet on equal ground.

A system of cropping that makes admirable use of the time of man and horse is the six-year rotation: corn two years, wheat two years (fall sown), and timothy and clover two years. None of these crops competes with the others—that is, requires attention at the same time. The corn is planted and cultivated before the harvest of the hay begins. The wheat is garnered before the corn is ripe. Each follows on the heels of the others. This provides daily work for the horses from early spring until the ground is frozen up in the fall. It obviates the hiring of extra teams and neither men nor horses are overworked at one season and idle at another.

The limiting factors are (1) the area of corn land that one man can prepare for planting, (2) the area of corn land which one man can culti-

vate, (3) the area of wheat land that one man can prepare. (The timothy seed is sown with the wheat.) One of the beauties of this rotation is that these areas are equal. One man with a good team can attend to forty acres of hay, forty acres of corn, and forty acres of wheat.

This system of cropping distributes the work and is a good rotation, providing a cultivated crop, a small grain and a hay and clover crop. Humus, nitrogen, and tilth are contributed to the soil.

Theoretically the use of a four-horse team would nearly double the production of the farmer using this rotation. For he could, by driving four horses, cover twice the ground in the same length of time. Practically, I should like the name and address of any man who is thus cultivating the two hundred and forty acres.

These three crops do not interfere, the one is not produced at the expense of the other. The comparative returns yielded by the three do not, therefore, enter into the calculation. If the wheat could be replaced by some other crop which would be as advantageous in the rotation

as regards soil fertility and yet not conflict with corn or hay in labor while bringing in more money, the other crop should be raised. If corn could be correspondingly replaced, more profit would accrue to the farmer. But because corn brings in larger returns than hay is not a reason for adding more corn land to the rotation. The farmer is already producing as much corn as he and his team can care for, and to add more corn land would add to the labor cost on the farm. To produce corn *and* hay is not to increase the labor cost, but simply to use labor which would otherwise be unproductive. This principle of coördination, into which enters diversity, rotation, and, to a degree, size of business, is the vital one for the farmer.

CHAPTER IX

THE OPPORTUNITY FOR THE INDIVIDUAL

The best chance for the individual is the cultivation of personal efficiency.

We have been studying the general principles underlying success in farming. The average success is made by following these rules, with only such changes as the immediate conditions warrant. The farmer who wishes to increase his income had best follow the methods thereby suggested but add to his returns by becoming more proficient in each controlling factor.

Of two farmers, side by side with apparently the same general equipment of stock and machinery, one will grow rich and the other will grow poor. It is the personal equation. The factor that controls is the man at the head of the business. It was this that the Chief of the Bureau of Farm Management meant when he said:

"The man is 75% of the proposition and the farm 25%."

Yet the farm income is not increased because a successful man is in charge, but because of the way he does things. His live stock *is* better than the average, his scheme of farming *does* use to better advantage the time of men and teams, his investment *is* larger than that of his unsuccessful competitors.

The broadest and best opportunity for the farmer is that which comes through this personal efficiency; yet there are multitudes of special chances in every community. Usually these are in the nature of retail business, such as supplying the local trade or the individual consumer, or the production of a superior quality.

Readers of *Country Life* may remember the story of Mike Trucker, who made $1,500.00 from two acres on the shore of the Indian River in Florida. Mike let his neighbors ship their produce to the Northern markets; he looked after the tourist trade right at hand. He received fifty cents a quart for his strawberries and fifty cents a dozen for eggs right within reach of his

own one-horse wagon. He planned his whole system of farming so as to supply the winter trade within reach of his own circuit. There was neither freight nor commission to pay, nor uncertainty about markets at the other end of the journey, for everything was ordered before it was grown. Mike was very optimistic as to the opportunity for anybody on the shore of the Indian River. He did not realize the limited market, nor did he appreciate how much the personal equation entered into the market which he had established. People had acquired the habit of trading with him because he served them faithfully and well. The "good will" of Mike's clientele was worth much more than his acres.

Out in the State of Washington there is a man who raises eggs. His eggs are good, but his reputation is better. He has never sold his supply for less than 70 cents a dozen, but that is because his trade would rather pay that price for goods of the assured quality that come from him than buy elsewhere at a less price. He probably thinks that there is easy money in

raising eggs. And he is right, if a man can obtain the reputation and market which will command such prices.

In a dairy section, about one farm in fifty can profitably be devoted to raising high-grade bulls. It is better for the forty-nine other farmers to pay one of their number to study the matter of breeding and become proficient in the practice.

It is often profitable for one farmer in a dairy region to make butter. The average farmer does not care to add to the complexity of his work by churning at home. Many of them do not care to use butter that is made under conditions too frequent in creameries. The professional butter-maker can turn out a good product if he has the supplies of good cream, but in nearly every community are a few farmers who do not keep their cream up to the standard of cleanliness, and this unclean supply is mixed with the good, thus bringing down the quality of the mass. Again, it often happens that the little village, set within the midst of dairy farms, is almost without milk for the house-

holder, for the farmers sell their supplies at wholesale.

Each of these examples is of retail business; and it is true in practice that the average retailer, as soon as he has accumulated sufficient capital through retailing, prefers to embark upon the larger business requiring a wholesale outlet. It is thus often used as a means to acquire capital. But it is financially successful or it could not be used as a stepping-stone.

A well-known tobacco farmer in Connecticut has made a reputation for the high grade of his product and he has already sold next year's crop for $75,000.00 But he knows that when the buyer lights a bit of the tobacco leaf, if any ash is left or it does not burn crisply, the buyer will not take the wrapper at any price. He has learned how to produce this quality and he grows only that particular grade of stuff. His opportunity is built on land peculiarly adapted to this tobacco, in the first place; but knowledge and determination are contributing factors, for without these his land would not give him the high-grade tobacco.

A certain chicken farmer in New Hampshire buys the unfinished fowl of his neighbors, fattens them, and ships them to market. He figures his profit at 55% on the operation. He is a specialist and reaps the reward of knowledge properly applied. This same farmer sold his fowl for 24 cents in the local market while he was buying from his neighbors for 14 cents. Probably the very housewives who were selling him unfattened chickens were buying back their own fowls after they had been fattened for a fortnight. Imagine the Standard Oil Company permitting a leak like this!

The story of a New England orchard in the making illustrates several of the points which we have discussed. The orchard was too large for one man and not large enough for two. It needed a team of horses but could not keep them busy. It took several years for these facts to reach the consciousness of the new city owner. This man had read that "cows did not pay," and so banished them from his calculations, until two or three winters of idleness forced the matter upon his consideration. When he fig-

ured upon his fertilizer bills, he forgot to look askance at cows. Idle time in the winter, and a big bill for chemicals, began to make a difference in the calculations. He learned that fertility can be more cheaply purchased in the form of feed than otherwise, and that half-pay for winter time is much better than no-pay. He began to figure on using the time of men and teams. The size of the orchard was increased (for the future) by the planting of more trees. But even this left big loop-holes in the time account. So he added small fruits, strawberries, blackberries, raspberries, currants, and gooseberries. To keep the horses at work he plowed more land and soon began raising various crops, such as potatoes, beans, wheat, corn, etc. He started a nursery, for the sake of raising his own young trees, and to have some for sale.

And just as he diversified in his crops, so he divided his risks in the market. Other orchardists in the State shipped by wholesale to the glutted Boston market, leaving a vacuum behind them. Our friend stepped into the breach and kept many of his apples at home. Why

ship to Boston when a higher price could be obtained within a few miles of the orchard? Why ship second quality fruit to a market good only for first grade, and why sell fancy apples to a trade that wanted only sound number twos? Why sell his cream to a creamery which dumped it in with all the rest and paid him only the price for inferior stuff? Why present the creamery with the 17% overrun while he and his man sat around the stove?

That city dreamer knew more about finding markets than he did about swinging a scythe. Finally it got pounded into his head that the way to make money was to do the job that he knew how to do better than the other fellow, and leave to the other fellow that man's specialty.

To-day he is supplying the local trade with barreled apples, the city consumer trade with boxed fruit, and the wholesale firm with carlots. His pickers begin with the strawberry crop, follow on to the raspberries, currants, blackberries, and gooseberries. His trade begins to look for the arrival of his strawberries, and thereafter takes the following crops as a mat-

ter of course. The berries do not supply full loads, so cases of eggs are used to fill in the chinks. Chickens that may not pay as a single crop, pay with him, because they fit into the scheme of time and delivery loads. With the need for speed and distance in delivering, the horses are kept on the farm and a light truck eats up the miles and enlarges the circle of territory over which regular deliveries are made.

He found local firms buying potatoes from other States and paying the freight to have them shipped in. And he stepped in to help supply the local needs. Freight and commission charges acted as a tariff wall to protect his infant industry.

Mike Trucker did the same thing in Florida. Reginald Cityman is doing it in New England. Thousands of other men are doing it all over the land. The opportunity for the individual is to fit his scheme of farming to the conditions in which he finds himself.

CHAPTER X

LIVE STOCK ON THE FARM

Animals are farm machines. They convert the raw materials of the place into manufactured products. Hay, straw, grain and other feeds are converted and condensed into beef, mutton, milk, butter, eggs, etc. Transportation charges are cut and distant markets thereby made available.

The manufacturer must watch the efficiency of his machinery and when a given type proves a losing proposition it must go to the scrap-heap and be replaced by a better type. Most farms have animals that belong in the scrap-heap, and few dairy herds are without cows that are kept at a loss.

There are certain risks in live-stock farming. Disease may destroy the capital invested in animals; tuberculosis may wipe out a dairy; chol-

era may kill off a drove of hogs; liver-rot may devastate a flock of sheep. Scarcity of food may put the price of hay and grain at a figure that spells loss; for live stock cannot be held indefinitely but must be sold as soon as they are finished or they will eat their heads off.

But live stock is needed on the business farm to provide continuous work for the men, to convert low-grade food-stuffs into high-grade, and to keep up the fertility of the land in as economical a manner as possible.

Animals require more care in winter than in summer. The winter care comes at a time when the farmer would not otherwise be employed and therefore may be considered as cheap labor. Much of the summer "chore" time comes before and after regular hours of work in cultivating and harvesting the crops and so summer care of the dairy does not come into direct competition with labor done within the ordinary hours of the day.

Cows will eat hay that would not command a market price and convert it into milk and cream; sheep will clean up what the cows leave;

goats will live on brush; while animals of all sorts will live on pasture land that could not profitably be used in any other way. Pigs and chickens, if permitted to run at large, will gather much of their living and act as scavengers in doing it. Grasshoppers, bugs, windfall fruit, weeds, and deleterious seeds will be transformed into eggs, broilers, and pork. Skim-milk will be converted by the same means into salable products.

The hens that are fed on these weeds, wastes, and table scraps are looked after by the women and children of the farm. Their food costs little or nothing and the care is by unpaid labor. Eggs raised under such a schedule of small cost are sold at a low price; and when one considers that the main supply of eggs of the country comes from these small farm flocks the difficulty of the competition meeting the specialized egg farm is apparent. The specialist must meet it by improved breeds, systems of forcing egg-laying, and higher-grade products. Fortunately for him, the owners of a few hens cannot af-

ford to ship eggs often enough to meet the requirements of the "extra fancy" grades.

It is evident that live stock, under such conditions, can be produced at a small margin of profit; and it is nearly as difficult for the specialist in beef, pork, or dairy products to compete with the main supply of the country as it would be for the manufacturer to attempt to provide gasoline without taking into account the products that come off in the same distillation.

The farmer who is figuring on the cost of fertilizing his land can study with profit the following values, worked on an ante-bellum scale of prices for chemicals.

The value of the fertilizing constituents of the manure made in a year per thousand pounds of live weight, if purchased, would be as follows:

Cow,	$31.20
Sheep,	$36.84
Pig,	$64.48
Fowls,	$54.52

If the farmer is wondering whether it is better to sell his corn as grain, or convert it into

pork, the matter of $64.48 for each half-ton of pork (the equivalent of 6,000 pounds of corn) is a decided factor.

When he sells a ton of timothy hay he sells $6.00 worth of manure, but if he sells a ton of pigs he takes away only $8.17 worth of fertility. Thus, if he sells the hay for $15.00, he receives $9.00 for his crop and $6.00 for his capital, as represented in farm fertility. If he obtains 6 cents for his pigs, there is only $8.00 to be subtracted from the $120.00 which comes to him.

The cost in farm fertility to be charged up against the capital account on a 160-acre farm runs as follows for three systems of farming:

	Nitrogen In Lbs.	*Phosphoric Acid.*	*Potash.*
All-grain farm ..	5,600	2,500	4,200
Dairy farm	800	175	85
Live stock	900	150	60

G. F. Warren says: "There is no merit or demerit in selling any particular crop. If one sells everything that grows, including the straw

and hay, and gives no attention to the soil, he is sure to get into trouble sooner or later. But there are many ways of keeping up fertility. The question is which way pays best."

In our study of the business of farming this is the one point for us to consider—"which way pays best." Not alone in the immediate present, but taking account of the future and carefully balancing the demands of to-day and to-morrow.

As a rule it may be stated that the sale of crops is more directly profitable than the using of them for feed on the place. In part this is because one sells the higher-grade stuff and in part because one draws on the bank account in farm fertilty when selling crops instead of disposing of animal products.

If the farmer raises only live stock, his animals are competing with those fed only on low-grade feeds, while his consume both grades. If he raises only crops, he is throwing away the low-grade produce, which might be producing low-cost live stock. A proper balancing of live stock and crops is the proper farm management.

The specialist makes money, but he would make more if he could combine successfully the two types of farming.

The deduction from the foregoing statements is quite plain that, under average conditions, enough live stock should be kept to utilize the low-grade products of the farm. By transforming these into fertility for the fields, we are raising the grade of our products. Moreover, in many cases, the cost of harvesting may be wiped out by turning the animals into the fields to harvest their own food. If the cost of harvesting a bushel of corn is ten cents, and a pig turned into the corn-field gathers the ear for himself, he should be credited with the value of the labor which he thus performs, in casting up the accounts of the farm.

Investigation has shown that when production of crops has reached about 150% of the average yield the curve of profit begins to go down. No top has been found to animal production. The average hen lays, perhaps, 100 eggs per year. The 200-egg hen does not cost twice as much in feed and care as her ordinary

sister, and she yields a correspondingly greater profit. The 300-egg hen will not cost 50% more to keep than the producer of 200 eggs. The cow that fills the pail with rich milk costs more to feed than the poor type which gives only half as much, but the cost is not in proportion to the additional yield. The calf from the poor cow takes nearly as much food to grow as the youngster raised by the good cow, but it is sold for $5.00 as against a price in proportion to its mother's worth on the part of the pedigreed calf.

The dairy farm which is large enough so that the manager can take the time to properly test the product of each cow has an advantage over the small farm where a rush of work prevents this keeping of records. No man on earth can tell accurately the amount or quality of the yield of any cow by simple inspection. Every dairyman knows which are his best cows, but he often knows wrong, unless the milk is weighed every day and the Babcock tester used for the butter-fat content. The least prepossessing cow in my own herd gives a 7.40% butter-fat

test. In the rush of summer work it is impossible to take the time to test the cows as often as it should be done, and we compromise by an occasional test, together with a daily weighing of the milk. The specialist will arrange his time so as to make the opportunity.

The farmer who raises pure-bred stock has a different proposition from the man who keeps scrub cattle. It has been carefully figured out that a $40.00 cow depreciates 4% each year, while the $200.00 cow loses value at the rate of 12%. This, plus 6% interest on the cost, makes the $40.00 cow worth $36.00 at the end of the year, while the $200.00 cow has come down to $164.00. To compensate for her increased cost, the higher-grade cow must make a net return of more than $32.00 over that of her $40.00 competitor.

The man with small capital can best begin with low-cost cows and improve his herd by means of a good sire. Incidentally it may be remarked that he can improve the offspring from low-priced registered stock as rapidly as

he can from grades, and in the end he has good-producing pure-breds, instead of simple good-producers. The additional value has come without additional cost.

CHAPTER XI

THE FARM AS A HOME

Good farming is a means to an end. If success is sought simply to gratify personal ambition, to supply a love of ostentation, or to give luxurious ease, the fruit of victory will turn to ashes.

Good farming should mean a good home, a lasting home, founded upon a rock, not resting upon the shifting sand. Agriculture is a first principle; on it rests the life and happiness of mankind; it is the greatest and most important of extractive industries, and upon these industries depend every method of getting a living. The manufacturer would have nothing to manufacture if farmers, miners, lumberman, and fishermen ceased to supply him with raw materials. The merchant would have nothing to sell if the manufacturer made nothing for him; and the

transportation companies would be idle if there was nothing to ship. Strength comes from the environment; and a successful farmer is strong and capable: his strength is refreshed because he is dealing with the elemental facts of life.

A good home means a good family; and the highest ambition which any man can hold is to be the head of a family, strong in mind and body and righteous in deeds. To provide an estate that will support such a family and develop in them these qualities is a goal to appeal to the best of us. The writers who urge us to go to the farm because of the beauty of the country or the peace of the life on the land miss the factor that makes the farmer worth while. It is the discipline of the farm, the insistence of its duties, the certainties of its penalties, and the great big fact that you are working with nature in the things that make the world go, that make the farmer a broad, self-reliant, forceful individual.

Work is happiness and idleness akin to misery. There are more children who need to be set to work than there are who need to be

protected by child labor laws. The city child grows up in idleness. Out of school hours there is nothing for him to do except to spend the hours in play. The child on the farm, as soon as he can walk, is given some light, simple task to perform. Perhaps it is the wood box that he fills for his mother, or the potatoes that the girl pares for dinner. As they grow older the boy can feed the calf and the girl the chickens. Both chores are necessary and insistent. Because the boy wishes to play is no reason why the calf can go hungry. He learns early in the game that life is real and earnest. And when he goes to the city the urban-raised youth has small chance against him in the battle of life.

Enthusiasm is the breath of life, and a common enthusiasm the strength of a nation. Better war, with its united patriotism, than the crumbling decay of individual, egotistical luxuriousness of living.

On a farm the family work together. In the city it makes little difference to the rest of the family whether the father is a broker, a butcher, or a candlestick maker. His place in the econ-

omy of the household is to provide the money to buy the things needed by it. There is no further community of interest; matters pertaining to business policy are not discussed, and the children do not know whether stocks are booming, veal is down, or the market for the silversmith at low ebb. The city dweller is amused because the countryman talks crops and weather signs, and he smiles in a superior sort of fashion, as if these subjects were inconsequential. Wall Street quotations are made by crops and weather. The broker is dealing with the froth of the game, while the farmer is on the ground floor making the cake with which the former plays. The philosopher who considers that the greatest duty of man is to subdue the earth and to make it a better place on which to live is likely to give the farmer a pass to heaven.

The boy on the farm has the inestimable advantage of working side by side with his father. From his early years he has been accustomed to regular work—not a task evidently made for him to mark time over, but one which is part of the work of the place, one that contributes to

the support of the family, and on the well-doing of which rests in some measure the success of the farm. There is thus developed in the boy a feeling of responsibility and self-reliance that will equip him for his future life as armor equipped the knight of old. He is early taken into the family discussions of ways and means. Not alone are the matters of spending money brought before the family council, but also those concerned with making it, the selling to the best advantage. The boy learns the value of money and the ways in which it can be made. He does not simply draw an allowance and concern himself only with making the amount on hand last over until next pay day.

The association with life, in the growing crops and the breeding of live stock, gets the boy in touch with the revolving wheels of this old earth of ours and broadens his foundation until he is not like a reed in the wind, bending before every blast. He understands the comparative importance of things and is not so likely to be carried away by false idols.

The farm family is more stable than that of

the city. The work on the farm is not subject to such sudden ups and downs as is that in the city. A farmer learns patience and faith, for he does little that returns to him "to-morrow." His fields are improved by rotations that need five years to cover the first round and two circuits to show results; his stock is improved by the slow process of replacement, daughters and daughters' daughters, unto the fifth and sixth generation, in his dairy. The city man puts his accumulation in the bank in the form of money or bonds, and sometimes in additional plant which usually is readily salable; but the farmer stows away much of his growing capital in the added fertility of the farm, the better live stock, and the more successful farm management.

Financial panics have less effect upon farmers than upon any other class of business men. Food is always a necessity; wars may devastate or panics bankrupt the nation, but the people must continue to eat. Markets may be curtailed and the demand for quality lowered, but food will always be needed. The farmer will ever have a sale for his produce.

The conditions of family life on the farm make for stability. In the city the unmarried man or woman is under no disadvantage in a business sense because unmarried. But on the farm the household works together and the unit in the business is neither the man nor the woman, but the whole family. The farmer must have a wife, and the woman cannot live alone. This community of interest, this need for each other, is the surest bond to hold the family together. It makes for earlier marriage and it makes for more care in the selection of partners. In the city, the man may wish simply a pretty face at the other end of the table, or a showy partner to exhibit at the opera or the exclusive ball, but in the country the man must have a worthy mate. The mother of his children must be of the best available type.

"No pure form of social or domestic life, no high type of morality, has ever been developed among any people except where it was organized around some kind of productive work. The ideal of production for a common family purpose . . . of building a family and perpetuat-

ing a prosperous, productive family estate instead of subtracting from the dignity of family life, is really one of the greatest factors in adding dignity to it."

Farmers, as a class, are independent because they are so largely self-employed. Agriculture is, and always will be, largely made up of small units. For the high-spirited, independent man this will always be a controlling condition. Farming never will pay speculative returns, and the man who prefers to play with money had best keep to the city. The weak and very strong had best go to the city, for the farm is a place for individual effort. The workman must oversee himself, must supply his own initiative, and must stick to his job until it is finished. The man who finds it a trouble to decide what to do next will accomplish more and be better paid for it if he works under the eye of a foreman. The man of great executive ability will find his place in directing the business which can employ a large number of men. The farmer rarely can find employment for as many as half a dozen men. He must rely largely on his own efforts;

he must be self-reliant, adaptable, a naturalist, a business man, an expert on feeding and breeding, an agriculturalist, and a man always ready to change his policy to suit changing conditions.

The farmer is a constructive worker. His livelihood comes from making the land produce; he adds to the wealth of the world. His moral fiber is thereby strengthened. Too often the city man makes his living out of other people. Oratory, a well-groomed appearance, and a convincing manner are his stock in trade and by them he induces others to part with their dollars. "Instead of laboring to make two blades of grass grow where one had grown before, their business is to make two dollars emerge from other people's pockets where one had emerged before." A destructive business is necessarily weakening to moral stamina, for man is subject to his environment.

These moral qualities are the fundamentals of civilization. Intellectual achievements can be freely borrowed, agricultural machinery may be cheaply purchased, and social efficiency can be quickly developed by an acute monarchical

government. Morality is of a slower growth, and the nation which becomes efficient at the expense of morality is in danger of falling into the abyss. From the days of mythology the touch of the soil has been recognized as the vital factor in the advancement of the world.

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