

The PRACTICAL  
COUNTRY  
GENTLEMAN  
EDWARD K. PARKINSON



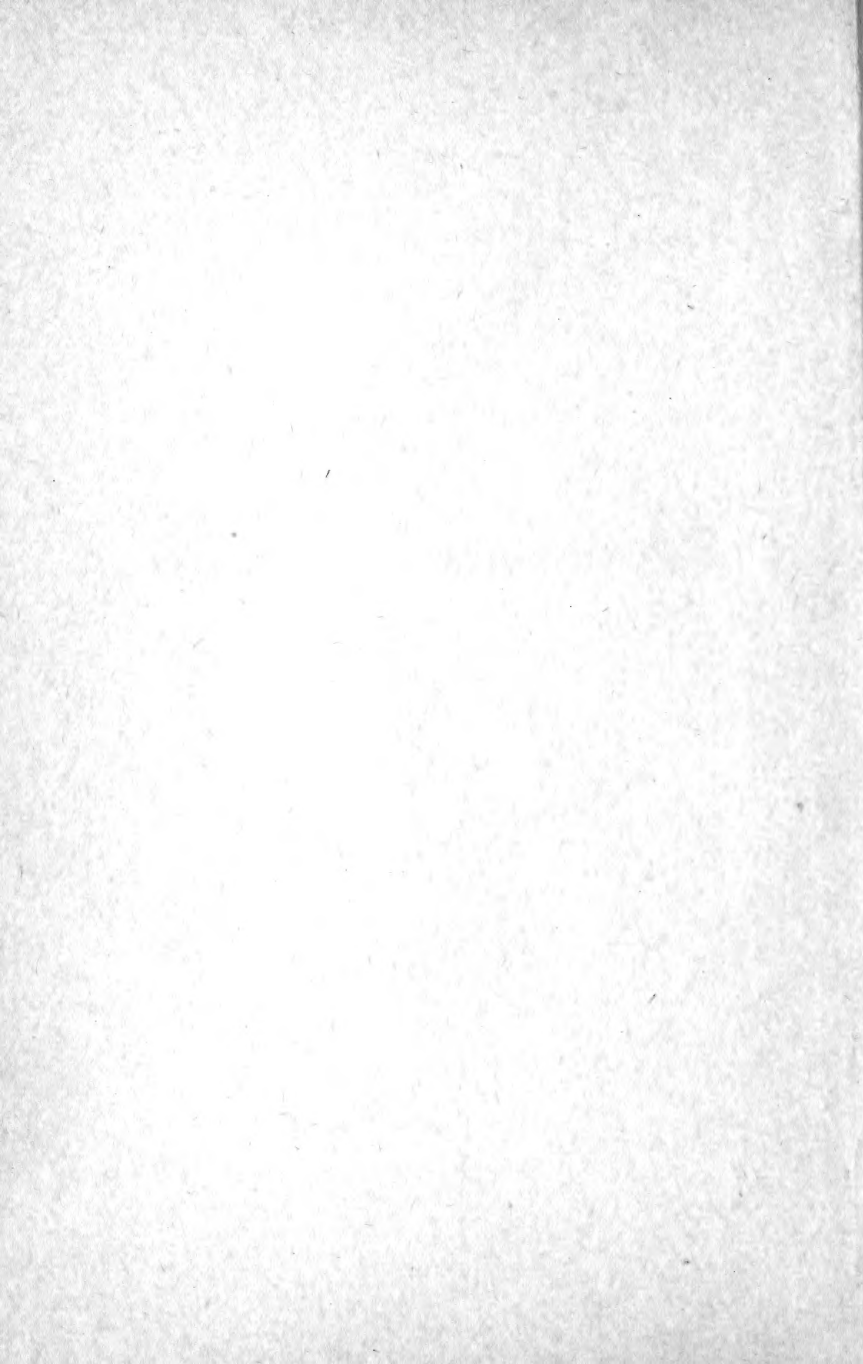
Class S501

Book P3

Copyright N<sup>o</sup> \_\_\_\_\_

**COPYRIGHT DEPOSIT.**

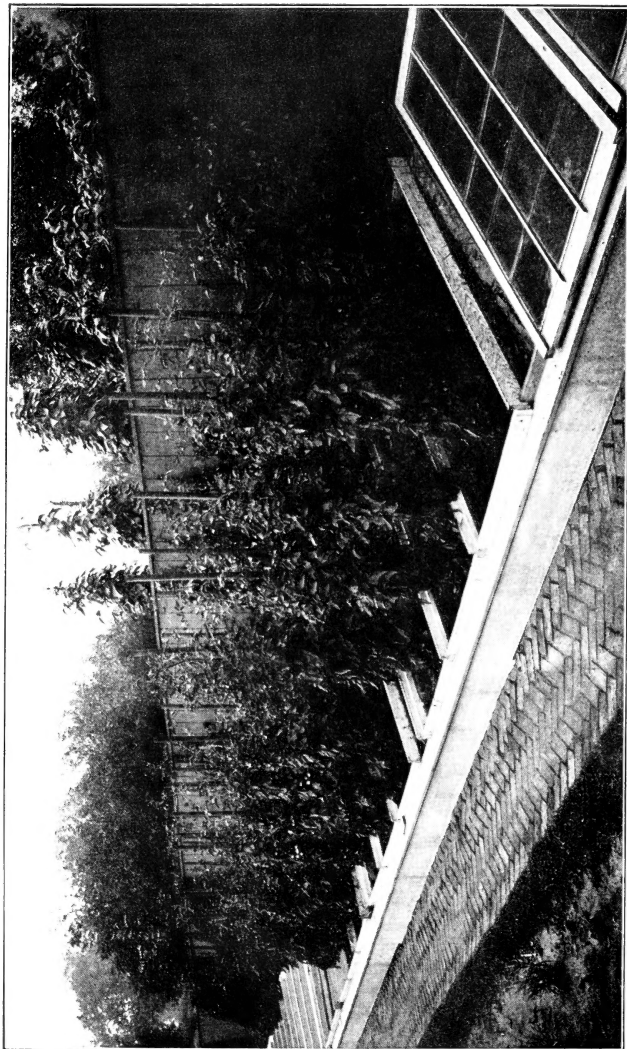




THE PRACTICAL COUNTRY GENTLEMAN







Courtesy of Messrs. Lord & Burnham Co.

TOMATOES IN COLD FRAMES



# The Practical Country Gentleman

A HANDBOOK FOR THE OWNER OF A  
COUNTRY ESTATE, LARGE OR SMALL

BY

EDWARD K. PARKINSON

CONSULTING AGRICULTURIST, AUTHOR OF "A GUIDE  
TO THE COUNTRY HOME"

*With 40 Illustrations*



CHICAGO  
A. C. McCLURG & CO.

1911

S501  
.P3

COPYRIGHT  
A. C. McCLURG & CO.  
1911

---

Published, April, 1911

---

*The greater part of this book appeared originally in "The Boston Transcript," and the balance in "The Country Gentleman"*

\$1.25  
5

PRESS OF THE VAIL COMPANY  
COSHOCOTON, U. S. A.

©Cl.A286115

148. 24. 13-11

## CONTENTS

CHAPTER	PAGE
I INTRODUCTORY . . . . .	9
II WATER SUPPLY AND PUMPS . . . . .	14
III FARM BUILDINGS . . . . .	27
IV THE KIND OF STOCK TO BUY . . . . .	43
V HINTS ON BEEF AND WINTER LAMB RAISING ON COUNTRY ESTATES . . . . .	67
VI FEEDS AND FEEDING . . . . .	77
VII CROPS, FERTILIZERS, HOW TO USE THEM, AND THE WOOD LOT . . . . .	93
VIII DIRECTIONS AS TO TOOLS . . . . .	116
IX WAYS IN WHICH FARM PRODUCTS MAY BE MARKETED . . . . .	127
X WINTER WORK WITHIN THE GLASS HOUSES . .	143
XI THE CULTIVATION OF HIGH-PRICED SPECIALTIES .	156



## ILLUSTRATIONS

	PAGE
Tomatoes in Cold Frame . . . . .	<i>Frontispiece</i>
Hydraulic Ram in Position . . . . .	16
“Reeco” Ericsson Engine with Deep-well Pump connected to an Air-pressure Tank . . . . .	20
Hydraulic Ram, a Most Economical Power, where Suitable Conditions Prevail . . . . .	22
Method of Pumping Water from a Pond, Showing Position of Ram . . . . .	24
Buildings at Brookside Farm ( <i>S. L. and T. W. Stewart, Owners</i> ) . . . . .	28
Barn Plan . . . . .	30
Piggery on the Farm of the Illinois Experiment Station . . . . .	34
Interior of Illinois Experiment Station Piggery . . . . .	38
Dorset Sheep ( <i>Owned by Hart's Delight Farm, Chazy, N. Y.</i> ) . . . . .	44
Example of the Kind of Stock to Buy: Typical Berkshire Boar ( <i>Owned by Hood Farm, Lowell Mass.</i> ) . . . . .	50
Plymouth Rock Hen that laid 251 Eggs her First Laying Year, at the Maine Experiment Station . . . . .	56
Typical Light Brahma Cockerel ( <i>Owned by Mr. Nettleton, Shelton, Conn.</i> ) . . . . .	56
Examples of the Kind of Stock to Buy: Aberdeen-Angus Cattle ( <i>Owned by S. E. Lantz, Congerville, Ill.</i> ) . . . . .	60

## ILLUSTRATIONS

	PAGE
Dorset Lamb, 15 Weeks Old, the Kind used to Supply the Fancy Market with Hot-house Lambs in Winter ( <i>Owned by Fillmore Farm, Bennington, Vt.</i> )	68
Southdown Yearling Wether, Typical Mutton Type, Grand Champion over all Breeds ( <i>Owned by Sir George Drummond, Huntlywood Farm, Beaconsfield, Canada</i> ) . . . . .	68
Interior of Maine Experiment Station Poultry House	78
Interior of Cow Stable at Brookside Farm . . . . .	86
Acelista, Ayrshire, with an Official Record for Five Consecutive Years of 52,000 Pounds of Milk and 2,137 Pounds of Butter ( <i>Owned by Mr. C. M. Winslow, Brandon, Vt.</i> ) . . . . .	94
Comparative Corn Crops, Each Taken from One-twentieth Part of an Acre the Nineteenth Year of the Experiment ( <i>From Massachusetts Agricultural Experiment Station</i> ) . . . . .	102
Potatoes which Received Liberal Applications Yearly of Materials Furnishing Nitrogen and Phosphoric Acid, but No Potash ( <i>Massachusetts Agricultural Experiment Station</i> ) . . . . .	106
Potatoes which Received Liberal Applications Yearly of Materials Furnishing Nitrogen and Phosphoric Acid and Potash ( <i>Massachusetts Agricultural Experiment Station</i> ) . . . . .	112
“In Measuring the Flow of Large Streams a Weir Gage Board is Used” . . . . .	120
“An Easy Way of Measuring the Flow of Water is to Dam up the Stream” . . . . .	120
Pumping Jack Belted to 3-Horsepower Gasolene Engine . . . . .	124
Tomatoes, Strawberries, and Cucumbers in Mid-winter	130

## ILLUSTRATIONS

	PAGE
Experiment Showing the Necessity of Lime in Soil, Especially for Clover ( <i>From Massachusetts Agri- cultural Experiment Station</i> ) . . . . .	134
Example of Kind of Stock to Buy: Triple Interest, Jersey, Daughter of Celebrated Cow, Interest, Be- longing to a Family of Remarkable Butter-makers ( <i>Owned by William Rockefeller, Tarrytown, N. Y.</i> ) . . . . .	140
Deep-well Pump with Furnace for Coal . . . . .	144
Three-compartment House in which Vegetables and Flowers may be Grown under the One Roof . . . . .	148
Cold Frames such as may Prove of Use in Connection with Glass Houses . . . . .	148
Examples of the Kind of Stock to Buy: Large York- shire Sow—Chester White Boar ( <i>Owned by Hart's Delight Farm, Chazy, N. Y.</i> ) . . . . .	152
Orchids and Beans in Blossom in Mid-winter . . . . .	158
Lavender 44th, a Dual-purpose Shorthorn with a Splen- did Milk Record ( <i>Owned by Sir George Drum- mond, Beaconsfield, Canada</i> ) . . . . .	164
World's Record Holstein-Friesian Cow ( <i>Owned by Mr. Mayer, Syracuse, N. Y.</i> ) . . . . .	164
Kathleen II, of Les Houards, a Fine Type of Guernsey, with an Official Record of 566.43 Pounds of Butter in One Year ( <i>Owned by Mr. Alfred G. Lewis, Geneva, N. Y.</i> ) . . . . .	168
Cauliflowers Ready for Market . . . . .	176





# THE PRACTICAL COUNTRY GENTLEMAN

## CHAPTER I

### INTRODUCTORY

**N**O business man would be satisfied with a shop or an office which merely paid expenses; but there are innumerable owners of country places who find themselves annually confronted with a large deficit, and derive no comfort except from the thought that their acres have yielded more than sufficient interest and amusement to compensate for any pecuniary loss.

If, then, these unnecessary annual losses could only be turned to profit, how much more interesting would the running of such a place be! And surely, to men accustomed to business prin-

## THE PRACTICAL COUNTRY GENTLEMAN

principles such an achievement is easily within reach. It should, however, always be borne in mind that a country estate has two distinct departments, namely, the park and the farm. The former includes lawns, drives, trees, shrubberies, glass houses, and flowers; and to the latter belong the crops, fruits, and live-stock, and it is from this department our revenue should come. The question of net profits from a country place, then, will depend in a large measure upon the amount of land to be devoted merely to ornamental planting. If, for instance, the owner prefers to have thirty acres of park and only twenty of farm land, he could hardly expect the revenue of one to support the expensive exactions of the other. But if, on the other hand, an estate of, say, eighty acres has fifty devoted to the raising of crops and stock, the rest being given over to the owner's fancy for landscape gardening, a net return of four thousand dollars could be made if the farm were properly handled. This sum should do more than cover the expense of the park and moderate-sized glass houses.

## INTRODUCTORY

The farm department should never be charged with the entire capital invested, or with the maintenance of a garage, stables, kennels, etc.; and credit should always be given it for everything sold, whether consumed in the house or shipped to market. If the owner wishes to indulge in fancy dairying, he should charge accordingly and obtain extra prices for his butter, cheese, milk, and other products.

We have learned to overcome drought by irrigation, and to allay the fear of a wet season by under-drainage. We have our domestic animals so largely under control that we are enabled to fly in the very face of nature. It has also been abundantly proved that the returns from modern farming far exceed those of the vast majority of commercial enterprises. Indeed, the writer knows of several men engaged in different branches of agriculture, whose annual net income exceeds ten per cent on the total investment. To cite an especial case — there lives in Indiana a man who has a national reputation in the particular branch of farming which he pursues, and whose yearly income is seldom

## THE PRACTICAL COUNTRY GENTLEMAN

less than twenty-five thousand dollars, and usually more.

Are these things within reach of the city-bred man who has sufficient means to invest in a medium-sized country place and who wishes to make it pay? Most assuredly so, provided such a one has a real love for country life, a mind intelligent enough to grasp the principles on which success depends, and — added to these — the will to read, to work, and to learn from the larger experience of others.

To the over-zealous a word of caution is added: let him creep before he tries to walk. It is not to be taken altogether for granted because these chapters recommend certain advantageous methods and suggest improvements and purchases running up into a considerable sum of money, that a man is warranted in making such improvements until he has determined just the line he intends to follow, or, unless he has sufficient capital to warrant equipping his plant fully at the start.

For such this book is written, in the hope that it may help the inexperienced to reach the

## INTRODUCTORY

goal and to avoid some of the stumbling-blocks which so often beset a beginner, and which tend to discourage and retard him. Economy of production is to be the key-note, but only such economy as is consistent with the raising of high-class products. For, with choice table eggs fetching sixty cents a dozen, and home-made unsalted butter seventy-five cents a pound at hotels and clubs, it pays to provide every reasonable comfort for the producers of these articles.

## CHAPTER II

### WATER SUPPLY AND PUMPS

**I**N the Autumn of 1910 President Taft was asked by the State of Colorado to press the button which opened the Gunnison tunnel and turned the waters of the Gunnison River into the Uncompahgre Valley. This splendid bit of engineering will cost the United States Government about five million dollars when completed; but as a result one hundred and fifty thousand acres of land will be irrigated and brought into a state of cultivation, yielding a revenue sufficiently large to repay the Government within the next ten years. In choosing a farm, then, it should be clearly understood that land without an abundant water supply is as poor an investment as one could well make. When it is borne in mind that water makes up a very large per cent of the constituents of all our farm

## WATER SUPPLY AND PUMPS

crops, including milk, the value of an inexhaustible water supply can be readily appreciated.

On a farm of moderate size the supply of water will be derived from a spring, a well, a brook, a pond, or a reservoir. In the majority of cases a shallow well or spring will supply the drinking water, while a cistern at the barn serves for watering the stock.

Before the supply system that is to be installed is decided on, the water should be carefully analyzed and also tested for the quantity yielded in twenty-four hours. That people become immune to bad water is notorious; for on many farms where a well is near the stable or hog-pen, no evil effects are felt by the owner from drinking such water, but let a passerby, used to pure, wholesome water, drink from the same source, and ten chances to one the consequences are disastrous.

A driven well, made either by driving an iron pipe with a pointed perforated shoe attached where the ground is not rocky, or by the use of especial well tools and steel-pointed drills where it is rocky, is much safer for drinking

## THE PRACTICAL COUNTRY GENTLEMAN

purposes than shallow wells; for the water is then taken from a lower stratum, and there is but little chance of contamination. The first thing to be considered after the source of supply is decided upon is the way in which water should be stored; and as a medium-sized farm of about sixty to seventy-five acres needs sufficient water to provide for a family, say, of five, in addition to ten cows, two horses, ten pigs, and six hundred fowls, besides watering the lawns, flowers, etc., ample storage room should be provided.

There are four different ways of storing water in general use: in tanks of wood, steel, or concrete set on steel or concrete supports; in reservoirs, made either of earth or concrete, and built partly in an embankment and partly above ground; in wooden tin-lined tanks placed in the attic; in air-tight tubular steel tanks, into which air is forced with water, creating a pressure that forces the water through the delivery pipe. The advantages and disadvantages of these four ways can be briefly summed up. Wooden tanks are inexpensive, but liable, of course, to shrink if they remain empty any length of time.





Courtesy of Power Specialty Co.

HYDRAULIC RAM IN POSITION



## WATER SUPPLY AND PUMPS

On the other hand, steel tanks are excellent if they have round or concave bottoms, but they are difficult to keep painted, and the overflow and supply pipes have to be carefully protected against frost. Concrete tanks are expensive, and there are none better, but in them also the supply and overflow pipes must be protected in winter.

Concrete reservoirs are well worth the expense if they can be built on a hill, so that the bottom of the reservoir is higher than the roof of the highest building. In planning a reservoir, if it is borne in mind that a gallon is equivalent to 268.8 cubic inches, it will be an easy matter to figure the required dimensions. If it is found advantageous to build a reservoir it should be large enough to contain a week's supply; and, furthermore, it should be covered, in order to exclude the sunlight, which causes the growth of vegetable matter in the water.

Attic tanks never prove very satisfactory, as in case of fire there is not sufficient force to throw water over the roof. Moreover, large tanks require strong supports, and frequently

## THE PRACTICAL COUNTRY GENTLEMAN

steel beams have to be substituted for wooden ones, which, of course, adds considerably to the cost of installation.

Air-pressure tanks are perhaps the best medium for storing water when engines are used for pumping directly from a well or spring. These tanks are placed either in the cellar or in a pumping-house built over the well. The air pressure, sixty pounds or more per square inch, is sufficient to throw water over any building of moderate size. A 1500-gallon tank with a pump would cost about three hundred dollars.

We now come to the question of power for pumping water into a storage tank, and here we have a choice of seven different methods, namely, a windmill, a gasolene or hot-air engine, steam, electricity, hydraulic ram, and the air-lift system. Windmills, though uncertain in their movements, especially in summer, are quite satisfactory when used in connection with gasolene engines as auxiliaries. But there is always the possibility of disablement in a high wind, and there is frequently the disagreeable necessity of climbing up to the mill to oil it, which, if one

## WATER SUPPLY AND PUMPS

is not fond of dizzy heights, is a most trying and dangerous task. If, however, all conditions favor the use of a windmill, it should be built sufficiently high to be above the tops of surrounding trees and buildings. A concrete reservoir built on a hill or on supports will prove the best storage medium in connection with a windmill, for a larger supply of water can thus be kept on hand. The cost of a windmill depends on the size of the fan and the height of the tower. The lowest price would be about one hundred and fifty dollars, exclusive of piping.

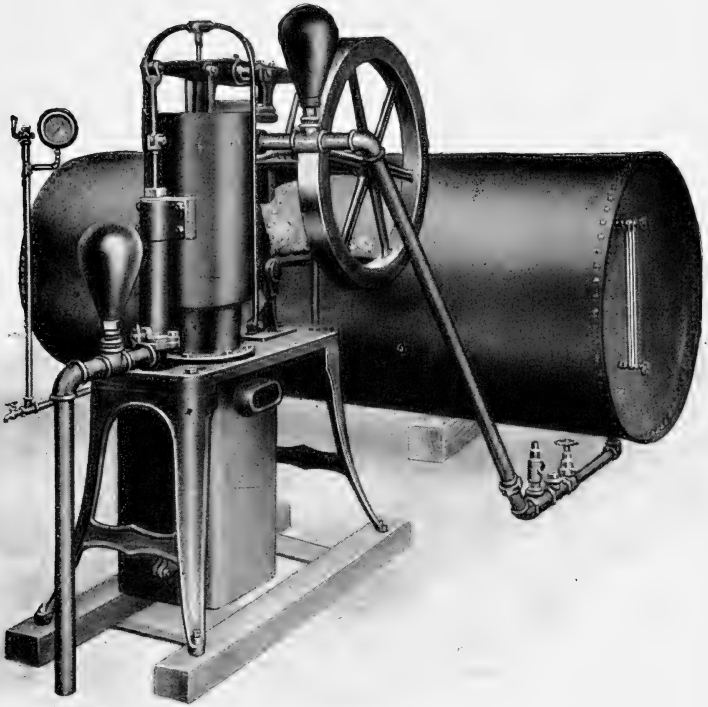
Gasolene engines have become a part of the equipment of every progressive farmer. They are easy to handle, and their construction is simple. A small one-horsepower, air-cooled engine belted to a pump will be large enough for our purpose if run intermittently; but if it is found necessary to run it six or seven hours at a time, a two-horsepower engine will be better. It requires but a turn or two of a crank to start them; and when used in connection with the Kewanee tank, an automatic device is furnished

## THE PRACTICAL COUNTRY GENTLEMAN

for shutting off the power. The gasolene engine, however, is not suited to running in a house cellar, as the noise is too great; but for running a deep-well pump, which is operated with a piston rod and consequently has to be set directly over the well, it is most practical. The use of steam is too expensive for a small place and we need not consider it.

Hot-air engines are strictly pumping-engines, and as such they have no superior except the electric motor. The principle used is the expansion of air, which is heated by the use of gas, coal, wood, kerosene, or gasolene. These engines can be run at very small cost, a quart of kerosene or four pounds of coal being sufficient for an hour's pumping.

A suction pump may be used if water is taken from a shallow well where the vertical lift is not over twenty or twenty-five feet, and in that case the engine and tank can be installed in the cellar; otherwise a pump house must be built. The cost of a hot-air engine, capable of pumping 300 gallons per hour to a height of seventy-five feet (which is estimated



Courtesy of Rider-Ericsson Engine Co.

“REECO” ERICSSON ENGINE WITH DEEP-WELL PUMP CONNECTED TO AN AIR-PRESSURE TANK





## WATER SUPPLY AND PUMPS

from the surface of the water) will be about one hundred and thirty dollars, to which must be added ten dollars if a kerosene burner is used. This price is exclusive of piping.

Electric power, where it can be obtained at reasonable rates, is of course the most convenient one for pumping. A one-horsepower motor will easily keep a 1500-gallon tank filled; and as the starting and stopping of the water is automatic when used in connection with the Kewanee tank, there is no waste of either time or power in looking after it. The average cost of electric power delivered from a power company is about ten cents per kilowatt hour; in other words, it will cost about two dollars per month to keep a 1500-gallon tank filled where the average daily consumption is a thousand gallons.

The hydraulic ram, where suitable conditions prevail, is the most economical of the various pumping-engines already mentioned. It should be installed wherever a sufficient fall of water to operate it can be secured, for it performs its work faithfully night and day, winter and sum-

## THE PRACTICAL COUNTRY GENTLEMAN

mer, with a minimum amount of attention. The principle of the ram is very simple. The machine is placed at a point where a fall of water may be obtained for power, as, for instance, on the bank of a stream, lake, pond, or near a spring. In operation the water enters the drive pipe from the source of supply and flows toward the ram, where it is allowed to escape through the open working-valve. The velocity of water in the pipe rapidly increases, and when it reaches a certain velocity the working-valve is suddenly closed by the force of the water. The water, being prevented from going through the working-valve, enters the air chamber through the delivery valve where the pressure of air ultimately forces water from the ram through the delivery pipe. The difference in level between the water and the ram forms the powerhead; and the difference in level between the ram and the tank into which water is pumped forms the pumping-head. There are single-acting rams which deliver water that drives them, and there are double-acting rams that deliver pure spring water which is not



Courtesy of Power Specialty Co.

HYDRAULIC RAM, A MOST ECONOMICAL POWER, WHERE SUITABLE  
CONDITIONS PREVAIL



## WATER SUPPLY AND PUMPS

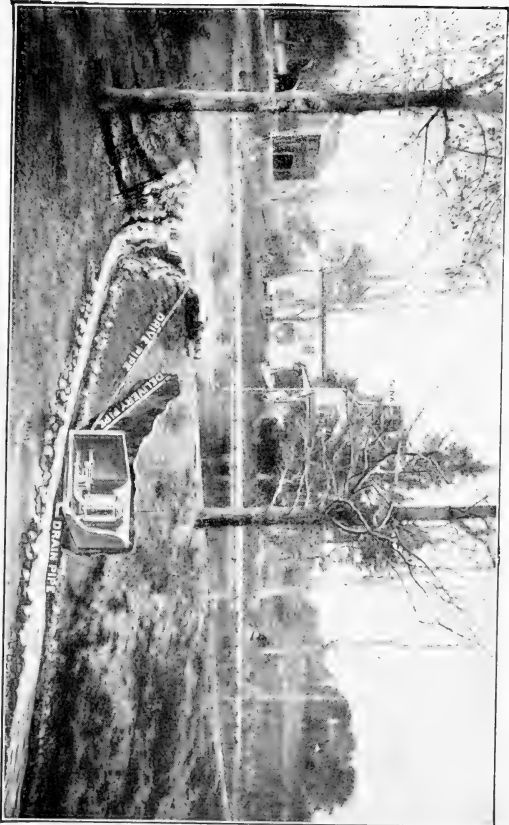
mixed with the power supply. The power to deliver water will depend on the fall of water available. This may be from two to fifty feet. The pumping-head may be anything up to five hundred feet and a ram is effective for elevating water thirty feet for every foot of fall. If a pond is used for a water supply, the height of the water level in the pond above the pit where the ram is located, and the distance from the pond to the ram, should be measured in feet and the measurements sent to the company from whom the ram is to be purchased. An easy way of measuring the flow of small springs or streams, and to ascertain the quantity of water available for working a ram, is to dam up the stream and in this dam insert a short piece of earthenware or iron pipe to form a spout. The measurements should then be made by two persons, one to take the time and the other to catch the water; the latter should have, say, a three-gallon pail and at a signal from the timekeeper should instantly thrust the pail under the spout and see how long it takes to fill it. This should be done several times in order to secure the exact

## THE PRACTICAL COUNTRY GENTLEMAN

time; it is then an easy matter to calculate how many gallons the stream can supply per minute.

A ram capable of supplying 1500 gallons of water in twenty-four hours to a tank fifty feet above the ram, where the fall is six feet and the power supply twenty gallons per minute, should cost fifty dollars, exclusive of pipe and work. The water could be stored either in a reservoir of ample dimensions, built of cement, and on a hill, or in a steel or concrete tower tank. In either case the bottom of the reservoir should be on a level with the top of the highest building, in order to get sufficient force in case of fire. The intake and overflow of the reservoir should also be protected against frost.

There is still another practicable way of pumping water, and that is by the "air-lift pump." For deep wells this method is eminently satisfactory, as it does away with a pump valve entirely, and all the machinery is above ground. The air compression required may be effected by a gasolene engine, electric motor, or



Courtesy of Power Specialty Co.  
METHOD OF PUMPING WATER FROM A POND, SHOWING POSITION  
OF RAM





## WATER SUPPLY AND PUMPS

hot-air engine. The principle is that the compressed air entering the well casing through a small pipe, forces water up through the water pipe, which is in the same casing. The water is discharged into a small tank built in the pump house, from whence it is pumped into a storage tank for distribution. The cost of such a system should be between three hundred and seventy-five dollars and four hundred dollars, exclusive of building the pump house, piping, etc.

It should not be forgotten that each place offers a different problem. However, where average conditions prevail, a driven well, operated by either a well pump or the air-lift system, including a hot-air or gasolene engine with an air-pressure storage tank, will usually be found the most satisfactory. On the other hand, if a spring supplies the farm, and a sufficient fall of water can be obtained for operating a hydraulic ram, it will give good service provided it is well covered during the winter months. Again, if the spring is only large enough to supply drinking water, and a creek or stream passes through

## THE PRACTICAL COUNTRY GENTLEMAN

the farm, a ram could be installed to supply water for general use.

But whatever place is decided upon, one cannot be too careful in writing full particulars to the company from whom the power is to be purchased, for only then will they be able to give the proper amount of pipe required, the size of the engine, and so on.

It cannot be too emphatically urged to spend a sufficient sum in putting in an adequate and satisfactory water system; otherwise there is continual annoyance over small details, and much bothering over a lack of water. Expenditure at the outset will generally be found to pay in the end.

## CHAPTER III

### FARM BUILDINGS

PRIMARY ESSENTIALS TO BE OBSERVED IN  
THEIR CONSTRUCTION — THE BARN THE  
CENTRE OF THE GROUP — THE LOWLY  
PIGGERY AND COW STABLE.

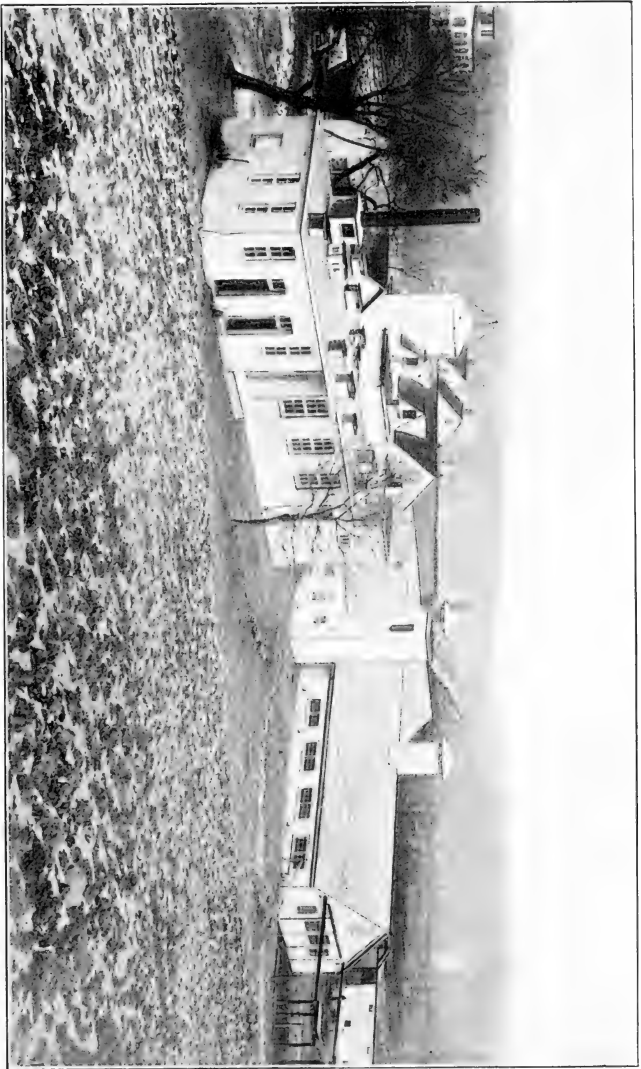
**U**NSUITABLE and inconveniently arranged farm buildings cause many unnecessary steps and the spending of much valuable time, which might be more profitably employed. Buildings on the average farm in the East are, as a rule, lacking in four essential particulars, namely, convenience of grouping outside, proper arrangements within, protection against fire, and in adequate architectural design. To one who has recently purchased a country home, then, the rearrangement of farm buildings becomes a most serious problem.

In all probability the buildings on an aver-

## THE PRACTICAL COUNTRY GENTLEMAN

age-sized farm will include a barn for hay, with a small shed-roof wing for cattle, or possibly a basement serving the same purpose; a carriage house; a stable for horses; a hog pen; a hen house; a corn crib, and an implement shed. The chances are that these buildings will be across the public highway and directly in front of the house, or at least within fifty feet of the rear of the house. What disposition to make of them will depend upon the investment to be made. If the farm is to become the permanent home, the buildings should be either entirely torn down or removed to a convenient spot some distance from the house, and properly grouped and remodelled.

Let us suppose, for instance, that the buildings, though scattered, are found to be in fair condition, and the sills, frames, and siding sound and tight. The question then arises how to group them conveniently and make them as modern as possible. The uses to which the usual seven buildings mentioned above are to be put will in a measure govern the remodelling. If a dairy department is to be developed, the



BUILDINGS AT BROOKSIDE FARM  
(S. L. and T. W. Stewart, Owners)



## FARM BUILDINGS

new stable should be the chief building, and the major part of the capital should be spent upon refitting it. If, on the other hand, sheep and swine are to be the staple products, buildings suitable for their accommodation should be provided.

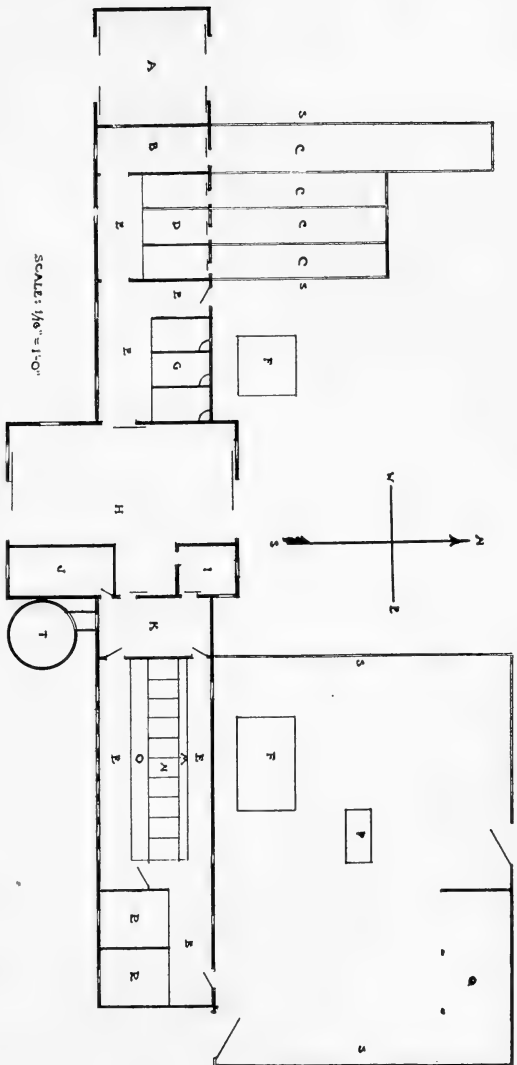
The centre of the group is usually the hay barn, and this should be arranged so that a loaded hay-wagon can be driven through and not have to back in or out. If this is impossible, provision should be made for an overhead hay-carrier system with large doors in the gable end of the barn to permit of hay being taken in through them from the wagon outside. The bottom of the hay-bays will probably be on a level with the ground floor, which is always inconvenient for feeding as it necessitates climbing to the top of the mow whenever hay is fed. This can be remedied by building a floor nine feet above the sills if the height of the building will permit. The extra space thus gained may be used partly for the horse stable and partly for a carriage room. The convenience of having hay upstairs out of the way, and vehicles

## THE PRACTICAL COUNTRY GENTLEMAN

and horses near each other, will more than compensate for any extra expense. Moreover, the carriage house may be moved off and used for a piggery, which would otherwise have to be built. Running water should be provided in all the buildings; and this can be done easily where they are placed on foundation walls without cellars under them. The water pipe will enter through the foundation wall below the frost line and connect there with a small frost-proof hydrant which does away with all danger of water freezing in the pipe.

In placing and remodelling a cow stable it will always be well to consider carefully whether such a step is worth the expense. The modern sanitary stables are so entirely different from those used twenty-five years ago that the cost of making them conform to modern ideas would be about as great as building new ones. If butter is to be made and sold at fancy prices, do not waste time in remodelling an old building. On the other hand, if dual-purpose cattle are to be kept for raising baby beef, and the milk used merely for home consumption, then utilize the





KEY TO BARN PLAN

- A, Implement shed.
- B, Bull pen.
- C, Yards.
- D, Calf pen.
- E, Alley ways.
- F, Manure pits.

- G, Horse stalls.
- H, Carriage room in main barn.
- I, Tool room.
- J, Milk room.
- K, Feed room.
- M, Gutter behind cattle stalls.

- N, Cattle stalls.
- O, Manger.
- P, Water trough.
- Q, Shed in yard.
- R, Box stalls.
- S, Fence.
- T, Silo.



## FARM BUILDINGS

present structure: put in a new ceiling and inside walls of matched floor boards; provide plenty of light and ventilation (700 cubic feet of air space for each animal) by arranging the window sash to open in, and building a cupola in the roof with an air-shaft extending down to within a foot of the floor, and arranged so that it may be closed or opened at will; purchase modern swing stanchions and galvanized iron pipe stall partitions, and if a new floor is necessary put in a concrete one. Reroof with asbestos shingles or some other fire-proof material, and set the building on stone or concrete foundations. To get as much sun as possible the stable should extend north and south. For regrouping, it should be borne in mind that the cow and horse stables should have exits opening into a barnyard, where there is a manure pit. If such a yard has a northern and western exposure, a shed may be built on the north side for cattle to run under in windy and stormy weather.

On the other side of the hay barn, in an equal space, ridge-roofed building, should be the

## THE PRACTICAL COUNTRY GENTLEMAN

calf and bull pens and the implement shed. The space between the plate and the ridge may be used for storing hay for the animals in the building. These, for convenience, should all be on the same floor level, with sliding doors between the rooms so that a handcart or a wheelbarrow can pass easily from one end of the building to the other. A concrete floor made in the proportion of 1:2½:5 — that is, one barrel packed Portland cement to 2½ barrels (9.5 cubic feet) loose sand, to 5 barrels (19 cubic feet) loose gravel or broken stone — will last a lifetime and is much more sanitary than the best of wooden floors.

Before taking up the remodelling of the other buildings it may be well to go into the question of conveniences, and in these days when satisfactory farm labor is so difficult to procure every possible convenience should be installed that is practical and labor-saving. Some of these include an overhead feed and litter carrier; a cattle manger, extending the entire length of the stalls, which is used for water as well as feed; scales for weighing feed; two or more box stalls

## FARM BUILDINGS

in the cow stable and one in the horse stable. In the wagon and implement shed (which should be provided with folding doors, that it may be closed and locked at night) there should be several heavy eye bolts in the ceiling to which pulley blocks are hooked for lifting off wagon bodies and implements. The grain bins, the Mecca of rats and mice, should be constructed of galvanized iron or be tin-lined, the former preferably. If a silo is built, the entrance to it should not be directly connected with the cow stable, but rather through the feed-room, as milk absorbs the odor of silage very quickly.

The piggery, if properly constructed and kept clean, will be as free from odors as the stables. It is commonly supposed that swine are naturally inclined to filth, but there was never a more absurd theory; they are, for instance, particularly cleanly about their sleeping quarters, and if allowed a large yard in which to run, will keep themselves very clean. But as the cleanliness of the piggery will depend upon the energy of the hired man, it will be wise to have it at least fifty feet from the other

## THE PRACTICAL COUNTRY GENTLEMAN

buildings. If hams and bacon are to be raised in quantities, then quarters should be provided for not less than five brood sows and a boar, and the building should have plenty of light and ventilation. The Illinois Experiment Station has a piggery which is a capital example of what such a building should be. Its dimensions are 120 by 30 feet, and the long way of the building is east and west. There are two rows of pens, each 10 feet wide by 11 feet deep, with an alley 8 feet wide through the centre. The floor is concrete, and all the partitions are made of heavy wire fencing with posts of galvanized piping set in the concrete floor. There is a gate in each pen and a door (which slides upward) leading to the outside. The feed troughs are of metal and placed on the alley side of the pens. The section of fence which they are under is hinged at the top so that it can be pushed in toward the pen and fastened; this keeps the pigs from interfering with the feeder when he is filling the troughs. Each pen is provided with a fender made of two-inch iron pipe set six inches from the wall and nine



PIGERY ON THE FARM OF THE ILLINOIS EXPERIMENT STATION





## FARM BUILDINGS

inches above the floor; this extends from the outside door across the rear of the pen and half-way along the partition fence. The object of this rail is to prevent the sows from lying on their pigs at farrowing time. At the east end of the pen is a large feed-room containing feed-bins, cookers, and scales on which to weigh the pigs. The yards are 28 feet; and those of the brood sows should open into a large field (an acre for five sows with litters).

In constructing the concrete floor, a porous sub-base from 6 to 12 inches thick — the thickness depending somewhat on the severity of the winter — should first be laid. The material used may be either broken stone, gravel, or cinders, well wet and tamped in layers, so that when complete it will be even and firm, but porous. Over this spread a layer of three-ply tar paper with the joints well tarred, to prevent the dampness from coming through. Then cover with a 3 to 5 inch coat of cement in the proportion of 1:2½:5. In this cement the posts and fender-supports are set before it hardens. A final coat of mortar one inch thick,

## THE PRACTICAL COUNTRY GENTLEMAN

in the proportion of one part Portland cement to one and one-half parts clean, coarse sand, is then laid and roughed, to prevent slipping, before it sets.

The building for sheep should be a shed-like structure with sufficient loft room for the storage of hay and straw, but so arranged with folding doors that the south side may be thrown wide open, permitting the sheep to go in and out at will. A room must be portioned off and made warm and sunny for the ewes to lamb in; and a separate pen should of course be provided for the stock, the rams, and the lambs that are being fattened.

A poultry house should always face the south and southeast; and if the shed roof type is decided upon, the high side should be the south side. There are numerous ways of building poultry houses, but for practical commercial purposes the style of house used by the Maine Experimental Station is excellent in every detail. This house is 20 feet wide and 400 feet long. Three sills 6x6 inches run lengthwise, and the central one supports the floor timbers. They

## FARM BUILDINGS

rest on stone piers high enough to let a dog go under the building to look after rats or skunks. The floor timbers are 2x8 inches, and rest wholly on top of the sills; the front ones are 8 feet and the back ones 6 feet 6 inches long. The roof is unequal in width, the ridge being 8 feet from the front wall. The height of the ridge from the sill to the extreme top is 12 feet. All studding is 2x4 in size and the rafters are 2x5. The building is boarded with inch boards, and papered and shingled with good cedar shingles on wall and roof (asbestos shingles preferably). The floor is of two thicknesses of boards, which breaks joints well in laying. The building is divided by tight board partitions into twenty pens, each pen being 20 feet long. The front side of each pen has two windows of twelve lights of 10x12 glass screwed on uprights 2 feet 8 inches from each end of the room; these are 3 feet above the floor. The space between the windows is 8 feet 10 inches long, and the top part of it down from the plate 3½ feet is not boarded but left open to be covered by a cloth curtain when nec-

## THE PRACTICAL COUNTRY GENTLEMAN

essary. This leaves a tight wall 3 feet 10 inches high extending from the bottom of the opening down to the floor, which prevents the wind from blowing directly on the birds when they are on the floor. A door is made in this part of the front wall for the attendant to pass through when the curtain is open. A door 16x18 inches is arranged under one of the windows close to the floor, for the birds to pass through to the yard. The platform runs the length of the pen, and is 4 feet 10 inches wide, and 3 feet above the floor. There are three roosts framed together in two ten-foot sections; they are one foot above the platform, and hinged to the back wall, so that they may be turned up out of the way when the platform is being cleaned. The doors dividing the pens are 3x7 feet, and are divided in the middle lengthwise; each half is hung with double-acting spring hinges, allowing them to swing open both ways and close. An overhead track runs the entire length of the building, and from it is suspended a car, 2x8 feet in size, elevated a foot

INTERIOR OF ILLINOIS EXPERIMENT STATION PIGGERY





## FARM BUILDINGS

above the floor. All food and water are carried through on this car.

At one end of the building is a feed-room with a small boiler for washing and preparing birds for market. A walk is outside the house, and extends its entire length. It is four feet wide and made of two-inch plank; it is elevated two feet above the floor of the building, which allows the doors through which chickens pass to the yards to be opened and closed without interference. A guard of poultry netting a foot wide along the outside of the walk prevents the birds from flying from the yards up to the walk. The advantage of this walk is that it is unobstructed by gates, which would be necessary were the low walk used to prevent the birds from passing from one yard to another. The yards should be the width of the pens and one hundred feet long. It is an advantage to have double yards, in order that one yard may be ploughed up each year and planted to rye or clover. If new buildings are to be erected then it is wise to put everything but the poultry and

## THE PRACTICAL COUNTRY GENTLEMAN

swine under one roof. Such a building should be fire-proof, and constructed either of fire-brick covered with a light coat of cement, or of concrete. In the latter case the walls may be hollow or solid. In building stables the hollow construction assures a warm room in winter and a cool one in summer, the air acting as a non-conductor and forming an easy method of installing the King system of ventilation. All floors should be provided with a damp-proof course of heavy tar paper between the concrete and the sub-base, or otherwise the cattle and swine may contract rheumatism.

Carpenters will be needed to build the forms; and this should be no trouble if they bear in mind that they are building just the reverse of a structure. The concreting may be done by a gang of untrained men under the guidance of an experienced foreman. The finishing can be done by ordinary plasterers or masons after some practice in working with cement mortar. Buildings which have no especial need of this smooth finish may be roughly pointed up and painted, with cement and sand grouting. Out-



## FARM BUILDINGS

side the buildings are tooled with stone axes to give a rough stone finish to the structure.

Sometimes old buildings are improved by removing the siding and covering the frame with two thicknesses of roofing paper well lapped. Then put on furring strips about one foot apart, and on these fasten metal laths; after this apply the scratch coat half an inch thick (composed of five parts Portland cement, twelve parts clean coarse sand, three parts lime, and a small quantity of hair), and press it partly through the opening in the laths, roughing the surface with a stick or a trowel. Allow this to set well and apply the finishing coat one-half to one inch thick, composed of one part Portland cement, three parts clean coarse sand, and one part slacked lime paste. This coat can be put on and smoothed with a wooden float, or can be thrown on with a trowel, or with a large stiff-fibred brush if a spatter-dash finish is desired. A pebble-dash finish may be obtained with a final coat of one part Portland cement, three parts coarse sand and pebbles not a quarter of an inch in diameter, thrown on with a trowel.

## THE PRACTICAL COUNTRY GENTLEMAN

If the cost of building fire-proof structures is more than the owner can afford, it will at least be wise to build fire-proof walls between stock stables and the main hay barn. This precaution, with asbestos shingles or any other non-inflammable roofing-material, and fire doors which will be closed at night, will reduce the danger to a minimum.

## CHAPTER IV

### THE KIND OF STOCK TO BUY

COWS, PIGS, SHEEP, AND POULTRY, THE ESSENTIALS TO BE OBSERVED IN THEIR SELECTION.

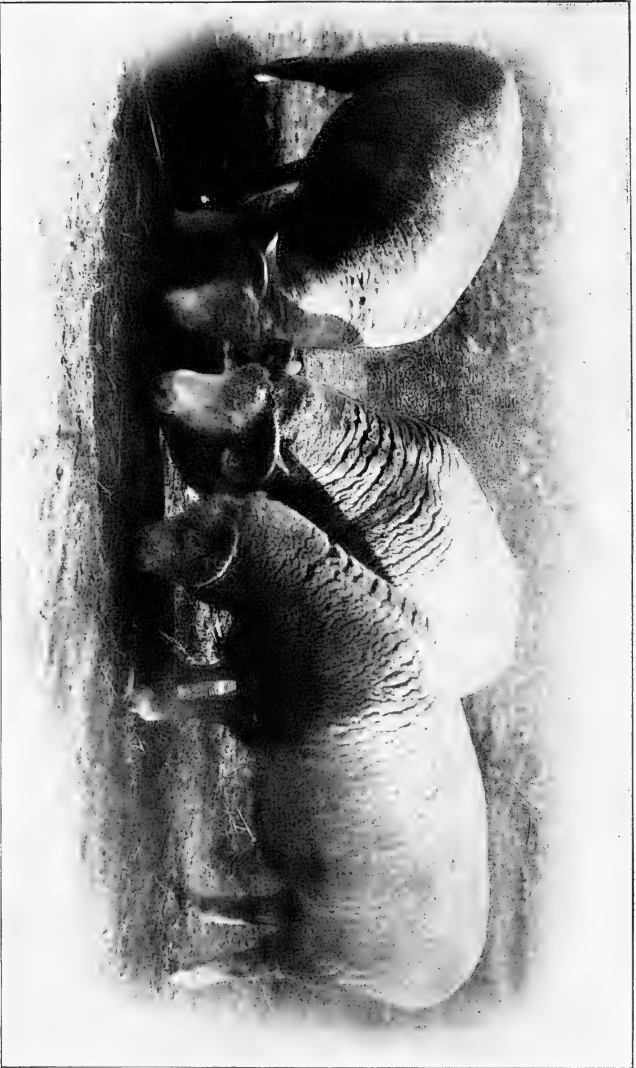
**T**HE importance of stocking the farm with animals best suited to that particular branch of agriculture which the owner most desires to develop, is too frequently overlooked. In fact, success or failure depends in a large measure upon the breed of stock kept.

For instance, to keep a herd of Holstein cattle for the purpose of supplying cream to private customers; or to maintain a flock of Leghorn fowls from which to raise roasters, would be to court disaster. The Holsteins are, to be sure, great milk producers; but the Jersey cows are acknowledged to be the most economical machines for cream-production. Leghorns

## THE PRACTICAL COUNTRY GENTLEMAN

have no superior in egg production; but on the other hand, for plump, juicy roasters we must look to Asiatic breeds. As changes are always costly it is best to decide first just what departments on the place are to be money-makers, and then make intelligent and careful selection.

The best financial results from a small farm near a thriving city or town will be obtained by gradually building up a high-class private trade in finished products, namely, butter, eggs, broilers, roasters, ducks, hams, bacon; and to the list might be added winter lambs. With such a definite end in view the selection of stock becomes a more simple matter. In looking over a list of the different breeds of cattle we find them divided into three principal classes — dairy, beef, and dual-purpose. The dairy class includes Holsteins, Ayrshires, Guernseys, Jerseys, Brown-Swiss, and Dutch-belted. The dual-purpose class includes those breeds which combine good milking qualities with the size and characteristics of the beef breeds. These are the Devons, Shorthorns, Red-Polled, Polled-Durhams, Normandy, and Simmenthals.



**DORSET SHEEP**

(Owned by Hart's Delight Farm, Chazy, N. Y.)



## THE KIND OF STOCK TO BUY

The best beef breeds known in this country are the Herefords, Galloway, Aberdeen-Angus, and Sussex.

The most essential qualifications of a good cow are:

*Form* — Spare, angular, moderately short-legged, barrel capacious; hind-quarters wide and deep, scale medium to large.

*Quality* — General refinement of symmetrical and clean-cut features; bone fine and clean; hair fine and soft; skin not more than medium thickness; head, neck, and legs fine and of moderate length.

*Condition* — Spare, no fat apparent; skin loose and mellow.

*Constitution* — Generous and symmetrical development; lively carriage; ample heart-girth; capacity of barrel and depth of flank; eyes full, bright, and clear; nostrils wide apart, large and open; absence of refinement and spareness to point of delicacy or emaciation; skin of medium thickness, free from scurf; coat soft and bright.

*Nervous Energy* — Spinal column prominent,

## THE PRACTICAL COUNTRY GENTLEMAN

vertebræ wide apart; forehead high and wide; ears active; temperament alert, which is also an indication of constitution and quality.

*Sexuality* — A general appearance of sensibility and feminine refinement of feature; moderate length and great capacity in barrel; width in loin, hip bones, and pin-bones; well-developed udder; horn and coat fine; eyes expressive of mild and gentle sensitiveness.

*Milk-giving Capacity* — Udder large, shapely, evenly quartered, free from fleshiness, extending well up behind and far forward, strongly attached; milk veins large and tortuous; milk-well large; secretions of skin abundant and yellow.

In buying live-stock write to a reliable breeder and explain clearly just what is wanted, stating frankly that the buyer's knowledge of cattle is limited, and in nine cases out of ten the owner will ship the best he has for the sum to be invested. Before deciding definitely, however, on the purchase of any particular breed, two points should be considered:

*First*, that grade cows (meaning the offspring



## THE KIND OF STOCK TO BUY

of a pure-blood male and a mixed-blood female, though in the first two generations the terms "half-blood" and "three-quarters blood" are used) will meet all requirements of an ordinary dairy quite as well as thoroughbreds, and the cost will of course be much less. They can usually be bought through a buyer whose business it is to execute just such commissions.

*Second*, that all cows soon pass the age of prime usefulness and then go to the shambles, where they fetch much or little according to the breed. As the flesh of Jerseys, Guernseys, Holsteins, and Ayrshires is tough and stringy, butchers pay very little for aged cows of these breeds. The flesh of Devons, Shorthorns, and other cows of the dual-purpose type is fine-grained, well marked, and juicy, and therefore fetches a top price.

It has been often remarked that "Pigs is pigs"; but looking at those much-slandered animals as a prospective buyer, it is, on the contrary, quite easily seen that there are pigs and pigs. To the Western farmer with many acres

## THE PRACTICAL COUNTRY GENTLEMAN

should be left the raising of pigs for pork. In the land where corn is king, a combination of corn, cattle, and pork proves a money-making trio; but the man with smaller acreage will have better results from ham and bacon. As we all know, the demand for delicious, well-flavored hams and lean bacon is far ahead of the supply, and the highest prices are offered for them by clubs, hotels, and private individuals.

The principal bacon breeds of swine are the Tamworth, Large Yorkshire, and Berkshire. The offspring of the latter when crossed with the Tamworth combine the best qualities of each breed, namely, the early maturing quality of the Berkshire with the general conformation of the Tamworth.

The bacon type is distinctive, and the following description of it applies in a general way to all swine, whether grade or thoroughbred, of this particular class:

*Form* — Long, deep, smooth, and of medium width; sides straight; legs short for the breed; head light; back slightly arched; underline

## THE KIND OF STOCK TO BUY

straight; scale large for age; standard weight, 170-200 pounds.

*Quality* — General refinement of symmetrical and clear-cut features; bone smooth, fine, and strong; skin and hair fine and smooth; head, neck, and legs short for the breed.

*Condition* — Heavily muscled, moderately fat; covering firm, smooth, and of uniform thickness, especially in sides and belly.

*Constitution* — Thoroughly healthy.

*Early Maturity* — General refinement, especially of head, neck, and legs; width in chest, belly, and flanks; body large, extremities small.

Taking up a description of the three individual breeds, it will be seen that each has certain characteristics not found in either of the others.

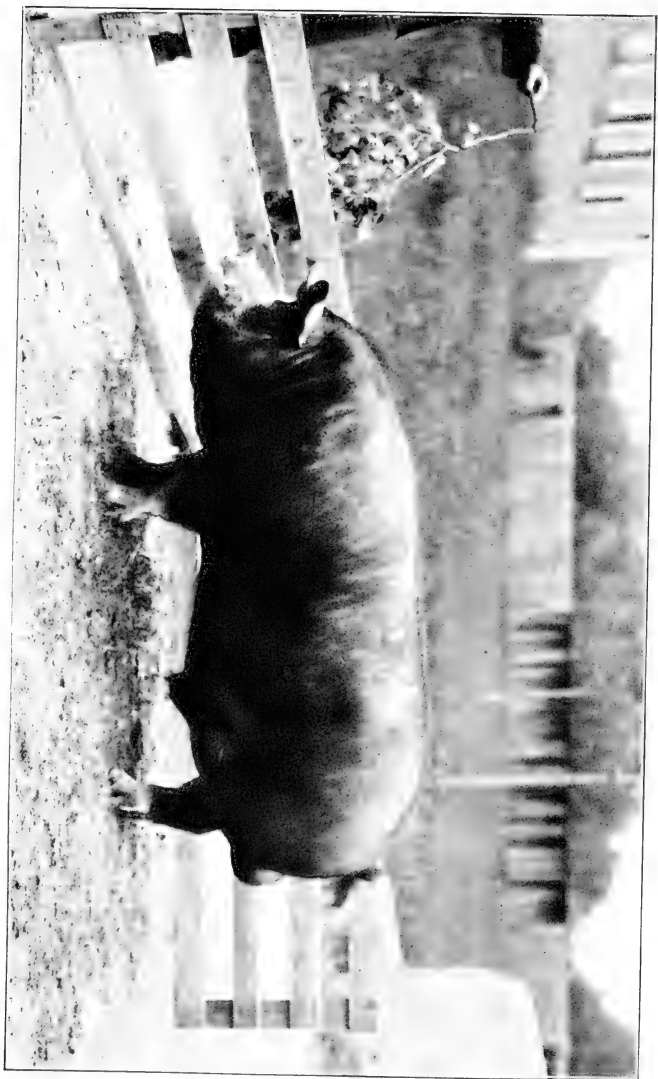
The Tamworth has golden-red hair on a flesh-colored skin, free from black. Head fairly long; snout of moderate length and quite straight; face slightly dished and wide between the eyes; ears large and carried rather forward; neck fairly long and muscular. Shoulders fine and slanting; the forequarters proportionately

## THE PRACTICAL COUNTRY GENTLEMAN

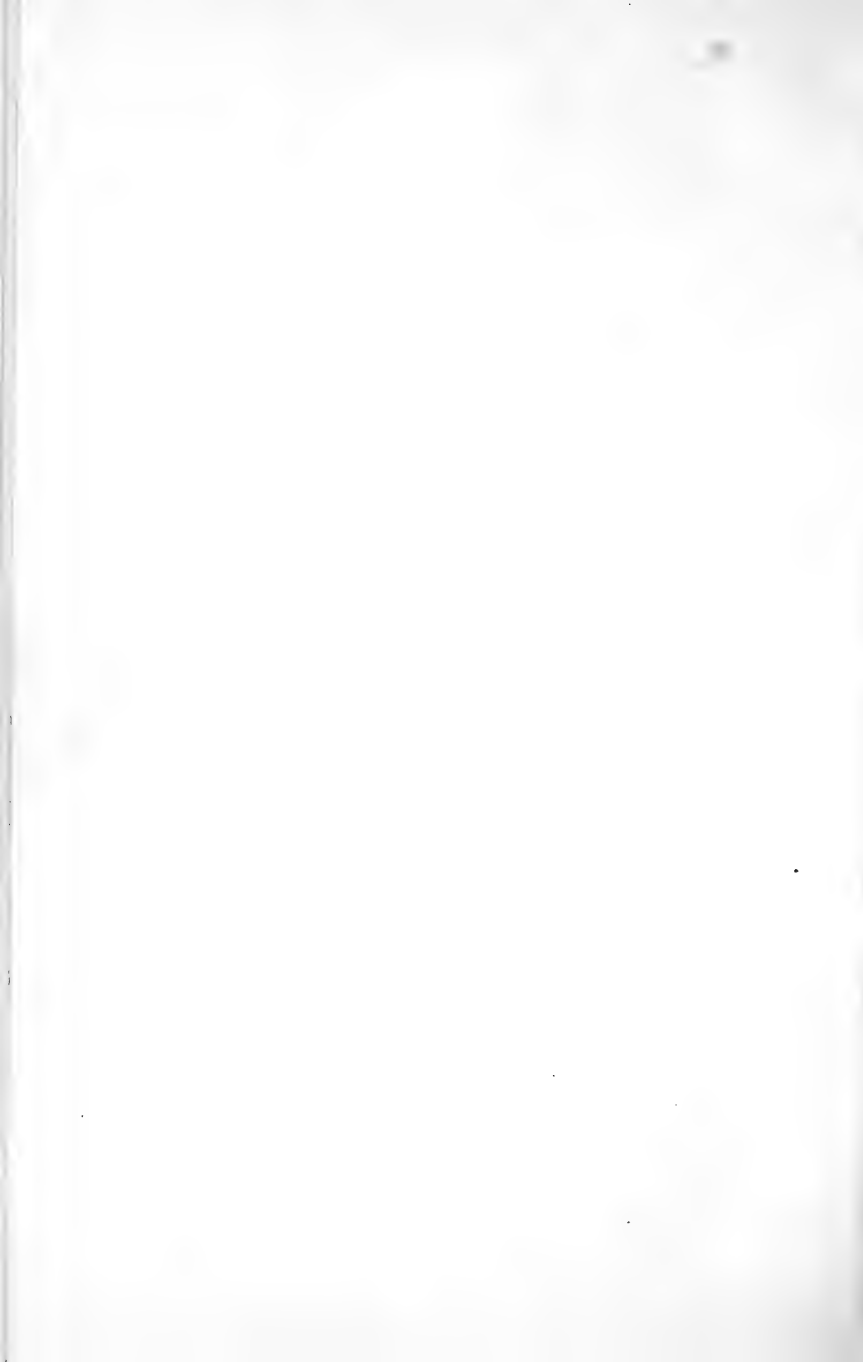
less broad, but hams large; back long and straight; chest wide and deep; ribs well sprung, extending well up to flank, which should be full and well let down; loins long and broad; quarters long, wide, and straight from hip to tail; belly straight and deep.

The large Yorkshire varies more or less in type, and much skill is required in selecting stock. Some have short turned-up snouts, others long scrawny necks, narrow chests, and long, coarse-boned legs. As this breed is especially valued for bacon, where a long side abounding in lean meat and a light shoulder and neck are especially desirable, great care should be taken to pick out pigs with these characteristics well defined.

The head should be moderate in length and size with lower jaw well sprung and considerable dish toward snout, which turns upward with a short curve; forehead and poll wide; jowl medium and not flabby; ear medium in size, standing well out from head, of medium erection and inclined slightly forward; neck of medium length, fair width and depth, rising



EXAMPLE OF THE KIND OF STOCK TO BUY : TYPICAL BERKSHIRE BOAR  
(Owned by Hood Farm, Lowell, Mass.)



## THE KIND OF STOCK TO BUY

gradually from poll to withers; muscular, but not gross, evenly connecting head with body. Shoulder large but not massive or open above. Body long, deep, and of medium breadth, equally wide at shoulder, side, and hams; top-line slightly arched, under-line straight. Brisket wide and on a level with under-line. Side long, deep, straight, and even from shoulder to hip. Ribs well arched and deep. Hindquarters long, to correspond with shoulder and side, deep with moderate and gradual drop to tail. Heart and flank girth good and about equal. Ham large, well let down on thigh, and twist and rear outline somewhat rounded. Legs medium in length, strong, not coarse but standing straight and firm. Tail medium, not much inclined to curve. Color white on every part. Hair abundant, long, of medium fineness, and without any bristles.

The Berkshire, as will be seen in the following description, is entirely different in shape and color from the Yorkshire. It is black with some white in the face, white feet and a white tip to the tail. Face well dished, fine and broad

## THE PRACTICAL COUNTRY GENTLEMAN

between the eyes, which are rather large, and dark hazel or gray in color; snout short, broad, and fleshy; ears almost erect, generally inclined forward; jowl full and heavy; neck short and broad on top; shoulders smooth, even on top, in line with the sides, and thick through the chest; back broad, long and straight or slightly arched; ribs well sprung; sides deep and well let down, with straight side and bottom lines; flanks should be well back and low down on leg, making nearly a straight line with lower part of side; full wide loins and deep thick hams extending well up on back, and holding thickness well down to hock; tail should be well up on line with back, and not too fine, short, or tapering; hair fine and soft; short, strong legs set well apart outside the body.

The bacon pig is raised under conditions that are conducive to soil improvement. Born in the early spring, it can be pastured all summer on alfalfa, clover, or rape, and will make rapid growth under ordinary conditions. The Utah Experiment Station, in a number of trials, proved that pigs running in good pasture will



## THE KIND OF STOCK TO BUY

make a gain of .36 of a pound a day without any grain whatever; while those given a three-quarters grain ration in addition to the green food make a daily gain of 1.2 pounds, requiring only 377 pounds of grain for 100 pounds of gain, against 515 pounds for 100 pounds of gain for the pen-fed pig.

Sheep-raising on a large scale is out of the question for the owner of a modest farm; but a small flock of the mutton type, handled judiciously, will add many dollars to the general income.

There are five breeds included in the mutton type of sheep, namely, Southdowns, Shropshires, Hampshires, Oxfords, and Dorset Horns; and their general characteristics are those of the so-called "meat type" of all domestic animals. The form is compact, thick-set, low down, and blocky. The body is deep, broad, and of medium length. The top and bottom lines are straight. The signs of quality are general refinement and symmetry, fine smooth bone, with short head, neck, and legs. In fat animals the carcass should be covered

## THE PRACTICAL COUNTRY GENTLEMAN

with deep, firm, mellow, and springy flesh evenly distributed without lumpiness or rolls. The wool should be uniformly long, dense, and with some crimp. The yolk evenly distributed and moderately abundant.

The Shropshires and Southdowns are held in especially high esteem as producers of mutton and lamb of the finest possible quality in their native country. The Hampshires are very prolific, and twins at a birth is the general rule. The Dorsets are noted as early lamb raisers, the ewes breeding in June and July instead of in the autumn as is the habit of other breeds. This, of course, brings the lamb crop in November or December; and as the youngsters are ready for market when eleven or twelve weeks old, they are very eagerly sought after to supply the fancy trade, known as the "hot-house lamb" market. The Dorsets possess another important characteristic (not to be overlooked in a country where dogs are allowed to run at large, often destroying whole flocks of valuable sheep), which is that both the male and female have horns; those of the former are long, those of the latter of

## THE KIND OF STOCK TO BUY

moderate size. But in consequence of this protection they are pugnacious and better able to defend themselves.

Breed, however, is not so important as proper care and a thorough knowledge of the beast. Sheep are particularly sensitive to neglect and poor feeding, and need judicious looking-after.

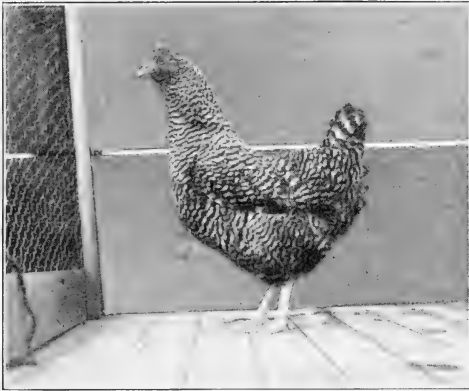
As to the innumerable breeds of fowls, it would be almost impossible to go into the particular virtues of each kind. The principal breeds for market purposes are the White and the Barred Plymouth Rocks, Light Brahmas, White Wyandottes, and White Leghorns. There are others whose flesh is as toothsome as those mentioned, but the market prefers a white feathered fowl with yellow skin and legs. The combination of White Plymouth Rocks or White Wyandottes, Light Brahmas, and White Leghorns (single comb) is an ideal one, for it gives the chance to supply the market with eggs, broilers, and roasters every month of the year. The Rock and Wyandotte are excellent layers of fine large brown eggs, and in addition to

## THE PRACTICAL COUNTRY GENTLEMAN

that the chicks are rapid growers and are ready to market in ten weeks from hatching time. The Brahmas also lay a large brown egg; but their principal part in the combination is to supply fancy roasters and capons, and for this purpose they have no rivals.

The Mediterranean breeds, of which the Leghorn is the most widely known, are called non-setters, although as a matter of fact they do set frequently, but are easily persuaded to change their minds. With care and protection from cold at night they will produce a large number of fine white eggs during the winter months; and their chicks also make splendid squab broilers, the demand for which is continually increasing.

Eggs should be packed in fancy boxes holding six or a dozen, if intended for the retail trade; or in larger crates, and always with the name and address of the farm whence they come on the boxes. Thus a proper responsibility is asked for and assured. It cannot be too often emphasized that everything intended for market should be done up and offered in attractive



PLYMOUTH ROCK HEN THAT LAID 251  
EGGS HER FIRST LAYING YEAR, AT THE  
MAINE EXPERIMENT STATION



TYPICAL LIGHT BRAHMA COCKEREL  
(Owned by Mr. Nettleton, Shelton, Conn.)



## THE KIND OF STOCK TO BUY

form. The appearance of the article will be its best recommendation until the shipper has established an adequate reputation.

In purchasing fowls, always buy thorough-breds, good, healthy, sizable birds from a well-developed strain of layers or roasters, but do not buy show-birds. Every well-known breeder carries a large number of birds which, while suited for utility purposes may be deficient in show points, perhaps as to shape, feathers, or carriage; and these birds can always be bought at a reasonable figure and prove admirably suited to the needs of the market man. The question as to whether it is better to buy eggs from breeders and hatch one's own stock, or to buy the birds outright, is a much discussed one. The writer much prefers the latter method in starting, as he has invariably found it by far the more satisfactory.

The Pekin duck is the most suitable of all the varieties in this country for market purposes. Pure white and averaging from seven to eight pounds in weight, it is a prolific layer, and the ducklings are ready for market in eight

## THE PRACTICAL COUNTRY GENTLEMAN

to ten weeks from hatching. At one time it was supposed ducks could not be raised without a pond for the stock ducks to swim in, but this old-fashioned theory is untenable. Vast numbers of ducks are raised with only sufficient water for drinking purposes. On the other hand, those fortunate enough to possess brooks or ponds where the old ducks can swim claim that the birds do better under conditions natural to water fowl. To one unfamiliar with ducks, the appearance of the drake and that of the duck are identical, but on close observation it will be seen that the neck of the drake is thicker and the head larger and the voice pitched in a lower key. There is also the feather near the end of the tail which curls over toward the head.

The question of the selection of a good farm team the writer has left to the last, for it is a matter of the greatest importance, and the inexperienced are too frequently led astray in spending overmuch for satisfactory farm teams. The shrewd buyer, however, has found that city carriage horses whose feet have become tender from pounding granite pavements make excel-



## THE KIND OF STOCK TO BUY

lent work horses when taken to the country. Such animals can be had in the large sales stables for prices ranging from seventy-five dollars to one hundred and fifty dollars, and they are usually finely bred fast walkers, and willing workers — all good qualities for a work horse to possess.

A neighbor of the writer had two pairs of big, stout grays, in which he took great pride. It may be of interest to others to hear how he cared for them.

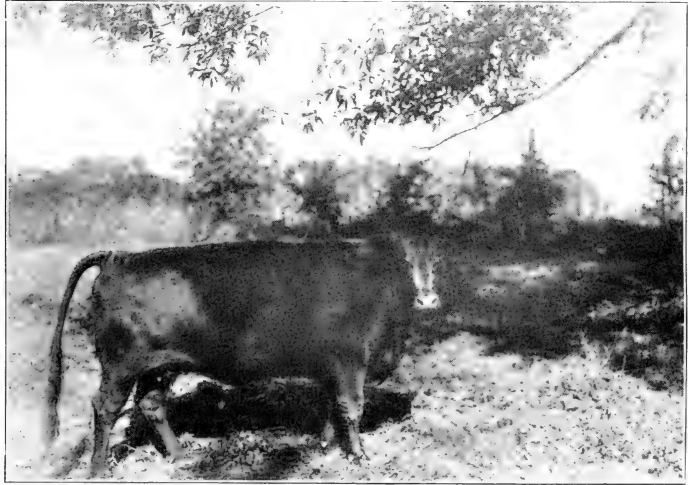
In the winter he hauled hay to town, some twenty miles away, once a week; that was about all the work his horses did until spring, but when the time came to plough, his teams were always in fine condition. His method was to cut down the grain ration as soon as the fall work was done. From November until March he fed in the morning two quarts of small potatoes, one quart of bran, 4 ears of corn, and a small forkful of oat straw to each horse. The straw was run through a cutter, moistened, and mixed with feed. At noon they each had two quarts of sweet apples or carrots and a

## THE PRACTICAL COUNTRY GENTLEMAN

quart of oats. At night they each had three ears of corn, one quart of linseed meal, two quarts of bran, and a forkful of oat and pea hay, chopped. Every day these horses were brushed and curried until they glistened in the sun. The water they drank had the chill taken off it in the cold weather, and was always given them some little time before feeding.

The first of March the feed was increased a good deal, and the composition changed. In the morning each had three quarts of oats, one of bran, and a small forkful of hay, chopped, wetted, and mixed with the grain. At noon the ration consisted of two quarts of oats and one of linseed meal for each horse. At night each received three quarts of oats, two of bran, and a liberal supply of chopped oat and pea hay the last thing before closing the stable.

To harden the shoulders and backs of his horses, he washed them every morning through the spring with cold salted water. The result of this extra care and attention was that my neighbor's teams were the envy of the country-



EXAMPLES OF THE KIND OF STOCK TO BUY: ABERDEEN-  
ANGUS CATTLE

(Owned by S. E. Lantz, Congerville, Ill.)



## THE KIND OF STOCK TO BUY

side, and he could have sold them any day for five or six hundred dollars a pair.

We are very apt to forget in feeding our horses that they have a smaller stomach, in proportion to their size, than any other domestic animals. Also that horses should never be watered after eating, for it has a tendency to wash all the food out of their stomachs. There is another point worth remembering — that is, don't hurry the horses through their meals. Give them a chance to digest their food before using them. And see that their teeth are always in good condition.

Horses, unlike human beings, are born with teeth ready for use. This is perhaps unfortunate, because their owners are apt to think that because the teeth are already there they need n't think about them; whereas, it is quite as important to care for the teeth of foals as for those of children.

The horse has thirty-six or forty teeth, according to the sex of the animal; these are divided into three groups — the incisors, the

## THE PRACTICAL COUNTRY GENTLEMAN

molars, and the tushes. In front are the incisors or nippers, on each side the tushes or canine teeth, and still farther back, on the sides, the molars or grinders. The first are used to grasp and cut the food, the second to tear it, and the third to bruise and grind it up. In an adult male animal there are in each jaw six incisors, two tush teeth, and twelve molars. The points to remember about a horse's teeth are:

1. There must be an even grinding surface at all times, or improper mastication will result.

2. The outside enamel of the teeth, which presents a ridged surface to the cheek, should never be allowed to become sharp, or ulceration of the flesh of the cheek will result.

3. The colt's teeth should be carefully watched in order to see that the permanent teeth come in in their right places; for it sometimes happens that if a milk tooth is not shed when it should be, the permanent tooth which is trying to push out will come out at the side of the gum instead of in its proper place.

A short time ago, a farmer living in Albany County had a fine colt which, in spite of all the

## THE KIND OF STOCK TO BUY

food and care he gave it, continued to grow poor in flesh, until at length it was hardly able to stand. At this point a veterinary dentist happened to stop in to float the teeth of one of the other horses, and was asked to look at the colt. On examining him he found that the molars had become so uneven that he was unable to grind his food properly, which had resulted in indigestion and the complete derangement of his system. The doctor evened up the teeth, and to-day the colt is as nice-looking a horse as you could wish to see.

It not infrequently happens that a tooth will break off or break in half, by contact with some hard substance, a stone in the hay, for example; then the tooth opposite on the upper or lower jaw, as the case may be, will grow too long, not having any hard surface to wear against. The result is that the grinders are unable to come together evenly and nature, trying to rectify the unevenness, will cause the grinders to grow irregularly; in the end the horse will be unable to masticate his food, and indigestion follows. Dr. Wiswall, a well-known veterinary

## THE PRACTICAL COUNTRY GENTLEMAN

dentist, is of the opinion that half of the ailments which horses develop are caused by neglect of the teeth. If horse-owners would realize that horses are apt to suffer from abscesses and all the other tooth troubles as human beings are, they would in many cases save themselves money by applying the ounce of prevention that is worth a pound of cure.

Bad habits in horses are often the result of neglect of the teeth. Among them are slobbering, driving on one rein, having the tongue out, pulling on the reins, jerking the head back and forth, and taking the bit in the teeth. Slobbering is caused by the horse's trying to find a comfortable spot for the bit, which, in pressing on the tongue, causes it to flatten out, thus bringing the sides against some sharp edge of the molars. In doing this he keeps his jaws going, causing saliva to form, churning it into a foam, which runs from his mouth. The loss of this saliva often causes indigestion. Hanging the tongue out is done for the same reason, for by lengthening the tongue the width is decreased so that the sides do not touch the teeth.



## THE KIND OF STOCK TO BUY

Driving on one rein is the effort of the horse to offset the continual jerking on the reins by an ignorant driver. The horse finds that by getting the bit in front of his molar teeth and pulling on one side he can take the pressure off some other point which has become sore and painful. This habit often becomes so confirmed that the molar on the side on which he pulls will be worn into a hollow to fit the bit. Pulling on the reins and jerking the head back and forth are habits formed to protect sore lips, gums, and teeth, and are always due to ignorance in handling the reins. Drivers often speak of horses "taking the bit in their teeth," which they never really do. What does happen is that the horse, tired of abuse on the part of the driver, endeavors to find some spot in his mouth where he can put the bit in a comfortable place. He finally learns that by slipping it over in front of the molar teeth he can get a good purchase on it and easily resist all efforts to hurt.

The mouth of a young foal is as sensitive as a human being's, and, if the colt is bitted and

## THE PRACTICAL COUNTRY GENTLEMAN

driven properly with a light hand, will always respond to the slightest touch. The bits that are the most humane and comfortable are the straight-bar, and the leather-covered. Make it a rule to have a dentist look over your horses' mouths once a year, and you will save not only suffering on the part of your animals, but feed and strength as well.

## CHAPTER V

### HINTS ON BEEF AND WINTER LAMB RAISING ON COUNTRY ESTATES

**M**ANY owners of country estates could take up the raising of prime beef with the assurance of deriving a good profit and much pleasure from the undertaking. In fact, the production of beef requires far less labor and trouble than the maintenance of a dairy herd. There is an excellent demand for beef, and the supply is far below the demand.

There are several ways of starting such a department on an estate. Cattle known as "feeders" may be purchased from the Chicago or Buffalo stock yards by the carload; put right on the land where they will be pastured during the summer, and fed in yards from November until the following June, when they will be ready for market. In purchasing feeders, it

## THE PRACTICAL COUNTRY GENTLEMAN

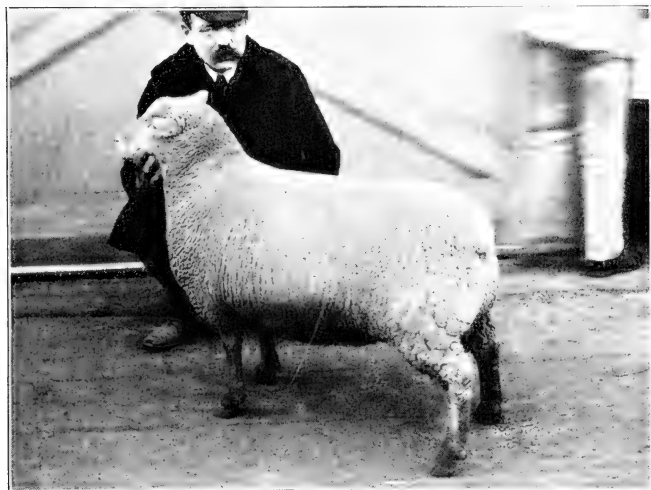
will be well to remember that the older the animals, the more grain will be required to fatten them. The price of young feeders ranges between twenty-seven dollars and thirty-five dollars delivered at the purchaser's station. The cost of feeding will be about fifteen dollars a head for grain during the winter. From this should be deducted the value of the manure voided by the animals, which will be about five tons each during the time they are in the yards. Such manure is worth at least two dollars a ton. Cattle of this grade are usually sold on the hoof when fat, for export, and fetch between fifty-five dollars and sixty-five dollars each in the barn.

The wisest way, however, for a novice to start in this business would be to purchase from a reliable breeder, say three heifer calves and a bull calf of either the Hereford or Aberdeen-Angus breed, and raise them to start a herd. The bull calf should be unrelated to the heifers. When the latter are twenty to twenty-six months old, they should be bred for the first time. All the females should be raised to increase the



DORSET LAMB, 15 WEEKS OLD, THE KIND USED TO SUPPLY  
THE FANCY MARKET WITH HOT-HOUSE LAMBS IN  
WINTER

(Owned by Fillmore Farm, Bennington, Vt.)



SOUTHDOWN YEARLING WETHER, TYPICAL MUTTON  
TYPE, GRAND CHAMPION OVER ALL BREEDS

(Owned by Sir George Drummond, Huntlywood Farm,  
Beaconsfield, Canada)



## BEEF AND WINTER LAMB RAISING

herd, while the bulls should be castrated when three months old and forced for baby beef. This name is applied to young cattle finished for the market at the age of ten to sixteen months.

In order to produce this choicest of all beef, the youngsters must be fed well from the very start. They are left with their mothers until weaned, and are taught to eat grain when but a few weeks old. At first, a small handful is given; then gradually this is increased, until, at the age of six months, they are consuming daily  $7\frac{1}{2}$  lb. of grain each, in addition to a liberal supply of good clover or alfalfa hay. At that time a ration composed of 5 lb. corn, 2 lb. oats, and  $\frac{1}{2}$  lb. of oil meal is recommended by Prof. H. R. Smith of the Nebraska Experiment Station, where large numbers of beef cattle are fattened annually. If no legumes are raised, the oil meal should be increased to one pound a day. Corn ensilage is excellent for calves, preventing digestive disorders due to heavy grain feeding. Fed in this manner, steady progress will be made until the time arrives for the

## THE PRACTICAL COUNTRY GENTLEMAN

youngsters to be sold for beef, when they should weigh about 1000 lb. apiece.

The following table, compiled by the U. S. Department of Agriculture, gives an excellent idea of the comparative advantage of producing baby over long-fed beef:

ONE STEER	Baby beef (av. of 10 steers)	Long- fed beef (av. of 10 steers)
Days on feed . . . . .	700	913
Weight when put on experiment, lb. . . . .	122	107
Weight when slaughtered, lb. . . . .	1,297	1,235
Gain during feeding period, lb. . . . .	1,175	1,128
Daily rate of gain, lb. . . . .	1.68	1.26
Feed eaten:		
Roots and ensilage, lb. . . . .	15,793	19,529
Hay, lb. . . . .	1,150	1,315
Skim milk, lb. . . . .	1,645	1,592
Rape, lb. . . . .	70	.....
Meal, lb. . . . .	3,809	1,405
Pasture, months . . . . .		9
Total cost of feed . . . . .	\$63.06	\$59.66
Cost per 100 lb. increase live weight . . . . .	3.35	5.29
Selling price per 100 lb. live weight . . . . .	5.62	4.78

The feed for feeders will be quite different. If the roughage consists of clover, cow-pea hay, or alfalfa hay, corn will be the only grain necessary. Should there be no legumes, the grain feed should consist of one-fifth to one-fourth of



## BEEF AND WINTER LAMB RAISING

oil meal, cottonseed, or gluten. The daily feeding will be as follows: Morning, a feed of fodder corn, which has been drilled in rather thick and with the ears left on; in the evening, shelled corn with a liberal supply of alfalfa, cow-pea hay, or clover hay. When the pastures begin to dry up, the first of the corn fodder should be fed in racks in the feed lot.

It is essential in raising beef to know the characteristics of a prime beast; for in order to command the top price the animal must be in the pink of condition. The butcher demands a high state of development in loins, crops, back thighs, twist, and lump. He demands development in these parts because they are the parts from which are secured the highest-priced cuts. The animal must show plenty of depth and breadth, providing a large surface for flesh, without the objectionable tendency to be paunchy.

He also seeks smooth, well-rounded outlines, which indicate both evenness of flesh and an absence of that tendency to be rough and coarse, which would mean loss to him, the waste in

## THE PRACTICAL COUNTRY GENTLEMAN

dressing a rough, coarse beast being out of proportion to the marketable beef. In addition to securing satisfactory development of these parts, the butcher has an eye to the added value secured in thick, even flesh throughout, on the cheaper as well as the more valuable parts of the carcass.

H. W. Mumford, professor of animal husbandry at the University of Illinois, in writing on the quality of steers, divides the term into two subdivisions — general quality, and quality of flesh, or condition. The former is indicated in a fat steer by a medium-sized, fine, clean-cut, breedy-featured head, bearing ears of moderate size and texture; short legs, with clean, fine bone; a fine, nicely tapering tail; fine hair; a pliable skin of medium thickness, and smooth, well-rounded outlines. On the quality and condition of the animal depends the quality of beef. “Conditions” meaning, in this case, the degree of fatness of a steer.

It should not be assumed that the best beef is found in the fattest beast. There are two principal reasons for fattening a steer — (a) so to

## BEEF AND WINTER LAMB RAISING

fill the beast inside and out with fat that when dressed there will be but a small percentage of waste. In other words, a fat animal is one, in Professor Mumford's opinion, that will dress a higher percentage than a half fat or thin one; and further, in the fat animal the proportion of those parts which from their very nature are unsalable is reduced to the minimum. (b) That the flesh or lean meat shall be rendered more tender, juicy, and of better flavor by the disposition of fat throughout its substance.

The methods used in growing and fattening beef influence the quality of the flesh, although there is a quality of flesh peculiar to the individual quite independent of outside influence. Desirable quality in flesh is indicated by a firm, yet mellow and springy consistency of flesh at the crops, along the back, along the loins, and even on the sides, beneath the gentle pressure of the outstretched hand. The best quality of flesh is indicated in the fat steers by the absence of ties and rolls, or patches of gaudy, flabby fat. Fulness at the base of the tongue; fulness or a roll of fat in front of point of shoulder; a full

## THE PRACTICAL COUNTRY GENTLEMAN

twist; a large mellow cod; a low, full, thick flank that stands out and rolls visibly as the animal walks; fulness and smoothness at rump and tail-head, indicate that degree of fatness which is essential to the highest quality in beef.

The labor of caring for beef cattle is small compared with the work required for a herd of milch cattle. A building suitable for wintering steers will cost little, as a plain shed-roof structure with folding doors on the south side, provided with plenty of windows, will suffice. The floor may be either of vitrified brick or cement. In building such a floor, first dig out the soil to the depth of two feet, then fill in with cinders within a foot of the surface, dampen and tamp well. Over this place a layer of tarred paper with the joints well lapped. The concrete floor or bricks may then be laid with the assurance that the floor will never be damp. Provide running water and plenty of straw for bedding.

The demand for lamb in midwinter is growing rapidly and has already outstripped the supply. It is generally admitted that the Dorset-Horns are the best breed for winter lambs. In

## BEEF AND WINTER LAMB RAISING

their native home, Dorsetshire, England, this breed has been so long under the moulding hand of its shepherds, that it has lost its natural instinct of lambing on grass, and now the lambs come in the late fall or early winter. In bringing the Dorset to this country we have changed the conditions entirely, and we must in some measure supply surroundings like those to which it has been accustomed. These conditions, Mr. J. E. Wing tells us exactly how to reach :

“ Let us start from what we might call a basis of comparison. In Dorsetshire the rain is usually coupled with the ewes during June and July, but in this climate that any large and uniform success in breeding Dorsets as late as June and July will result, I think improbable. The natural time of mating is fall, October and November, cool months. So if we want them to breed in spring we should select cool periods. This seems a simple thing, yet like many simple things, is overlooked. When I started with Dorsets we were told they would breed any time of the year; also that June was the month to mate them for fall lambs. I tried them in June, but with partial success only. This experience convinced me that while Dorsets will, in isolated cases, breed at any time of year, ‘ any time ’ must be a time when conditions are right. I was now on the true track and realized that for spring

## THE PRACTICAL COUNTRY GENTLEMAN

breeding we must select a time as near like the natural period of fall as possible, and have the ewes as near like their natural fall condition as possible. To meet these desired conditions I suggest the observance of the following:

“ 1. Have the ram with ewes not earlier than the middle of March, not later than middle of May.

“ 2. Put the ram with the ewes nights, not days.

“ 3. Use young ram, and feed him well while in service.

“ 4. Do not have ram too fat.

“ 5. Do not have ewes too thin.

“ 6. If ewes were not shorn in fall, shear as early as you dare.

“ 7. Feed ewes green food, such as ensilage, turnips, carrots, mangels, etc., with some corn.”

Of course if the ewes lambed the previous fall and are dry, it is not necessary to feed in that way until a few weeks before you put the ram with them. But be sure to feed them well at that time. Do not forget that the natural tendency of the ewes is to put on flesh in the fall and to lose it in the spring. This we must reverse as much as possible by feeding, and the extra feed should be “green as grass.”

## CHAPTER VI

### FEEDS AND FEEDING

THE RIGHT BASIS FOR FOOD TABLES — A FEW VERY SIMPLE DIRECTIONS REGARDING THE FEED FOR VARIOUS KINDS OF LIVESTOCK.

**I**T should, of course, be the aim of every owner of a country place to raise, as far as possible, all food consumed by the live-stock on the farm. If his farm is located in the oat belt or north of the northern half of Pennsylvania, all feed should be grown on the place except cottonseed or gluten meal, wheat, and bran.

Home-grown foods are divided into two groups; those raised for winter feed and those raised in the way of soiling crops for summer feed. The former class includes grasses, corn, oats, peas, barley, and roots. To the latter class belong clover, field and sweet corn, oats

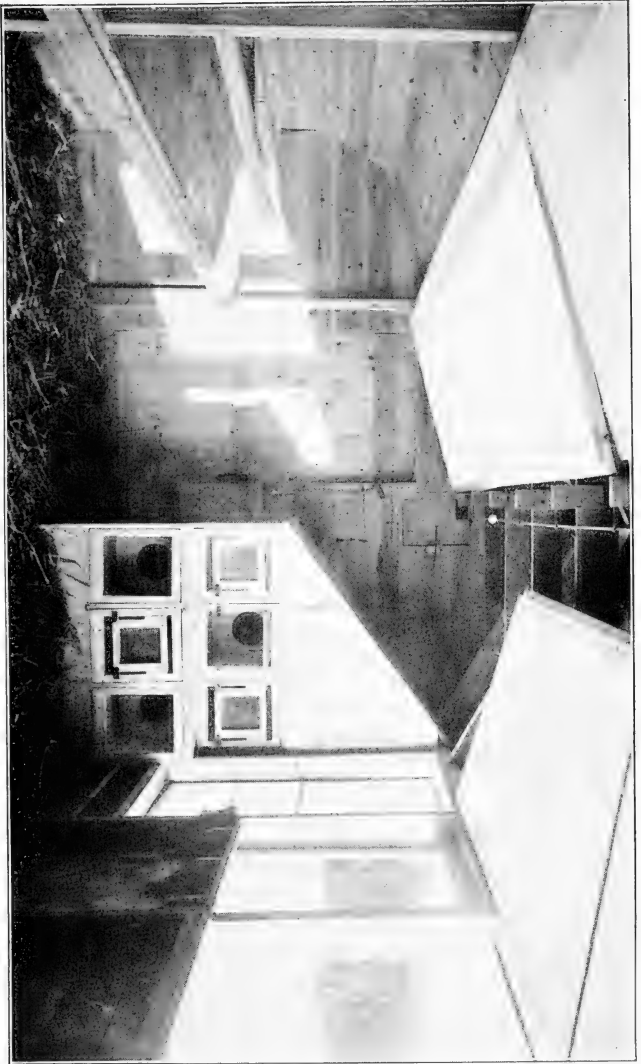
## THE PRACTICAL COUNTRY GENTLEMAN

and peas, rye, barley and peas, alfalfa, cow-peas, soy beans, and millet. The soiling crops are cut green and fed either in the barn or in racks in a feed lot. There are other kinds of forage plants, but the ones cited are those most commonly in use.

As the food requirement of animals depends largely upon the work demanded of them, each species must be considered separately. Thus work horses require muscle-making rather than carbonaceous foods, especially from the beginning of spring work until the crops are harvested. Therefore a food ration of ten quarts of oats, one of cracked corn, ten pounds of mixed hay, and six quarts of bran in the form of a warm mash on Saturday night, will keep them in good condition. In winter, unless there is much work on hand, corn fodder run through a cutter, with six or seven ears of corn, can be fed in the morning. At noon two quarts of oats and one of bran are sufficient and at night hay and corn on the ear can be fed again.

No formula, however, for feeding should be taken as inviolable, as animals vary almost as





INTERIOR OF MAINE EXPERIMENT STATION POULTRY HOUSE



## FEEDS AND FEEDING

much as human beings in their physical needs, and a change of diet is as grateful to a horse as to a man. Half a cup of molasses mixed with the oats and bran, or a change from mixed hay to oat and pea hay makes a good variety occasionally. Horses should be watered before feeding as the water passes directly through the stomach and small intestines to the cæcum (one of the large intestines). Hay should not be fed at noon if horses are working, unless ample time is allowed them to rest and digest the food.

There are innumerable books on cattle-feeding; but a few simple rules will suffice for the man willing to give some thought to the subject. Cows, of course, in their natural wild state merely gave sufficient milk to nourish their calves until they learned to eat grass, when the mothers remained dry until the following spring. Man, by care and scientific feeding, has so developed bossy's capacity of milk-giving that she now sustains the flow until within a few weeks of calving again. This has been done by supplying food whose chemical constituents are found in the cow's milk. Food is defined as any ma-

## THE PRACTICAL COUNTRY GENTLEMAN

terial which, on being digested and assimilated, is capable of forming or repairing tissues and yielding energy; and as it must supply all needs of the body, it usually contains all classes of nutrients. Each nutrient has certain distinct functions. The principal nutrients to which the feeder should give especial attention are protein, carbohydrates, and fat.

Protein is a flesh-former, an energy-maker, a repairer of wear and tear; and from it are formed flesh, tendons, cartilage, and the nitrogenous part of milk. Its primary function is tissue-building, and without protein no hair, flesh, nor milk can be made. A cow giving fifteen pounds of milk per day gives therein one-half pound of protein; it is apparent, then, that protein, more than any other one thing, governs the milk.

Carbohydrates and fat are so similar they may be considered together. They are the main supply of fuel which maintains bodily heat; they also produce energy used in muscular motion. But an excess of carbohydrates or fat will tend to overproduce fat in any animal so fed.

## FEEDS AND FEEDING

“These nutrients,” says Brooks, “when digested, serve to protect the more costly protein from over-consumption by the vital processes, and are probably a main source of material for the manufacture of milk fat.” In order, then, that the food shall meet the proper requirements it must contain the three nutrients in such proportion as will best meet the special object in view. It has been decided, after innumerable experiments by the best authorities, that for the most economical production of milk and butter-fat, a ration in the proportion of 1:5.4 should be fed. Translating these figures into words, and quoting Brooks, we find that “a nutritive ratio designates the relation which exists between the total nitrogen-containing constituents of a food (crude protein) and the total digestible non-nitrogenous constituents. The statement that the nutritive ratio of a given food or combination of feeds is 1:5.4 means simply that it contains five times as great a quantity of digestible carbohydrates and fat as of digestible protein.”

I fear this knowledge would be of little practical use to the average man of business unfa-

## THE PRACTICAL COUNTRY GENTLEMAN

miliar with chemical laws, were it not that our agricultural colleges supply us with bulletins containing "convenience tables," which may be had for the asking, and which give the pounds of dry matter and digestible ingredients in varying weights of fodders and feeds. Armed with this information and the Wolf standard of daily nutrients required for milch cows weighing 1000 pounds (also obtainable through the State agricultural colleges), it is a simple matter to figure the proper ration from crops grown on the farm.

To illustrate the use of these "convenience tables": Suppose a farm produces corn, oats, and grasses, and the owner wishes to make a balanced feed from them for his cows, with the addition of a small quantity of concentrated milk feed. Part of the corn crop he would cut green and turn into silage, the balance would be allowed to ripen and be ground into corn meal and cracked corn. The oats, for the cows, would be ground also. But the first steps toward making up a ration are more or less guesswork, and it is impossible to tell without trying different food combinations, just whether or not

## FEEDS AND FEEDING

they will produce a ration of 1:5 or 1:6. It is best, therefore, to experiment a bit on paper until one finds a combination that will approximate the standard as nearly as possible.

The Wolf standard of feeding states that a cow giving between twenty-two and twenty-five pounds of milk per day requires 25 pounds of dry matter, 2.6 pounds of protein, and 15.12 pounds of carbohydrates and fat together. Here it is well to remind the reader that the ratio of foods is not expressed in the terms of the relative weights of different constituents used, but in terms of the relative quantities of energy yielded by them. Thus protein and carbohydrates are about equal, weight for weight, in energy-yielding power; but the average fat of feeds yields about two and one-fourth times as much energy as an equal weight of average carbohydrates. So as the nutritive ratio of a ration is the ratio of the energy of its digestible protein to the energy of its digestible non-protein, it is equal to the ratio of the weight of digestible protein to the weight of digestible carbohydrates, plus  $2\frac{1}{4}$  times the

## THE PRACTICAL COUNTRY GENTLEMAN

weight of digestible fat. (In some "convenience tables" this is added to the fat, and the total added to the carbohydrates.)

With these few facts clearly in mind, a start can be made, using the form given below for convenience:

Feed	Pounds	Dry Matter	Protein	Fat and Carbohy- drates
Corn silage . . . . .	35	9.2	.42	6.2
Clover rowen hay . . . . .	10	9.2	.85	4.2
Oats, ground . . . . .	3	2.7	.28	1.7
<i>Total</i> . . . . .	48	21.1	1.55	12.1
Standard . . . . .	..	25.0	2.6	15.12

As such a ration is lacking in all necessary elements, we must proceed to try different feeds, carefully noting in figuring up the totals what elements are lacking, until we end with a ration about as follows:

Feed	Pounds	Dry Matter	Protein	Fat and Carbohy- drates
Corn silage . . . . .	35	9.2	.42	6.2
Clover rowen hay . . . . .	12½	11.5	1.07	5.2
Oats, ground . . . . .	3	2.7	.28	1.7
Cotton seed . . . . .	2½	2.3	1.00	1.0
Corn meal . . . . .	2	1.7	.13	1.4
<i>Total</i> . . . . .	55	27.4	2.90	15.5



## FEEDS AND FEEDING

Dividing the carbohydrates and fat by the total protein, we have 1:5.3, which is near enough to the standard for all practical purposes. Such a ration, of course, is intended for winter; for summer one composed of green foods can be figured up in the same way.

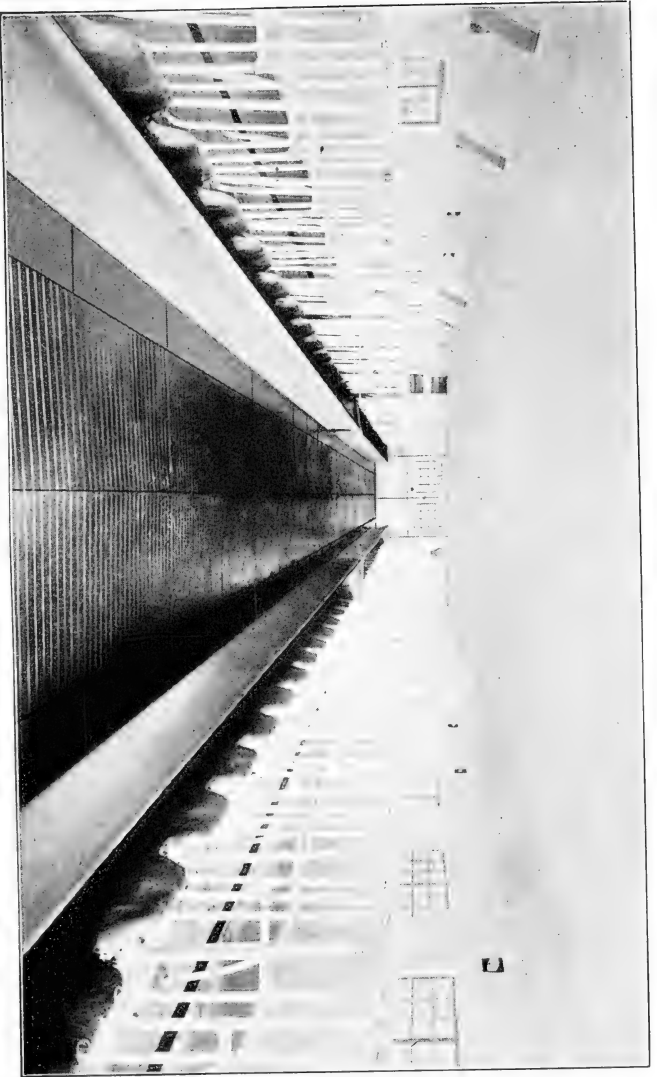
In feeding cows in summer (from May until November) it is not only more economical, but a better flow of milk is kept up, if green food is carried to them, and only enough exercise is permitted to keep them in good health. For this purpose a lot one hundred feet square is ample for ten cows.

The following plan was found satisfactory in a dairy of eight cows on a small farm. The cows were turned out at night from May 15 to Oct. 1 in a yard one hundred feet square, with an open shed for shelter from rain and with running water. At 6 A. M. the cows were taken into the stable, which was kept in a semi-dark state, and with window screens to keep out flies; they were cleaned, fed, and milked, and left to rest until noon, when they were watered and fed again, then left in peace until evening, when

## THE PRACTICAL COUNTRY GENTLEMAN

after milking they were turned out for the night. All raising and handling of green fodder was done as follows: The first crop was fall-sown rye; when this was in head, cutting began with a one-horse mower, which cut a two days' supply. This was brought to the barn in a light one-horse wagon and the mower, covered with canvas, was left in the field. Thus there was one day's ration always ahead and ready to feed. As soon as a strip of rye a few rods wide was cut, the land was immediately ploughed and planted to sweet corn drilled in twelve inches apart, and the soil was carefully cultivated to force the crops ahead as rapidly as possible. Clover planted in the previous September filled in the gap between the rye and the oats and the peas, which were planted in April and May and cut in June and July. By the time the last of the latter were cut, the sweet corn was ready, and with successive plantings lasted until frost.

The feeding of swine requires more judgment than the average man supposes; and the particular object in view — whether it be bacon, ham, or pork-raising — should never be lost



INTERIOR OF COW STABLE AT BROOKSIDE FARM



## FEEDS AND FEEDING

sight of. For instance, the raiser of bacon hogs should never feed corn meal in large quantities, but use barley, peas, and oats, shorts and skimmed milk. Legumes, such as clover, alfalfa, or rape, together with a judicious mixture of the cereals mentioned will give the best results in producing bacon of the finest quality. On the proper feeding of brood-sows will depend the success or failure of this particular department. Ventilation, sunshine, thorough cleanliness, and wholesome food are the foundation stones on which to build. "In feeding breeding-sows," says a well-known authority, "the aim must be to supply the nutrients needed for maintenance of growth, and such additional food as may be required for the pigs *in utero* or nursing, as the case may be. Good pasture (clover, alfalfa, or blue grass) is the cheapest food and furnishes the elements most needed to build a strong, bony framework and a well developed muscular system." Where alfalfa is not grown in the Northern States, Canadian field peas together with June grass will form the chief pasture feed. Sows should be allowed

## THE PRACTICAL COUNTRY GENTLEMAN

the run of the pasture as long as the weather permits. If the sows are to produce only one litter a year they should come in in March or the first of April. When two litters are raised the second litter should arrive in September. Sows should be in good physical condition, though not fat, when bred, and the young are carried from 112 to 116 days. In feeding sows that are to produce only one litter a year all the best breeders see to it that the pigs are weaned by the first of August. The mothers then need nothing except good pasture and plenty of pure water until October, when some corn (about two pounds per head) is given to increase the weight. After the sows are bred again they are returned to pasture and fed from three to four pounds of a mixture made up of equal parts corn and oats, until December; then the feed is changed to ground corn 2 parts, ground oats 2 parts, and bran 1 part. These rations are mixed and fed in the proportion of five or six pounds per animal. They may be fed dry or mixed with skimmed milk until a stiff slop is made. In addition to the grain in

## FEEDS AND FEEDING

the winter, good clover, alfalfa, or pea hay should be given. As sows carrying young are liable to constipation, which leads to a feverish condition at the time of parturition, great care should be used to regulate the bowels by feeding more bulky food, such as clover hay or, preferably, more wheat bran.

When the little pigs arrive, the mother should be watched carefully that she does not lie on them accidentally. No food should be given her until twenty-four hours after the pigs are born, but plenty of lukewarm water to drink. The second day a light feed made up of 1 part ground corn, 1 part ground oats, 2 parts shorts should be given mixed with skimmed milk in the proportion of 4 pounds of milk to 1 of grain. This feed should be gradually increased until by the end of ten days the sow receives all the mixture she will eat, and the milk should always be sweet. The following grain ration taken from Bailey's "Cyclopædia of American Agriculture," may, if desired, be substituted for the one given above: In Northern States barley 2, peas 1, shorts 1

## THE PRACTICAL COUNTRY GENTLEMAN

part; barley 3, peas 1 part; barley 1, oats 1, and shorts 1 part. In Southern States, corn 3, cowpeas 2 parts; corn 2, cowpeas 1 part mixed with skimmed milk; corn 3, soy beans 1 part; corn 5, and tankage 1 part.

Poultry-feeding, on our large commercial plants, has been reduced to a science, and the dry-feed method has been generally adopted with success. Fowls, in their natural state, lived on weeds, seeds, grass, and insects. In their domesticated condition these food elements are supplied by grains, cut clover, alfalfa, and beets. The dry feeder aims to supply all these elements and in addition others that will enable the fowls to store up a surplus of those elements which go toward making eggs. The foods which are chiefly used are corn meal, bran, middlings, gluten meal, linseed meal, and beef scraps. These are mixed dry in the following proportions: wheat bran 200 pounds, corn meal 100 pounds, middlings 100 pounds, gluten meal 100 pounds, linseed meal 100 pounds, and beef scraps 100 pounds. A feed hopper of sufficient size to keep twenty-five fowls supplied for at



## FEEDS AND FEEDING

least three days should be made and hung on the wall of each pen and filled with the above mixture. There should also be supplied a smaller hopper filled with ground oyster shells, grit, and coarsely ground charcoal. In the early morning each pen of twenty-five birds should be fed one quart of screened whole corn scattered on the litter, and this litter should be at least 6 or 7 inches deep on the floor. At ten o'clock one quart of half-and-half oats and wheat is fed; and that is all that is given during the day, as the fowls feed themselves from the hopper. In winter 16 ounces of clover hay cut into half-inch lengths is added to each pen of twenty-five (fed in slatted boxes).

For little chicks nothing better than "chick-feed," composed of finely broken grain seeds, has been discovered. This in addition to plenty of pure water, ground charcoal, and grit will be all that is necessary. The feed should be scattered in a litter of chopped straw or hay, in small quantities (a handful for 50 chicks), about five times a day for the first three or four weeks and then three times will be enough.

## THE PRACTICAL COUNTRY GENTLEMAN

After the little chicks are a month old, small hoppers should be provided with the following mixture and kept before them constantly: 2 parts wheat bran, 2 parts corn meal, 1 part sifted beef scraps and  $\frac{1}{2}$  part linseed meal. This of course should be thoroughly mixed before putting in the hopper, and the hard grain need only be fed night and morning after the hopper-feeding begins. It is well for the poultry-raiser to keep in mind that plenty of exercise, warm sleeping quarters, cleanliness, and a watchful eye are the essential requirements for a full egg-basket during the winter months.

## CHAPTER VII

### CROPS, FERTILIZERS, HOW TO USE THEM AND THE WOODLOT

THE PROPER PREPARATION OF MANURE ONE OF THE MOST IMPORTANT ELEMENTS IN SUCCESSFUL FARMING — VARIOUS KINDS OF FERTILIZERS AND HOW THEY SHOULD BE APPLIED — ROTATION IN CROPS AS IT HAS BECOME SCIENTIFICALLY DEMONSTRATED — CORN STILL REMAINS A MOST IMPORTANT CROP AND DIFFICULT TO DEAL WITH.

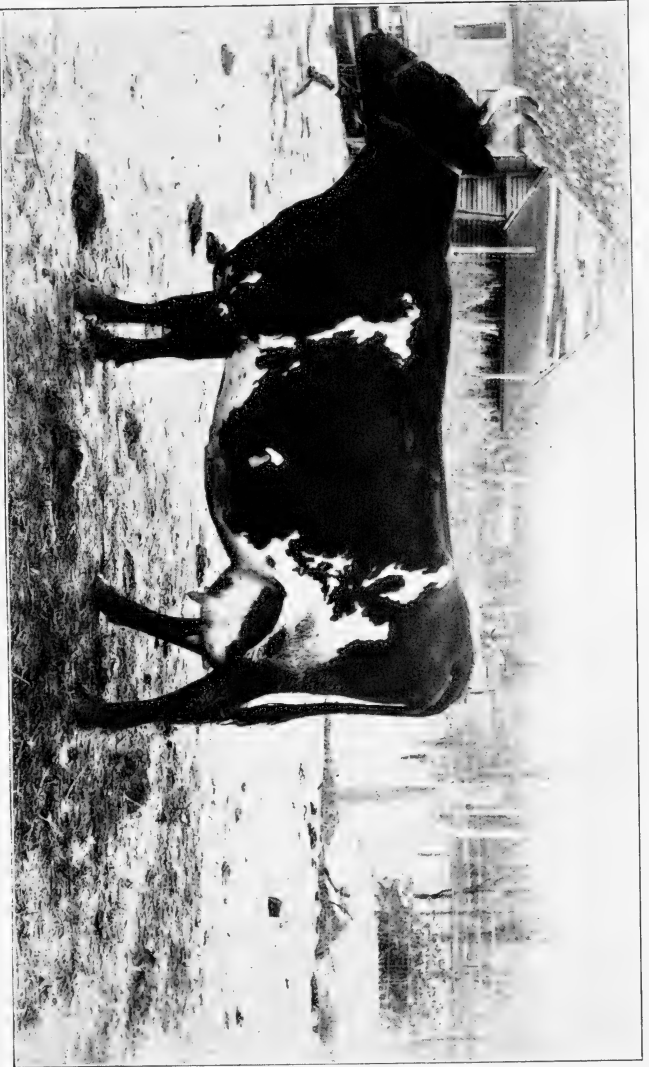
**T**HE day has passed when we may expect to raise large crops without the use of fertilizers. Drought may be overcome by irrigation, and to a certain extent by the use of dust mulch; insects and fungus diseases may be prevented by spraying, but without an abundant supply of plant food failure will result, even

## THE PRACTICAL COUNTRY GENTLEMAN

though all other demands of the growing crops have been attended to.

To take up the whole subject of fertilizers and their use in detail would require many chapters; it is well, therefore, to confine oneself to a few general rules, which will sufficiently cover most instances. There are three principal elements of plant food which are, as a rule, lacking in soils, in available form — nitrogen, phosphoric acid, and potash. In well rotted barnyard manure will be found all these elements so necessary to the growth of plants; and such humus composed of both horse and cow manure, well mixed, containing liquids as well as solids, is better than any commercial fertilizers that can be purchased; for in addition to its plant food constituents the humus added by the bedding and the undigested food are of great value to the soil in helping to open it up, and so allowing the air and warmth to penetrate it.

Unfortunately the supply of barnyard manure is generally limited, so we have either to resort to horse manure from the city stables,



ACELISTA, AYRSHIRE, WITH AN OFFICIAL RECORD FOR FIVE CONSECUTIVE YEARS OF  
52,000 POUNDS OF MILK AND 2,137 POUNDS OF BUTTER  
(Owned by Mr. C. M. Winslow, Brandon, Vt.)



## CROPS AND FERTILIZERS

which is usually sold by the carload, or commercial fertilizers. The former, if properly fermented, in addition to small quantities of fertilizers, is a very satisfactory substitute for barnyard manure.

The first essential, then, is the proper handling and storing of the manure. The dung of domestic animals contains one-third of the total nitrogen (the most expensive plant food we have to purchase), one-fifth of the total potash, and nearly all the phosphoric acid voided by the animal. Its constituents are not soluble, and consequently not immediately available as the food of plants. The urine contains about two-thirds of the total nitrogen, one-fifth of the total potash, and but a small quantity of the phosphoric acid voided. The necessity, then, of preserving all the urine is at once apparent; and the best way to do this in the horse stable is to provide plenty of short straw cut in two-inch lengths by means of a cutter, and to keep the gutters filled with dry earth sprinkled with land plaster. Of course this would apply only to the farm stable. The manure in

## THE PRACTICAL COUNTRY GENTLEMAN

the cow stable should be carried out frequently, at least three times daily, and thrown into a manure pit or carried directly to the fields. The manure pit should have concrete sides and a watertight bottom; the walls may be eight feet, four feet above ground and four below. Into this should run the drain from the coach stable. One end of the pit should be left open the width of a farm wagon with a concrete incline leading to the bottom, so that a wagon may be backed into it. No roof is needed; indeed it is better for the rain to fall on the manure, as it aids in keeping it moist. The finer the manure the more quickly it becomes available and the easier it is to handle with the manure spreader.

The proper rotation of crops is an important factor in the successful management of an estate. "The term 'crop rotation,' " says Professor Brooks, "is used to designate the system whereby different crops are made to succeed each other in a certain, regular or definite order."

The reasons for rotating crops are, that different crops consume different elements in vary-



## CROPS AND FERTILIZERS

ing proportions, and no two crops have the same capacity for extracting different food elements from the same soil. It is advantageous, then, to follow a crop that requires, for example, a large amount of potash by one that requires but little of that particular constituent. Again, deep-rooted plants should be followed by shallow-rooted ones. Then there are the nitrogen-gathering crops (legumes) that have the ability to gather all the nitrogen they need from the air; there are crops that have to take their supply of nitrogen from the soil; and finally, there are certain crops subject to attack from parasitic fungi and insect pests; and as the fungus and the insect that grow in and live off one plant are powerless to thrive on others, they can be held in check by the planting of different crops in the same field in rotation.

Where dairying is prominent, and where potatoes are a profitable crop, an excellent rotation would be: Potatoes, followed by corn for two years (the first year for a matured crop, and second year for silage); then grass and clover for three years. This is a six-course ro-

## THE PRACTICAL COUNTRY GENTLEMAN

tation; and under this plan one-half the ground would be annually in grass. The potatoes are raised largely on fertilizers, as barnyard manure has a tendency to make them scaly, particularly if applied in the spring. The barnyard manure is applied to the corn crops; and the grass and clover are sown in the standing corn at the time of the last cultivation.

While the principle of crop rotation applies to all farms, yet every owner of a country place must be prepared to a large extent to meet conditions not found perhaps on any other place. Possibly he will not wish to go in for dairying, but rather to have a few cows and sheep, and raise a fine colt or two. In that case more oats, grass, and corn will be needed, and only a small area will be devoted to potatoes. In any event it will be found that the general rules of deep-rooted crops followed by shallow-rooted ones, and cultivated crops by uncultivated ones, will always prove applicable.

How much fertilizer to use on a given crop depends in a large measure on the money value of the crop. For example, if an acre of oats

## CROPS AND FERTILIZERS

produces fifty bushels of oats and one and one-half tons of straw, the gross profit with oats at fifty cents and straw at ten dollars would be forty dollars. Allowing eighteen dollars as the cost of the crop harvested, we would have a net profit of twenty-two dollars. On such a crop no man would think of spending more than five dollars for fertilizer. On the other hand, on an acre of strawberries fetching three hundred dollars or four hundred dollars gross, he could well afford to spend fifty dollars or even more for fertilizer.

The thought of mixing one's own fertilizer seems to the uninitiated a Herculean task. It is, however, a simple matter and well worth doing, as it saves expense and assures better results; for by simply ordering the different ingredients of a fertilizer formula one can be quite sure of getting just the right proportions of each constituent.

Different fruits, vegetables, and grains require, of course, different proportions of the three principal elements of plant food. For example, corn requires more phosphoric acid

## THE PRACTICAL COUNTRY GENTLEMAN

than potatoes; while peas and beans require no nitrogen fertilizer, as they have the ability to gather nitrogen from the air.

The following fertilizer mixtures compiled by Brooks will be found to give excellent results in most cases. Amounts given are for one acre.

For wheat, sown in September or early October, 600 lb. drilled in at the time of seeding:

	Pounds in 100 of the mixture
Fine-ground bone . . . . .	45
Acid phosphate . . . . .	10
South Carolina rock phosphate . . . . .	20
High-grade sulphate of potash . . . . .	25

When the grain begins to start in spring, broadcast 150 lb. nitrate of soda.

For oats, barley (sown in spring) when grain starts, broadcast 150 lb. nitrate of soda.

For corn use the barnyard manure at rate of 10 tons, and supplement with 600 lb. of —

	Pounds in 100 of the mixture
Fine-ground bone . . . . .	30
Nitrate of soda . . . . .	20
Acid phosphate . . . . .	30
High-grade sulphate of potash . . . . .	20

Or, if no barnyard manure is to be had, use 800 to 1000 lb. of —

## CROPS AND FERTILIZERS

	Pounds in 100 of the mixture
Nitrate of soda . . . . .	10
Dried blood . . . . .	10
Tankage or dry-ground fish . . . . .	20
Acid phosphate . . . . .	30
High-grade sulphate of potash . . . . .	30

For oats and peas when planted together as a soiling crop, broadcast 250 lb. of above mixture at the time of sowing.

For mangel-wurzels, sugar beets, carrots, and parsnips, when ten tons of barnyard manure are used apply 600 lb. of —

	Pounds in 100 of the mixture
Nitrate of soda . . . . .	15
Dried blood . . . . .	15
Tankage or dry-ground fish . . . . .	25
Acid phosphate . . . . .	20
High-grade sulphate of potash . . . . .	25

When no manure is used increase to 1200 lb.

For potatoes and onions 1400 lb. of —

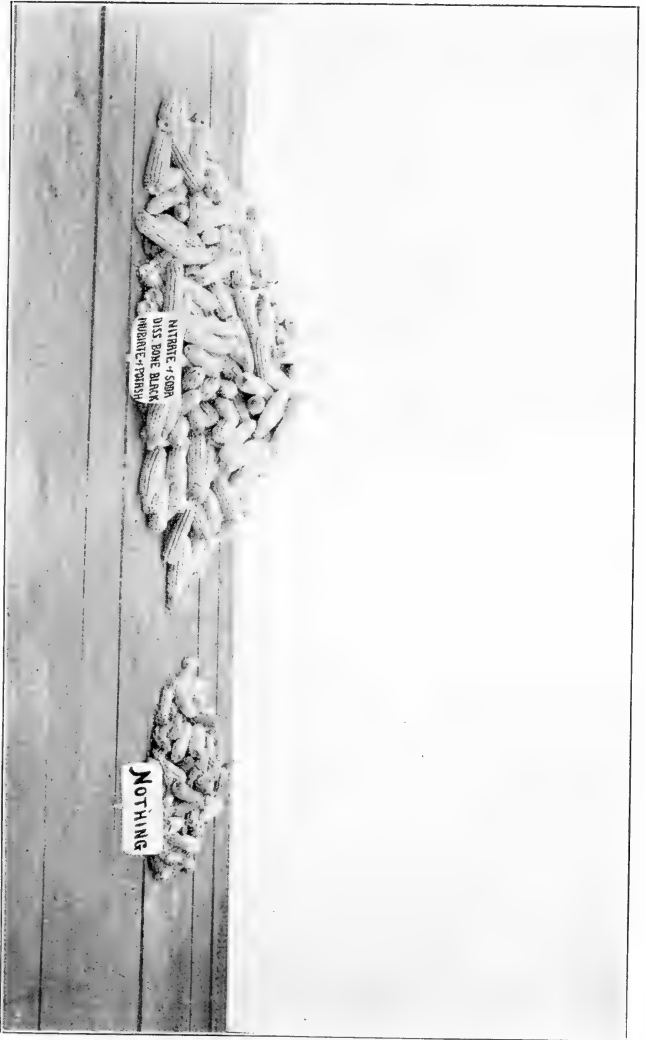
	Pounds in 100 of the mixture
Nitrate of soda . . . . .	15
Dried blood . . . . .	18
Tankage or dry-ground fish . . . . .	20
Acid phosphate . . . . .	30
High-grade sulphate of potash . . . . .	17-100

To any one desiring further information on this subject, the State agricultural colleges and

## THE PRACTICAL COUNTRY GENTLEMAN

experiment stations are always ready to send without charge information on all subjects pertaining to agriculture, horticulture, floriculture, etc.

The question of what crops to raise, will in a large measure depend upon what department of the farm is to be the money-maker. If the dairy is to be developed, then, corn, grasses, and forage crops, oats, peas, rye, sweet corn, and clover will be the principal crops. If a general farm is to be developed, which is, in many respects, the most interesting for those who wish the greatest enjoyment from their estates, then the tillable land may be divided about evenly. The following rotation from three Eastern States will serve to show how such a system is maintained: Cornell University Farm — four-course rotation for dairying, cows pastured, clay loam. First year, corn cut for silage. Second year, oats. Third year, wheat and timothy and clover sown. Fourth year, meadow cut twice. Massachusetts — five-course, soil medium loam, good; 1, corn manured for grain; 2, corn manured, cut for silage, grass and



COMPARATIVE CORN CROPS, EACH TAKEN FROM ONE-TWENTYFIFTH PART OF AN ACRE,  
THE NINETEENTH YEAR OF THE EXPERIMENT  
(From Massachusetts Agricultural Experiment Station)





## CROPS AND FERTILIZERS

clover sown in corn; 3, grass and clover mown twice; 4, grass and clover sometimes fertilized and mown twice; 5, grass and clover usually fertilized and mown twice. Connecticut — 1, corn manured, cut for silage and rye sown in fall for cover crop and ploughed under; 2, corn cut for silage and rye sown in fall; 3, rye and seeded to timothy and clover; 4, timothy and clover mown and retained as long as possible.

None of these rotations provide for soiling crops; but to add clover, winter rye, oats and peas, and sweet corn would be a very simple matter.

While proper planting of crops is of the utmost importance, the actual work is not very complicated with the modern machinery now on the market.

If possible use riding tools for they save not only time, but labor. The first spring crops to be planted as soon as the ground has been prepared will be potatoes, oats, and peas. No crops will succeed unless the soil has been made mellow and fine by ploughing and harrowing. Potatoes are, as a rule, cut to one eye and

## THE PRACTICAL COUNTRY GENTLEMAN

planted by machinery built for that purpose, at the rate of ten bushels per acre, the fertilizer being distributed at the same time. As soon as the green shoots appear it is well to begin cultivating and to keep it up until the leaves meet across the rows. Level culture is best until the time comes for cultivation to cease, when a winged-plough may be run through the rows throwing up the soil around the plants. Blight and insects can be controlled by spraying with Bordeaux mixture at least five times; and starting when the plants are five or six inches high, add Paris green for insects. Bordeaux mixture is made by dissolving four pounds copper sulphate in hot water or by suspending it in a sack in a tub of cold water for two or three hours. Slake four pounds of caustic lime in another vessel, adding water slowly that it may be thoroughly slaked, then add enough water to make five to ten gallons. When both are cool, pour the lime into the copper solution, straining it through a fine meshed sieve or burlap strainer, and thoroughly mix. Before using, add enough to make fifty gallons of the mixture and

## CROPS AND FERTILIZERS

strain again when poured into the spray pump. While copper solution will retain its strength indefinitely, still the lime mixture is never as good as within an hour or two of the time it is made. For insects add one pound of Paris green to a hundred gallons of Bordeaux mixture. The harvesting of a potato crop is done by a machine which digs, sorts, and throws the potatoes to one side.

Oats and peas are used to supply green food to cows, and are planted at the rate of one and one-half bushels of Canadian field peas to one and one-half bushels oats. Spread on the fertilizer, plough, harrow with a spring tooth or disk harrow, broadcast the peas, then harrow again with a spiked-tooth harrow. In three or four days broadcast the oats and harrow them in.

The root crop will come next on the planting list. Carrots and mangel-wurzels will in all probability be the only roots planted in the field. The former are excellent for horses, while mangel-wurzels will prove invaluable for winter feeding in the dairy where there is no silo.

## THE PRACTICAL COUNTRY GENTLEMAN

Both carrots and mangels thrive in a deep, mellow loam, and the field where they are to be planted should be ploughed deeply, thoroughly harrowed and cross-harrowed first with the disk and then with the smoothing harrow. Heavy applications of farmyard manure are advisable, otherwise it is well to use the full amount of commercial fertilizer, as stated above.

A hand seed-drill will do the planting quickly and accurately, and four to six pounds of seed will be required. The seeds are planted in rows thirty inches apart; when the seedlings are well started with two leaves, run a wheel hoe across the rows, leaving four or five plants every twelve inches apart, which will save a great deal of hand-thinning. In about ten days thin to one plant to every twelve inches and keep the ground free from weeds by constant cultivation. The same directions apply to carrots, except that the rows are usually eighteen inches apart, and all the work is done with hand cultivators and hoes. The seedlings should be thinned to three or four inches apart in the rows.

Corn is a semi-tropical plant, and should not



POTATOES WHICH RECEIVED LIBERAL APPLICATIONS YEARLY  
OF MATERIALS FURNISHING NITROGEN AND PHOSPHORIC  
ACID AND POTASH

(Massachusetts Agricultural Experiment Station)



## CROPS AND FERTILIZERS

be planted until settled warm weather. Farm-yard manure makes the best fertilizer and should be spread in a ratio of about ten tons to the acre, in addition to commercial fertilizer, drilled in with the seed. If the corn is to be planted on sod land, plough in fall and leave in ridges until spring, then disk and harrow both ways.

If the land is level and the crop is planted for grain, the planting may be done with a two-row planter using the checking attachment, which drops the seed so regularly that it may be cultivated both ways. If the land is hilly or rough, or the crop is to be used for silage, then the checker should not be used; the same machine will, however, plant in drills, dropping the fertilizer at the same time. The secret of a large corn harvest is good seed and constant cultivation, with the two-row cultivator, until the stalks have grown too high for the machine to straddle the rows; then the small horse cultivator should be used. The field should be gone over every week or ten days and after every rain until the stalks have grown large enough to meet across the rows, which should be three

## THE PRACTICAL COUNTRY GENTLEMAN

feet apart each way if the corn has been checked. If drilled in, the seed should be dropped about eighteen inches apart in the rows. At the last cultivation, between July 20 and Aug. 5, the field may be gone over with a spike-tooth cultivator and the grass and clover seed for next season's crop may be sown in the corn intended for the silo. This method has been tried very successfully by Professor Brooks of the Massachusetts State Agricultural College. Writing of it he says:

“The quantity of the seed used should be rather larger than may be required when it is sown alone, as a part of it fails to reach the ground, being caught and retained by the broad leaves of the corn. Dog-day weather should be selected for sowing the seed, and if it can be scattered upon the freshly cultivated surface just before one of the heavy showers which occur so frequently during these days, the seed will need no covering and will often have germinated within forty-eight hours from the time of sowing. The shade of the corn crop is favorable to the retention of moisture, and on all except the driest soils there will be moisture enough to keep the young plants going. The corn protects from the sun, but does not crowd. It is not likely to lodge and stifle the young grass, as a crop



## CROPS AND FERTILIZERS

of small grain so often does. . . . It is best that the corn be cut low; and the field should be rolled the following spring as soon as it becomes sufficiently firm not to be cut up by the horses. In event of the seeding being done in the above manner a top dressing in the spring of 150 pounds of nitrate of soda per acre should be used, applied after the grass has started to grow.”

In closing, it may be well to remind those who are interested in the subject of fertilizers that clover planted in the late summer and ploughed under in the spring will to a large extent supply all the nitrogen necessary for the succeeding crops, and also save the purchase of high-priced nitrates. Also, that there are very few acres of tillable land in the East that are not in need of an application of lime every five or ten years, applied at the rate of from a ton to a ton and a half per acre in the fall or very early spring. Lime does many things besides correcting acidity in the soil. It promotes decomposition of humus, sod, stubble, etc.; it is an essential element in the majority of our crops; it renders the potash of the soil more available; it prevents the soluble phosphoric acid applied

## THE PRACTICAL COUNTRY GENTLEMAN

in the fertilizers from satisfying its hunger for a base by combining with iron or alum, which is undesirable because phosphates of iron and alumina are very soluble; and in addition to these things its mechanical effects on the soil are numerous and beneficial.

The cheapest way to start a wood lot, especially of either white pine or chestnut, is from seed. M. Knechtel, Forester of the New York State Forest, Fish, and Game Commission, offers some valuable suggestions which farmers should be able to turn to good account.

Chestnuts for seed should be gathered in the fall as soon as they drop from the trees. Spread them out in a thin layer on the floor where the sun will be on them the greater part of the day. Leave them there for a week or ten days, then pack them in a barrel or box in moist sand, three bushels of sand to one bushel of nuts. Keep them until spring in a cool dry place; then as soon as the ground thaws out, plant them where they are to remain. Take a grub hoe and hack up the soil in spots about five feet apart each way. Put two nuts in each spot an

## CROPS AND FERTILIZERS

inch and a half deep, with their smaller ends upward.

It is a good plan to start a small nursery at the same time, to provide trees to take the places of those destroyed by mice and squirrels, or which fail to grow. A nursery is made and cared for in about the same manner as a vegetable garden. The seeds are put in drills a foot apart, four inches apart in the row and one inch deep. The seedlings that remain in the nursery more than a year should be transplanted, in the spring of the second year, into rows two feet apart and one foot apart in the row. It is most important to keep the roots from drying while transplanting, also to cut the strong tap roots. Oak, walnut, and hickory are all started in a nursery in the same manner.

To raise white pine from seed, go to the woods early in September and gather a basket of pine cones from the trees. Take these to a dry room and spread them out on the floor. In a few days the scales will open; then shake out the seeds or pound out with a flail, rub them through a sieve and put them through a

## THE PRACTICAL COUNTRY GENTLEMAN

fanning mill to clean them. Store like chestnuts until spring.

Start your seeds in a nursery. Make a bed of sandy loam, four by twelve feet. Put on two inches of black muck or other rich soil and two pailfuls of fresh wood ashes and work this thoroughly into the soil. Make a box around the bed of boards eight inches wide, set on edge; five inches should project above the bed, and in this projecting part bore some holes for the air to pass through. Rake the top of the bed until the soil is very fine, and then put it through a sieve. If the weather is dry, water the bed thoroughly; sow the seed so that the grains will lie about a quarter-inch apart. Then firm the surface with a board or back of the spade and cover with sufficient sand to put the seed out of sight.

The next step is to stretch some wire cloth with a half-inch mesh over a frame that will just fit the box. Put this over the bed to keep out the birds. Also provide yourself with a lath screen made to fit the box, with the laths the width of a lath apart. Put this on the bed



POTATOES WHICH RECEIVED LIBERAL APPLICATIONS YEARLY  
OF MATERIALS FURNISHING NITROGEN AND PHOSPHORIC  
ACID, BUT NO POTASH

(Massachusetts Agricultural Experiment Station)



## CROPS AND FERTILIZERS

to provide shade. Lay extra lath into the spaces in the screen so as to make the bed dark. In about three weeks the seed will germinate; and as soon as the seedlings show above the ground, remove the extra lath. Of course, on cloudy days the lath screen is not needed. When snow comes, turn the wire screen upside-down and fill it with leaves to keep the plants from heaving. Lay the lath screens on them to hold the leaves down. Don't forget to keep the nursery free from weeds.

After two years in the seed bed the seedlings should be transplanted into another nursery bed prepared like the seed bed. Do this in the spring, and be sure that the roots do not become dry during the operation. Now, get a board four feet long and four inches wide. Cut nicks along one edge at every four inches. Stretch a string along one side of the transplant bed, and lay the board across one end of the bed, with the nicks toward the centre, and one end of it touching the string. Get upon the board and tramp on it from one end to the other to firm the soil beneath it. Now take a trowel

## THE PRACTICAL COUNTRY GENTLEMAN

and dig away the soil along the edge that has the nicks, making a trench deep enough to set the plants a trifle lower than they stood in the seed bed. Then place a good plant at every nick and fill in the trench. Move the board over the transplanted row, bring it up close to the trees, but be careful not to bark the plants. Set another row, and go on with the operation till all the trees are transplanted. Put more muck and ashes on your vacant seed bed and sow it again. Keep out the weeds.

When the trees are three years old, take them up with a spade, puddle the roots, pack them into a basket lined with wet moss or bur-lap, and take them to the field where the wood lot is to be started. The planting field may be far from the nursery, and it may be necessary to take to the field, at once, more plants than can be set in a few hours. In such case, when the trees arrive at the field, take them from the baskets, dip the roots in water, and "heel them in"; that is, dig a trench, set the trees along it in a thin row, tops up, fill in the trench, covering



## CROPS AND FERTILIZERS

the roots and about half the steps, and tramp down the soil.

Plant from a pail containing soft mud. Set the trees five feet apart each way. Make the holes with a grub hoe. Dig deep enough to allow the trees to stand a trifle lower than in the transplant bed, and wide enough to allow plenty of room for the roots. In setting the plants, put the loose loam next to the roots. If you have a sod, place it around the tree with the grassy side down for a mulch. Now tramp the soil thoroughly around the tree. For two or three years replace dead trees with live ones from the nursery.

## CHAPTER VIII

### DIRECTIONS AS TO TOOLS

A LONG LIST THAT LOOKS VERY FORMIDABLE IN SIZE AND PRICE, BUT IS THOROUGHLY PRACTICAL AND USEFUL — EXACTLY WHAT THESE TOOLS ARE USED FOR, AND HOW THEY SHOULD BE CARED FOR.

**W**HEN a man from town becomes the lord of a manor, the first step he takes, as a rule, is to fill his tool house with every conceivable kind of farm machinery regardless of expense and of the use to which it is to be put; or else he goes to the other extreme and fails to provide even sufficient machinery to carry on the work in hand.

In this day of high-priced labor the aim of every manufacturer is to do as much work as possible by machinery; and as farming is, in

## DIRECTIONS AS TO TOOLS

a broad sense, also a manufacturing business, the owner of a country estate should adopt similar methods. It should be borne in mind, however, that farm tools cost money, and indiscriminate buying will soon swell the investment account to such an extent that it precludes the possibility of making satisfactory returns. For example, a portable gasoline engine (three horsepower) costs one hundred and seventy-five dollars. Against this machine must be charged annually, as interest on the investment, ten dollars and fifty cents, also ten per cent for wear and tear and at least five dollars for repairs. So we have twenty-eight dollars as a fixed annual charge. Should, then, such an engine be run only four days during the year, saving the labor of six men at one dollar per day for that length of time, its fixed charge would more than eat up the amount saved by its use.

Every farm department should have a full complement of tools, but they should be practical and essential to the working of the land. The following list will be found necessary for any farm of thirty or more acres:

## THE PRACTICAL COUNTRY GENTLEMAN

Reversible sulky plough, with wheel and jointer . . . . .	\$50.00
Disk harrow, fourteen 16-inch disks . . . . .	28.00
Acme harrow . . . . .	18.00
Riding cultivator, two-row . . . . .	70.00
Manure spreader . . . . .	118.00
Grain drill . . . . .	80.00
Roller, two-horse, 7 ft. . . . .	30.00
Corn planter, two-row . . . . .	48.00
Field mower, one-horse, 4-ft. cutter bar . . . . .	44.00
Weeder . . . . .	12.00
Hay tedder . . . . .	40.00
Hay rake, 22 teeth . . . . .	26.00
Fodder shredder, 4 knives . . . . .	40.00
Silage cutter and blower . . . . .	85.00
Wagon, 2-horse . . . . .	74.00
Light spring wagon, 1-horse . . . . .	50.00
Power saw, with table . . . . .	40.00
Portable gasolene engine, 3 horsepower . . . . .	175.00
Potato planter . . . . .	83.00
Potato digger . . . . .	115.00
Field sprayer, 4-row . . . . .	65.00
Orchard spray pump . . . . .	50.00
Reaper and binder . . . . .	125.00
Corn harvester . . . . .	125.00
Hand hill and drill seeder, with all attachments . . . . .	14.00
Wheelbarrow . . . . .	5.00
One set farm harness . . . . .	35.00
Corn sheller . . . . .	11.00
Farm grist mill . . . . .	25.00
Axes (2) . . . . .	2.00
Grindstone . . . . .	6.00
Manure forks (4) . . . . .	4.00
Hay forks (2) . . . . .	2.00
Hoes (3) . . . . .	1.50
Wagon jack . . . . .	1.50
One ladder, 30 feet . . . . .	8.75
Two fruit-picking stepladders, 10 ft. . . . .	6.00
Mattock . . . . .	1.35
Pickaxes (2) . . . . .	2.00
Hay rakes (2) . . . . .	.70
Scythe handles (2) . . . . .	2.00
Scythe blades (4) . . . . .	3.60
Scythe stones (4) . . . . .	.40
Pruning saw . . . . .	.70

## DIRECTIONS AS TO TOOLS

*(Carried forward from p. 118.)*

Pruning shears . . . . .	\$3.00
Bushel baskets (4) . . . . .	5.60
Shovels (3) . . . . .	3.00
Anvil and vise . . . . .	8.00
Barn pails, blankets, brushes, whips, etc. . . . .	20.00
Saws, hammer, wire nails, brace, box of bits . . . . .	12.00
	\$1775.10
<i>Total</i> . . . . .	

This list looks rather formidable, but it covers everything. There are one or two implements that might perhaps be dispensed with if but little grain were to be raised, namely, the grain drill and the reaper and binder.

It will be noted that all the tools, except the one-row cultivator, are riding tools, which not only save labor but temper — for there is no more trying work on a farm than walking after a plough all day. If beets are to be sown in large quantities it will pay to invest in a four-row planter.

The plough is known to every one, but unfortunately its proper use is not so familiar. There are two essential points necessary to good ploughing — an even draft and a level plough. A broad curving mouldboard which rolls the soil over like small waves does the best work in

## THE PRACTICAL COUNTRY GENTLEMAN

a medium loam. The plough should always be kept clean and bright.

The disk harrow cuts the old sod up without bringing it to the surface, and when followed by the "acme" or spike-tooth harrow, leaves the soil fine and mellow. The cultivator keeps the ground free from weeds, and should be in constant use during the growing season. The two-row cultivator may be used on the asparagus bed as well as for corn and beets.

The manure spreader is one of the best of our modern tools, for in addition to being a labor-saver it assures an even distribution of manure, which is most important.

The grain drill plants the grain, distributes fertilizer and grass seed, and covers, all in one operation. It is invaluable where rye and large quantities of oats are raised.

The roller follows the grain drill and assures a smooth ground surface. If the weather is dry at seeding time, the use of the roller to firm the soil will often prove a great help, assuring a good stand of grain, which otherwise would suffer severely from lack of moisture. Care



"IN MEASURING THE FLOW OF LARGE STREAMS A WEIR GAGE BOARD IS USED"



"AN EASY WAY OF MEASURING THE FLOW OF WATER IS TO DAM UP THE STREAM"





## DIRECTIONS AS TO TOOLS

should be taken not to use a roller where the soil is well supplied with moisture, lest the ground become hard and baked.

The corn planter is simple to operate by one who is willing to use care and common-sense in handling it; but no machine which accomplishes several things at once can be handled properly unless the operator has some knowledge of mechanics.

A one-horse mower has been chosen for the list, as on a farm of thirty or forty acres where only two work horses are used, haying can be done more expeditiously where one horse does the mowing, while the other does the tedding and raking. Of course, if more horses are used, a two-horse mower with a seven-foot cutter bar would be in order if the land is level and free from stones.

The weeder is always used within a few days of the planting of seeds. Its mission is to prevent little weeds from starting; and this it does by stirring the soil gently, just enough to kill the weeds, but not deep enough to injure the crop.

## THE PRACTICAL COUNTRY GENTLEMAN

The hay tedder and rake need no introduction, as they are old and tried friends.

The fodder shredder will prove most useful where corn is grown for grain and also for those not using silage. In fact, it works well where corn is grown for both purposes; for thin shredded cornstalks may be fed to horses or may be used as bedding, and excellent bedding it makes. The machine is run by power, and very great care should be taken when working around it when it is in use, as with the keen blades revolving at a high speed a finger may be as easily clipped off as a cornstalk.

The silage cutter cuts green corn into short lengths for silage; it is much like the shredder, as both have blowers or conveyors attached, which blow or convey the stalks to the mow or silo.

Gasolene engines have become very reliable and are simple to run. If they are to be used in a barn or building near the house, the gasolene should always be kept in a galvanized iron vessel outside and away from the buildings on account of fire, and should be piped in to the

## DIRECTIONS AS TO TOOLS

engine. In this way they are safe and ready for use at a moment's notice.

The power saw would be needed only on an estate where there was much timber to be cut for firewood.

The potato planter and the potato digger are expensive tools; unless at least two acres of tubers are raised, it will not pay to buy the former; and a cheaper digger would answer the purpose for a hundred or two hundred bushels. A man and a boy can easily drop the fertilizers and seed potatoes, and cover an acre in a day. The planter requires a man and a boy to operate it, one driving and the other watching the feeder. The digger requires four horses on heavy soil, and three on medium loam. On all large machines where the vibration is severe, care should be taken to keep the nuts tightened; for the loss of a nut when a machine is in use will cause great inconvenience and endless loss of time.

The field spray can be made to do double duty. It will spray four rows of potatoes or strawberries, or it can be altered for use in the

## THE PRACTICAL COUNTRY GENTLEMAN

orchard. In fact, for small orchards it will answer the purpose very well. The proper manipulation of a power sprayer requires the user to familiarize himself thoroughly with the directions sent out by the manufacturers with each sprayer; and when the spraying season is over, the machine should be taken apart, and every part washed in kerosene and then wiped with a piece of waste soaked in crude oil, and put away for the winter.

One of the most complex bits of machinery on the list is the reaper and binder. But when we stop to consider the rapidity with which it works — cuts the grain, gathers it into a compact bundle and ties it with twine into a sheaf about every ninety seconds, it seems as simple a machine as human skill and ingenuity could devise. No one, however, should be allowed to run one of these machines until he is familiar with every part and with its relation to every other part. As an example of the loss of time resulting from ignorant use of a binder, a farmer friend of the writer's became sud-



Courtesy of International Harvester Co. of America

PUMPING JACK BELTED TO 3-HORSEPOWER GASOLENE ENGINE



## DIRECTIONS AS TO TOOLS

denly ill during harvesting time, and was obliged to put another man in his place. The latter assured him he was perfectly conversant with the running of a reaper and binder, and started to mow a ten-acre crop. After an hour's work he was seen to stop and fuss over the machine as though trying to discover the cause of some trouble. He continued to search for a time and finally returned to the barn to report a mishap. The owner, on examining the machine, saw at once that the dog-spring (which pulls the dog into gear) had become loose and so prevented the machine from working. By the time everything was in running order several hours of valuable time had been wasted.

The corn harvester cuts and binds corn into small bundles and throws it to one side. No one can afford to dispense with this implement; the writer has found it most useful even where only a few acres of corn are grown.

The hand hill and drill seeder, with its many attachments, is intended for the garden, but

## THE PRACTICAL COUNTRY GENTLEMAN

where a small area of beets, carrots, beans, etc., is raised, all planting may be done with this little tool.

The smaller hand tools are familiar to all country dwellers who have gardens, and need no explanation.

The grist mill run by power will prove useful for grinding oats, corn, buckwheat, etc. It is easy to operate and simply constructed. In the autumn all these implements should be carefully gone over, put in order for next year, all broken parts and lost nuts replaced, etc., and thoroughly cleaned and oiled before being stored for the winter.



## CHAPTER IX

### WAYS IN WHICH FARM PRODUCTS MAY BE MARKETED

THE ABSOLUTELY PAYING CLEANNESS AND ATTRACTIVENESS THAT SHOULD SURROUND HIS WARES — THE PROPER PACKING OF FRUIT AND VEGETABLES — HINTS ON SOIL TREATMENT — REPUTATION AS NECESSARY IN FARMING AS IN ANY OTHER PURSUIT — WHERE THE MARKETS ARE, AND SOME NICETIES OF SHIPMENT — ALL CROPS, AND HOW THEY MAY BE SOLD.

**F**ARMERS in the United States lose thousands of dollars annually in marketing their crops, and the loss is due to the careless shipment of inferior goods, to poor packing, and lastly to ignorance as to the market values of the day. The writer has seen many instances of this kind, and recalls in particular the ex-

## THE PRACTICAL COUNTRY GENTLEMAN

periences of a neighboring farmer who raised strawberries which were large and of an especially fine flavor, but who persisted in refusing to keep his beds well mulched, and to buy new crates each season. The result of course was that his fruit was sandy, his boxes discolored, and consequently his fruit was graded as second-class instead of first. Another farmer could never resist the temptation to put a few specked apples in his barrels. The commission house to which he shipped the fruit, having cautioned him several times to no purpose, ended by giving him only two dollars and fifty cents a barrel when properly picked and packed apples were fetching four dollars a barrel.

Establish a reputation, and you can demand your own price. In New York, on Fifth Avenue, perfect Oregon apples sell for twenty cents each (or about fifteen dollars a bushel) in winter, whereas the average farmer has to content himself with three dollars a barrel ( $2\frac{1}{2}$  bushels). The former are large, juicy, and perfect in shape; the latter, though of good flavor, are small and specked.

## MARKETING FARM PRODUCTS

The first step, then, toward marketing fine crops is to raise them with care, and this can only be accomplished by the use of plenty of fertilizer, by selecting the best seed, and by constant cultivation until harvest time.

The potato crop requires very careful management if a fair profit is to be made. The early crop which is ready to market in June fetches the best price, especially if the grower has been sufficiently on the alert to have it ready for market before the other fellow. It is sold either in barrels or sacks; and if one has a large area, some arrangement can be made with a club or a hotel to take the entire crop, and the shipper to send five, six, or seven barrels a week, as the purchaser may desire. The potato ground is then planted to sweet corn, buckwheat, millet, or any rapidly maturing crop.

Winter potatoes are often grown at a loss, and a crop of at least two hundred bushels must be raised to net even the smallest profit. It is, however, just as easy to raise four hundred bushels as two hundred. It is merely a matter of cultivation and care. Holding potatoes in

## THE PRACTICAL COUNTRY GENTLEMAN

storage until midwinter or early spring involves considerable risk and some expense, and there is no certainty that the price will advance. When the extra labor of sorting and carting to the place of storage is taken into account, it is in the long run usually wiser to take a little less in the field when they are harvested.

Grain is comparatively easy to handle after it has been thrashed and cleaned. In New England, corn, rye, oats, and buckwheat will cover the list of cereals raised.

Hay-raising for market is a business in itself, and few owners of country estates have the spare land to devote to it. That it can be made to pay a handsome profit is unquestioned. Mr. Clark of Higganum, Conn., who has a wide reputation as a raiser of tremendous crops of grass, counts on cutting about five tons to the acre; and as hay sells at twenty dollars a ton, baled, his profit is excellent.

Fruit of all kinds is in ever-increasing demand, and fine fruits command fancy prices. The most successful fruit-growers pack their apples in boxes holding a bushel each. These are easy



Courtesy of Messrs. Lord & Burnham Co.

TOMATOES, STRAWBERRIES, AND CUCUMBERS IN  
MID-WINTER



## MARKETING FARM PRODUCTS

to handle, and apples keep better in small quantities. The best apples are wrapped in tissue paper with the name of the shipper printed on it. In building up a market in fancy fruits, hotels, clubs, and restaurants pay the best prices and will take shipments regularly. Private customers pay well but not always promptly.

The secret of success in raising perfect fruit is to keep the trees vigorous and healthy by fertilizing, cultivating, and spraying. The orchard should be kept well cultivated from spring until the middle of July, when clover is sown for a cover crop at the rate of six to twelve pounds of red, or eight to sixteen pounds of crimson per acre. To provide vegetable matter and to improve the physical quality of the soil, barnyard manure should be applied once in four years, in the fall, at the rate of from five to ten tons per acre. To aid in the decomposition of vegetable matter, and to insure a sufficiency of lime as plant food, lime should be applied at the rate of twenty-five bushels per acre once in five years. To provide in addition an abundance of all forms of available plant food at

## THE PRACTICAL COUNTRY GENTLEMAN

the time needed for development of tree and fruit, chemical fertilizer should be used annually in the following proportion :

Nitrate of soda . . . . .	100 pounds
South Carolina rock superphosphate . . . . .	100 pounds
Ground bone . . . . .	200 pounds
Muriate of potash . . . . .	200 pounds
	<hr/>
Per acre . . . . .	600 pounds

The trees should be sprayed several times a year to prevent the ravages of insect pests and fungus diseases. The different formulas for spraying solutions may be had from the dealers in spraying machines or from the State experiment stations on request. The work should be done very thoroughly, for on it depends the financial success of the orchard. Do not give ear to any one who says it is unnecessary to spray and till an orchard, for there is no other possible way of obtaining fine fruit.

Fruit such as apples, pears, peaches, plums, and quinces should be picked by hand, never shaken off or dropped into a basket or barrel. The stems should be left on when picked and fruit placed gently in the shipping box or barrel,



## MARKETING FARM PRODUCTS

then firmly packed to prevent movement in transit, and care should be taken not to bruise the fruit in covering the package. Pickers should be careful never to press their fingers against peaches, plums, or tender fruit, as it discolors them and mars their beauty. Fruit, if picked early in the morning, may be packed at once, but otherwise should be left in the shade until the following day.

A packing house will be found convenient where a large quantity of fruit is grown for fancy trade; or packing tables may be carried to the orchard. For small fruits a packing shed is indispensable.

Strawberries are a very profitable crop when properly handled. J. W. Adams writes that he has picked at the rate of 10,600 quarts to the acre of Crescents. Allowing a net profit of five cents per quart, we have a total profit of five hundred and thirty dollars per acre. This is certainly worth the labor. The soil for such a crop should be made mellow and rich by the use of manure, fertilizer, and much cultivating. J. A. Hale, the veteran fruit-grower of Con-

## THE PRACTICAL COUNTRY GENTLEMAN

necticut, gives the following advice on the preparation of a strawberry bed: "A well-rotted clover sod that has been deeply ploughed or spaded, with the addition of subsoiling (a subsoil plough is made to break up the subsoil, and follows in the wake of the ordinary plough) if it has a stiff bottom. After ploughing, a heavy top dressing of well-rotted stable manure, supplemented with some form of muriate or sulphate, or say 3000 pounds of fine-ground raw bone, 500 pounds of muriate of potash, and 200 pounds each of tankage and nitrate of soda per acre, all evenly broadcast, followed by a thorough pulverization of the soil by harrowing and reharrowing about four times as much as the average ploughman will think he ought to." The plants may be set two feet apart in rows which are four feet apart. In the late winter the beds are mulched with straw which is left around the plants until after the fruiting season, when it is removed. Keep the cultivator going in order to allow no weeds to start. After the fruiting season encourage five or six vigorous runners to start from each plant



EXPERIMENT SHOWING THE NECESSITY OF LIME IN SOIL, ESPECIALLY FOR CLOVER  
(From Massachusetts Agricultural Experiment Station)



## MARKETING FARM PRODUCTS

and when they are ready to take root spot them (either with a small notched peg or a stone so that the wind cannot move them) eight inches apart each way. Keep the rows free from weeds and the soil loose and mellow. By the middle of July or the first of August the runners may be cut off from the parent plant and transplanted to a new bed where they will fruit the next year if cared for. In lifting out young plants be sure to take plenty of earth with them so as not to disturb the roots.

It is customary to hire a gang of pickers to harvest small fruits and they should be instructed to pick strawberries with the stems on and to fill the boxes full to prevent jolting. The bed should be picked over every day during the fruiting season, and the early morning is the best time to do the work. A word or two from successful marketmen on this very important topic may not come amiss. R. D. McGeehan, of Iowa, says:

“In wet weather pick every day; in fair, every other day. Keep three grades, each by itself. First hunt up persons willing to pay a

## THE PRACTICAL COUNTRY GENTLEMAN

fancy price for a fancy article — and they are to be found, lots of them. Sell the seconds to grocers or fruit stands, and the third sell at home for what you can get, or use yourself, or feed to the hogs. Take to a cool airy cellar as soon as picked and always ship in the evening, if possible, as the fruit will travel during the night.”

W. C. Wilson, of Illinois, says:

“Be as honest as you can. Do not allow pickers to put any trashy, rotten, or green berries in the box. To avoid this I find it is absolutely necessary to have a superintendent in the patch and directly among the pickers. Use clean new boxes.”

Raspberries, blackberries, currants, and gooseberries need the same care, and one who is going in for fruit raising will do well to buy one or two reliable books on the subject before starting in. Vegetables of all kinds should be washed and packed in wicker hampers for shipment. A friend of the writer is having great success in shipping daily hampers to customers in New York. These hampers contain a one-

## MARKETING FARM PRODUCTS

day's supply of vegetables of all kinds, fruits, and broilers. The consignee pays for transportation, and the shipment is made in the late afternoon. The owner — a woman, by the way — attends to all the packing; and a basket ready to send would bring delight to any epicure.

Insect pests must be fought at every step. In your vegetable garden look out for the asparagus beetles; they appear in April and May, and are red, with black stripes. Spray with Paris green — 25 lb. Paris green to 50 gallons water, to which add 4 lb. quick lime for each pound of Paris green. Keep the asparagus cut, and spray after the cutting season.

Peas are subject to attacks from aphids, mildew, and pea weevil. If necessary, spray with Bordeaux mixture. This may be bought, or made thus: Copper sulphate (blue vitriol), 5 lb.; quick lime (best stone lime), 5 lb.; water, 50 gal. Dissolve the copper sulphate by suspending in a bag and immersing near the surface of about 6 gallons of water. Slake the lime, using only enough water to keep it cov-

## THE PRACTICAL COUNTRY GENTLEMAN

ered, and before mixing the materials, dilute each to 20 gallons; a finer-grained combination results than when lime and copper sulphate meet without dilution. If receptacles are not at hand for holding both the materials in dilution, the lime should be diluted to full amount in the tank, and the copper sulphate poured into this, as this makes a better mixture than if the operation be reversed. This method of mixing is one given by the New York State Department of Agriculture, and can be depended on.

It is further advised, however, that when the ingredients are thoroughly mixed, one should take a cupful and into it pour a few drops of a ten per cent solution of yellow prussiate of potash; if the effect is a reddish or brown coloring, more lime should be added.

Potatoes are the prey of the Colorado beetle and the flea beetle. For the former, add a little Paris green to the Bordeaux mixture when spraying for blight. For the flea beetle use the same mixture, but more frequently — every two or three weeks.

The cutworms get in their work on the to-



## MARKETING FARM PRODUCTS

mato plants in May and June. The best remedy is that tried by the Oklahoma Experiment Station, consisting of mixing while dry 1 lb. of Paris green and 50 lb. of wheat bran; make moist, but not sloppy, by adding water in which a quart of cheap molasses has been dissolved. Place this mixture in spoonful piles where the worms are working.

In the fruit garden the currants and gooseberries will be subject to attack from the green currant worm, also plant lice and leaf blight in May and June. For the former use Paris green when the leaves are about half grown. If they appear when the fruit is half grown, use insect powder at the rate of a tablespoonful to a gallon of water in a spray. For plant lice use whale-oil soap, one-quarter pound to a gallon of water. Spray the leaves thoroughly, both upper and lower sides.

For leaf blight, spots on leaves, use a solution of ammoniacal copper carbonate, thus: Copper carbonate, 5 oz.; ammonia (26 deg. Beaume), 3 pts.; water, 45 gal. Make a paste of the copper carbonate with water. Dilute

## THE PRACTICAL COUNTRY GENTLEMAN

the ammonia with 7 volumes of water. Add the paste to the diluted ammonia, and stir until dissolved. Dilute to 45 gallons. Allow to settle, and use only the clear blue liquid. This mixture loses strength while standing.

Grapes are subject to attack from rose bugs in May. Spray with arsenate of lead. This mixture is made by dissolving six oz. of lead acetate (sugar of lead) in two quarts of warm water in a wooden pail, while two oz. of arsenate of soda (50 per cent pure) is dissolved in one quart of water in another wooden pail. Pour these into fifty gallons of water, and use.

In the strawberry patch, May sometimes brings the grub of the sawfly — a small green worm which eats holes in the leaves. Spray with arsenate of lead.

When we come to our orchards there is always something to be done in the way of spraying, trimming, and cultivating. San Jose scale is always with us; then there is the bud worm, for which we can use Paris green in Bordeaux mixture as the buds swell. The canker worm is best prevented by banding the trees with



EXAMPLE OF KIND OF STOCK TO BUY: TRIPLE INTEREST, JERSEY, DAUGHTER OF  
CELEBRATED COW, INTEREST, BELONGING TO A FAMILY OF REMARKABLE BUTTER-  
MAKERS

(Owned by Mr. William Rockefeller, Tarrytown, N. Y.)



## MARKETING FARM PRODUCTS

fly paper or some sticky material. Also spray with arsenate of lead. The leaf aphid yields to whale-oil soap.

The tent caterpillar arrives and weaves large nests in the best apple tree, and proceeds to eat all the leaves it can. Spray with arsenate of lead; also burn all the nests. Look out for rust, yellow spots on leaves and fruit; spray with Bordeaux mixture.

Scab soon ruins the appearance of your fruit. For this, Bordeaux mixture should be used before blossoming, when the leaf buds are open, but before the flower buds expand. Repeat as soon as blossoms have fallen off, and through the season about every two or three weeks if there are any signs of scab. Cherry trees suffer from aphid, slug, curculio, black knot, brown rot, and leaf blight. Plums have the same enemies. Slugs appear in the latter part of May or the first of June. Arsenate of lead makes short work of them. Curculios make little moon-shaped scars on the fruit, and are very destructive. Use arsenate of lead before the blossoming, and twice after, at intervals of a week.

## THE PRACTICAL COUNTRY GENTLEMAN

Then shake the trees every morning after the fruit is set for about five weeks.

Black knot requires vigorous treatment; cut off the affected part several inches below the knot. Spray with Bordeaux before blossoming and after. Brown rot causes the fruit to turn brown, dry up, and hang on the trees. Spray early in the spring, before the leaf buds break, with copper sulphate solution. (Copper sulphate, one pound; water, 15 to 25 gallons.) Dissolve the copper sulphate in water. Never apply to foliage. Then before the blossoms open use Bordeaux mixture, and repeat when fruit has set. This all seems very troublesome, but the result will be fine fruit and long prices.

## CHAPTER X

### WINTER WORK WITHIN THE GLASS HOUSES

WHAT THESE BUILDINGS COST AND HOW THEY ARE BEST CONSTRUCTED — IRON, STEEL, AND THICK GLASS SHOULD BE EMPLOYED, DESPITE THEIR HIGHER FIRST COST — THE PROBLEMS OF TEMPERATURE, FERTILIZATION, AND WATERING, AND HOW THEY ARE TO BE MET — COAL COSTS AND THE PROPER BOILER INSTALLATION — FINALLY, THE ETERNAL WARFARE TO BE WAGED WITH INSECTS.

WITH the modern improvements in suburban transportation facilities, country-lovers are enabled to enjoy their estates until after the Thanksgiving feast, in fact many continue to try country life the whole year round with the exception of only a few weeks. It is

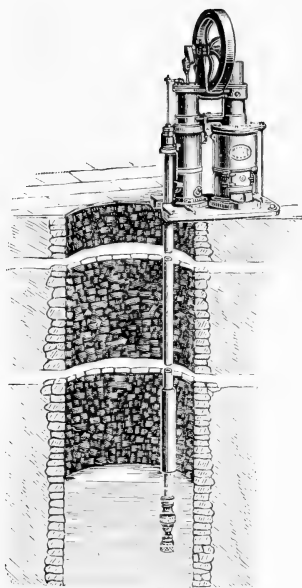
## THE PRACTICAL COUNTRY GENTLEMAN

to these that experiments in winter work under glass will most surely appeal.

There is a fascination in attempting new experiments, the more so if success means an added profit to the farm account. Many suppose the South has a monopoly of the winter vegetable market; but such is far from the case, for many of our well-to-do people in these progressive days prefer home-grown products and enjoy the sentiment attached to the forcing of a plant to the pink of perfection — in the very teeth of blizzards.

The growing of vegetables and fruits under glass for winter markets is one of the most difficult of all horticultural undertakings, but the rewards amply compensate the grower for all his tribulations. Even if one preferred to limit one's output to the needs of one's own table, the pleasure and interest he would find in the work would more than pay for the running of a small house. For, after all, what could be more delightful on a cold winter day than to step into a warm, sunny room filled, say, with the scent of tomatoes, or melons, or strawber-





Courtesy of Rider-Ericsson Engine Co.

DEEP-WELL PUMP WITH FURNACE FOR COAL.



## WINTER WORK IN GLASS HOUSES

ries, and the odor of clean, damp earth. Then the manual work, though constant, is not irksome. Enthusiasm must be the key-note, combined with a patient willingness to study and make use of the successes and failures of others.

One should begin in a modest way, for glass houses are expensive to build, demand constant repair, and are costly to run. The largest single item of outlay will be coal; and on this very vital point some light may be had from the experience of those who have been most successful. The following experiences were gathered by Professor Bailey of Cornell. One grower from Massachusetts writes that he uses eighteen tons of coal to run a house 20 by 100 feet, even span, ten feet high at the ridge, and that one man will care for two or three houses, if he be active and thorough, and keep them clean and in first-class order.

From New York State several of these growers send reports. One of them writes: "I am heating 500 lineal feet of rose house twenty feet wide and eleven feet high at a cost of three hundred and thirty-three dollars, or sixty-five

## THE PRACTICAL COUNTRY GENTLEMAN

cents a running foot (hot water system in small pipes used). For roses a good man should manage 400 feet of a house twenty feet wide."

Another man says: "I should estimate twelve tons of coal for a house 20 by 100 feet, and a man should handle eight thousand or ten thousand square feet of glass in roses."

Another writes: "I have about 15,000 square feet of glass in ten houses. I grow roses, carnations, violets, plants, etc. Four of my own family, including myself, work in the houses, and I usually keep one man besides. Outside my own family it costs me about two thousand dollars a year to run my place — for coal, help, repairs, water rent, taxes, bulbs, insurance, lumber for boxes, and all other incidentals."

From Pennsylvania we have the following: "One good man should give good results in two houses, 20 by 100 feet, with hot water, fifteen tons of egg hard coal."

New Jersey reports: "My rose house, 20 by 80 feet, consumes about nine or ten tons of coal yearly. Two houses, 20 by 100 feet, are

## WINTER WORK IN GLASS HOUSES

enough for one man in rose-growing, and he should have a boy to assist him in busy times."

So much, then, for running a good-sized house. The next question of interest to the beginner is the cost of construction, and this, in a large measure, will depend on the owner's pocketbook.

There are three general types of glass houses in use for the forcing of vegetables, strawberries, and flowers, and these are the even-span roof, the lean-to or shed roof, and the uneven or broken-span roof. The wider the house up to a certain point the easier it is to heat, but wide houses require extra strength in the rafters and uprights on account of the greater weight. Some growers have been very successful with single-span houses thirty feet wide.

For a beginner who does not wish to invest a large amount of money, a house twenty feet wide with an even-span roof will prove the most economical to build. But should he be willing to invest more at the start a shed-roof structure, 30 by 100 feet, will be found very satisfactory.

## THE PRACTICAL COUNTRY GENTLEMAN

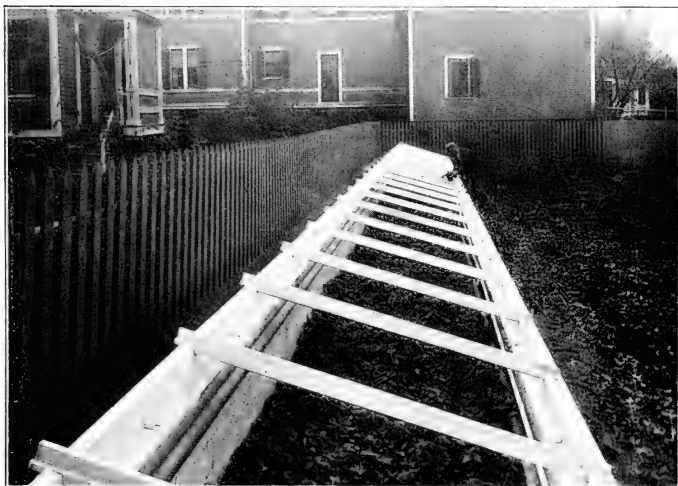
The best direction for the house to face will depend, in a large measure, upon the crop to be raised. The shed-roof house will naturally face the south, while for the even-span north and south will be the best exposure, as then both sides will receive an equal amount of sunlight during the day.

Modern glass houses are constructed almost entirely of steel, iron, and cement, tiles, or brick. Made in this way they last longer and require fewer repairs. Then, of course, the steel frame admits more light, and even all the benches and their appurtenances are made of iron piping with tile for the earth to rest on. For commercial purposes the semi-iron house will be found serviceable and somewhat less expensive than the combined steel and iron one. In the latter form iron is used at every point where cypress would be weak and subject to decay. The cost is a bit more than the all-wood, but when one considers the durability of all the iron parts, increased life of the wood parts, smaller amount of shade, absence of repairs, and saving in the cost of erection it is



Courtesy of Messrs. Lord & Burnham Co.

THREE-COMPARTMENT HOUSE IN WHICH VEGETABLES AND  
FLOWERS MAY BE GROWN UNDER THE ONE ROOF



Courtesy of Messrs. Lord & Burnham Co.

COLD FRAMES SUCH AS MAY PROVE OF USE IN CONNECTION  
WITH GLASS HOUSES





## WINTER WORK IN GLASS HOUSES

in the long run by far the cheaper and more satisfactory construction.

The glass should be "double thick." It will save its extra cost within a year or two in the lesser breakage, besides assuring a warmer house. The difference in price is about sixty cents more on a box (22 lights) of 14 by 14 double-thick light.

No matter how finely constructed a glass house may be, if the heating arrangements are not satisfactory only failure will result; for nothing could be more exasperating, for instance, than to have the temperature fall during the night in a house filled with ripening tomatoes, and in a few hours to have lost the work of weeks, and then to have to start all over again.

The writer much prefers the hot-water system of heating, although many have had good results with steam. The modern hot-water boiler comes conveniently in sections, and no tools are required to set it up save a monkey-wrench and a screw-driver. Moreover, if two or more boilers are required they may be placed

## THE PRACTICAL COUNTRY GENTLEMAN

beside each other and connected in one battery. In planning for the size of a boiler it is necessary to have it large enough, not only to supply the required temperature in zero weather, but in weather at least 10 degrees below zero, especially in the New England States. It will cost a bit more at the start, but the difference of a hundred dollars may mean the difference between success and failure.

Now, as to the cost of building — and that will depend in a large measure upon many things. The builder, for instance, may have all the work done by contract or may do part of it with his own men; or he may prefer an all-steel and iron house to a less expensive wooden or semi-iron structure. In fact, so many different conditions may enter into the plans that only a general idea as to cost can be given. A shed-roof house, 20 by 100 feet, could be built for about fifteen hundred dollars if the men on the place shared in the work, and this would include heating and benches. A small potting-shed with a boiler cellar would cost three hundred dollars extra, provided the excavating

## WINTER WORK IN GLASS HOUSES

were done by home labor. Before leaving the subject of construction, the sectional glass house should be mentioned. These houses are made by the Lord & Burnham Company, and come in sections of 8 feet 4 inches each, so that a beginner could start with, say, five sections and a work shed, and as his interest in the work grew another section or two could be added.

The variety of fruit, vegetables, and flowers that can be raised in a glass house will depend upon how many compartments there are. For example, lettuce, radishes, and cauliflower require a night temperature of  $55^{\circ}$ , while tomatoes, cucumbers, melons, and peppers require at least  $65^{\circ}$ ; thus they would have to be raised in compartments where the piping was quite different — a matter very easy to arrange, but also of great importance.

The soil for forcing-houses must needs be not only rich in available plant food, but mellow and of extra good quality. The ideal soil has a foundation of good garden loam mixed with sand and well-rotted manure. In short, the soil should be like the best garden

## THE PRACTICAL COUNTRY GENTLEMAN

soil, filled with humus and easily worked. Of course, where crops are grown on benches the soil must be changed annually and care should be taken to mix in the manure thoroughly; and it should be well-rotted manure, too. Forced crops need to be fertilized as they grow, for it is imperative that they should grow steadily and quickly if they are to have the tender and delicious taste an exacting market demands.

Professor Bailey recommends liquid manure as one of the best of fertilizers. He says:

“This is made from old unleached cow manure. A bushel of it is placed in a half-barrel or tub and the receptacle is filled with water. After standing two or three days, being stirred occasionally in the meantime, the liquid is ready for use. This must be reduced before it is applied to soil in which plants are growing, and the amount of reduction to give it can be determined only by experience. Ordinarily one quart of liquid made as here directed will be sufficient for a gallon of the diluted material; that is, one quart of the liquid water is added to three quarts of clear water.”

This liquid may be applied once or twice a week after the plants have set their fruit.



EXAMPLES OF THE KIND OF STOCK TO BUY: LARGE YORK-  
SHIRE SOW — CHESTER WHITE BOAR  
(Owned by Hart's Delight Farm, Chazy, N. Y.)



## WINTER WORK IN GLASS HOUSES

The watering of the crop requires keen judgment, for too much moisture will cause the fungi of damping-off to breed rapidly and to destroy the plant. It must be borne in mind that watering lowers the temperature of the soil and consequently heat-loving plants receive a serious check when watered with cold water. The best rule is to water early in the morning and to use water with the chill taken off. It is well to water thoroughly on sunny days and not on cloudy days unless the plants are really in need of water and suffering for it. It is for this reason tanks are often built in glass houses, for not only do they give out a certain amount of moisture, but the warm water may be used for watering the plants.

In connection with glass houses cold frames will always prove of use. The seeds may be started in them in the autumn and eventually transplanted to the house, saving bench room and thus leaving more room for plants. The sash for these frames is not expensive and may be had painted and ready for use for three and a half dollars each; six sashes 3 by 6 feet will be

## THE PRACTICAL COUNTRY GENTLEMAN

plenty, and the frame, if necessary, can be made on the place, of pine boards; the back should be sixteen inches high and the front eight inches. Painted properly they will last for several years. The most convenient way would be to make three 2-sash frames; and if this is done a sash bar must be run through the middle of the frame the long way of the sash.

The art of raising flowers, fruits, vegetables, etc., under glass can be acquired only by much reading and resulting experiments. It takes observation and patience to understand gradually the necessary care of hothouse products. Fortunately there are many books waiting to be read by the uninitiated, such, for instance, as Taft's on "Greenhouse Management," which is a capital treatise on the subject; and the "Forcing Book," by L. H. Bailey, is one that should be in every country gentleman's library.

The novice will do well to bear in mind that in forcing plants in winter he is trying to reverse nature's laws, and must, therefore, reproduce as nearly as possible the conditions in his



## WINTER WORK IN GLASS HOUSES

glass house which govern the growing of crops in the field and garden in summer. Plants require an abundance of pure air, and one of the most difficult things to learn will be just how much air is required, when to open the ventilators, and how to regulate the supply. Just a word as to insects. It is not too much to say that eternal vigilance is necessary here. These small pests appreciate the joys of warm and congenial surroundings, and will work as hard as the gardener to take their toll; it is only constant watching and care that can keep them in check. Tobacco stems, sulphur fumes, and a sharp eye are the weapons necessary for the conflict.

## CHAPTER XI

### THE CULTIVATION OF HIGH-PRICED SPECIALTIES

THE SIMPLE CONDITIONS UNDER WHICH CHICKENS MAY BE PROFITABLY RAISED FOR THE MARKET — THE METHODS BY WHICH THEY SHOULD BE REARED, FED, AND SHIPPED — SQUABS AND THEIR CARE — VARIOUS FORMS OF FOODS — BEES AND HONEY — TURKEYS ALWAYS EXACTING TO THE BREEDER — HOW TO KEEP THEM IN HEALTH AND HOW TO MARKET THEM — MUSHROOMS, WHILE SOMEWHAT DIFFICULT ALSO, AMPLY REPAY THE RAISER — GAME-PRESERVING AND ITS POSSIBILITIES.

**P**ERHAPS the most interesting and profitable use to which a portion of the farm or a country place can be put is the raising of specialties for the favored few who can indulge

## HIGH-PRICED SPECIALTIES

in such luxuries. There are several crops of this kind, for instance, broilers (in winter), roasters, squabs, turkey broilers, and mushrooms.

The capital required for these specialties will not be more than a few hundred dollars at the outside. The most expensive equipment will be for the pigeons, and for them a loft is often built over part of the fowl house.

We will take up the different kinds of birds and tell briefly how to raise and force them for a critical market.

Broilers should be plump, tender, and juicy when cooked. In order to meet these requirements they must be forced almost from the start; if properly handled they should be ready for market in ten weeks from the day they are hatched. The breeds most used for this purpose are the White Wyandottes, White Plymouth Rocks, and Rhode Island Reds. White-plumaged birds always look better when plucked for market; otherwise the colored varieties are just as good.

In order to produce broilers in winter and

## THE PRACTICAL COUNTRY GENTLEMAN

early spring, the eggs must be set as early in the autumn as possible, a time unfortunately when eggs are scarce and high in price, as the old hens are in the process of moulting. As soon as the chicks are old enough to be fed, they should be given small quantities of "chick food," which is scattered in the litter in the "sun parlor" part of the brooder, if it be of the outdoor type; or if a piped brooder-house has been built, a low board fence eight inches high should be set up around the entrance, leaving a space 2 by 3 feet for the youngsters to exercise in until they are three or four days old, when they may have the run of the entire pen. Outdoor brooders must be placed in a brooder-house during the winter; and the house should be provided with sufficient heat to keep the temperature about 40 degrees in zero weather.

Each pen must be supplied with a box of grit and charcoal and pure water. In order to force chicks along as rapidly as possible, they should have an abundance of fresh air and exercise. Clear away the snow directly in front of the brooder-house and make them run out for



Courtesy of Messrs. Lord & Burnham Co.

ORCHIDS AND BEANS IN BLOSSOM IN MID-WINTER

3

## HIGH-PRICED SPECIALTIES

a few moments every day when the sun is shining.

When the youngsters are two weeks old they should have, in addition to dry feed in the hoppers (which are before them all the time), a daily mash composed of equal parts of corn meal, wheat bran, and ground oats (with the hulls sifted out). This mixture should be scalded and fed warm, but never hot; and with this sweet skim milk may be given in clean tin drinking-pans arranged so that only the beaks of the chicks can reach the milk, otherwise they will befoul themselves and the milk.

By the end of the fourth week the mash may be fed twice a day, morning and afternoon. Close watch should be kept for the first indication of indigestion, when the second mash must be cut at once for a few days. But if the man in charge has been careful to provide plenty of air and exercise the chances of a setback are very small.

As the chickens grow, the heat in the brooders should be gradually lowered from ninety to eighty-five degrees under the hovers, and from

## THE PRACTICAL COUNTRY GENTLEMAN

eighty to seventy-five degrees in the nursery (where outdoor brooders are used) by the end of the first week. This reduction will continue until the temperature under the hovers registers seventy-five degrees, where it can remain until the youngsters are able to do without artificial heat.

After all, the only reliable thermometer will be the chicks themselves. If on closing the house for the night the chicks are seen to be comfortably spread out under the hover, then the temperature is right. If, on the contrary, they are found crowding together and peeping, then more heat is needed at once.

Broilers should weigh from one and a half to two pounds each when dressed for market. The packing should be carefully done to avoid bruising the carcass. Line a box with white paper; then pack the bottom row with the breast bones up, and the second row breast bones down. This will prevent their being shaken about in transit. Notify consignee when shipment is to be made.

Roasting fowls are in demand all the year,



## HIGH-PRICED SPECIALTIES

although the highest prices are obtained in April and May; and in order to have birds weighing five or six pounds each ready by that time they should be hatched in September and October. For this product the average price is about twenty-three cents per pound, and at this figure the net profit per bird, allowing for a selling commission, would be about sixty-five cents on a five-pound roaster.

Both cockerels and pullets are fattened for roasters. The sexes should be separated as soon as the cockerels begin to annoy the pullets. The method of feeding is the same as for broilers, with the exception that only one mash a day should be given until the birds are four months old, when they should have two mashes a day.

There are many who do not shut their roasters up in fattening coops; but the writer has found many of the very finest flavored roasters were those confined in fattening pens for two weeks before marketing. Professor Graham of the Ontario Agricultural College, Guelph, Canada, who has been most successful in fatten-

## THE PRACTICAL COUNTRY GENTLEMAN

ing fowls for market, gives the following method:

“The fattening crate is usually made six feet six inches long, eighteen to twenty inches high, and sixteen inches wide. It is divided into three compartments, each holding four to five birds, according to the size of the chickens. It is made of slats, except the ends and partitions between the compartments, which are solid wood. The slats on the top, bottom, and back run lengthwise of the coop, while those on the front run up and down. They are usually one and one-half inches wide and five-eighths inch thick. Those in front are placed two inches apart to allow the chickens to put their heads through for feeding. The slats on the bottom are placed about three-fourths of an inch apart, so as to permit the droppings to pass through to the ground. Care should be taken not to have the first bottom slat from the back fit closely against the back. An opening at this point prevents the droppings collecting and decomposing.

“The best grain ration is composed of two parts of very finely ground oats, two parts finely ground buckwheat, and one part ground corn. Increase the corn and decrease the buckwheat if a yellow skin is wanted. This mixture is by weight, not by measure. To the ground grain, sufficient sour milk is added to make the mass about the consistency of gruel, or so that it will drip from a spoon like pancake batter. If the milk is thick it will take nearly two pounds of milk

## HIGH-PRICED SPECIALTIES

to one of grain. A little salt is added two or three times a week. The writer feeds no more than one ounce of salt to one hundred birds, and should the birds show signs of feather-pulling, the salt may be slightly increased.

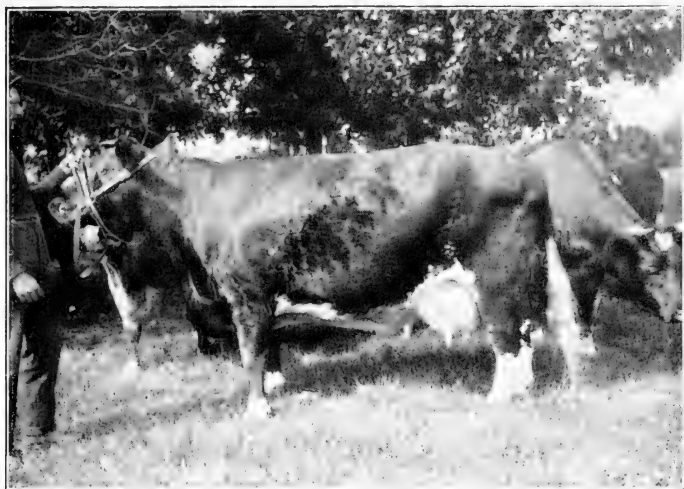
“If there is any secret for fattening chickens it is in the method of feeding. When the birds are first put in the crates or shut in the pens to be fattened, they should not be fed anything for the first twenty-four hours, or until such time as their appetite becomes keen. During the first week they should not be fed more than one-half of what they would ordinarily eat. The writer usually begins by feeding one dozen chickens not more than eight to twelve ounces of grain mixed with about twice as much milk. After the first week the ration is gradually increased until the appetite is fully satisfied. Should the feeder fully satisfy the appetite of the chickens during the first three or four days, or even the first week they are in the crate, in all probability the birds will do very poorly. A feeder with good judgment at no time will over-feed his birds. He should feed all they will eat after the first week.”

Squabs are becoming more and more valued as a table delicacy, and the margin of profit to the grower is very good. The keep of a pair of old birds will cost about a dollar and a half a year, and a well-managed flock will raise, on an

## THE PRACTICAL COUNTRY GENTLEMAN

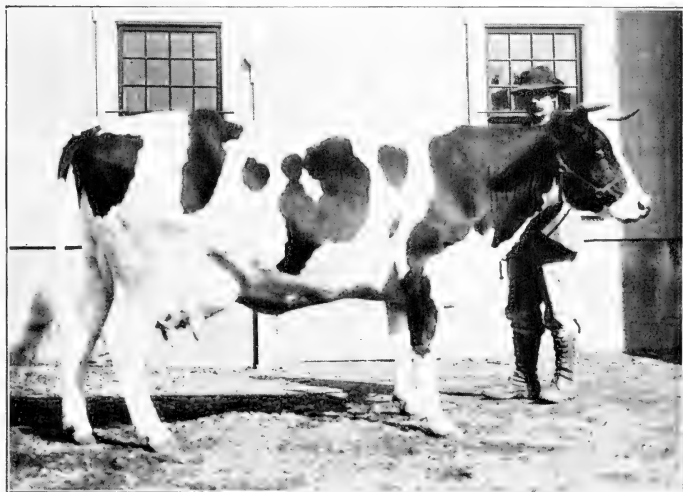
average, five pairs of squabs annually for every pair of birds it contains. While prices vary according to the season, it will be safe to count on an average of sixty cents a pair, or a gross return of three dollars for every pair of breeders kept.

Pigeons are hardy and subject to but few diseases, but dampness is fatal to them. A loft with a feeding room 8 by 16 feet, and a fly 16 by 16 feet, will accommodate forty pairs. If the neighborhood is infested with English sparrows, the fly should be covered with one-inch mesh wire netting. The north, east, and west sides of the loft must be wind and water tight, the south side should have glass to the extent of one-third of its area. The floor of the breeding room may be covered either with an inch of coarse sand or fine gravel, the former preferably. Two nests must be arranged for every pair of birds, as the female will commence laying again before her first brood are out of the nest. The male helps with the incubation, and will often take entire charge of the young while his wife is busy starting a new family.



LAVENDER 44TH, A DUAL-PURPOSE SHORTHORN WITH A  
SPLENDID MILK RECORD

(Owned by Sir George Drummond, Beaconsfield, Canada)



WORLD'S RECORD HOLSTEIN-FRIESIAN COW

(Owned by Mr. Mayer, Syracuse, N. Y.)



## HIGH-PRICED SPECIALTIES

Writing on the subject of nest boxes, "Jacob Biggle" says:

"The nest boxes in a loft should, on no account, be made in rows on permanent shelves and of a uniform appearance. Instead of regular rows of nests of one pattern use large soap boxes, starch boxes, irregular boxes, nail kegs, or anything that will give individuality to the house of each pair. Do not nail these fast to the walls or beams, or set them on shelves in regular order, but hang them on hooks or screw-eyes, so they can be easily taken down."

Be careful to hang the nests in pairs, and if possible, separate the pairs by a little space.

Unmated birds will make no end of trouble in an otherwise happy community. Many a happy marriage has been spoiled by the intrigues of unmated birds. The beginner will experience some difficulty in distinguishing the sexes, for even experts are sometimes puzzled. The best plan is to purchase mated pigeons from some reliable breeder and then put number leg-bands on them. In this way trouble will be avoided and gradually the eye will learn to see the difference in the sexes.

## THE PRACTICAL COUNTRY GENTLEMAN

For market purposes there is no better breed than the Homer. Many use just the common pigeon crossed with the Antwerp or large runt. Thomas Wright, writing on this subject in the Cyclopædia of American Agriculture, says he has had the best results from a bird that combined the qualities of the runt (English), Mondains (Swiss and French), and typical Florentine Amalgamated, infused with the Homer. This pigeon produced a large heavy squab for the same outlay as the Homer, and was equally prolific.

The natural food of pigeons is grain and seeds of grasses. For every-day purposes two parts whole corn, two parts wheat, and one part buckwheat (all old, sound grain) will give satisfaction; or the following, recommended by Wright, may be used: equal parts whole corn, cracked corn, red or amber wheat, Canada field peas, and kafir. Hemp seed, millet, and rape may be given occasionally, at the rate of one-tenth the quantity of other ingredients.

Pure water, oyster shells, grit, and a piece of rock salt, such as is used for cattle, should be



## HIGH-PRICED SPECIALTIES

constantly before them in the house. Lettuce and plantain make up the list of green foods. A daily bath of fresh water should be placed in the fly in summer. In winter twice a week will be sufficient, and for this purpose a milk pan four inches deep and eighteen inches across will answer.

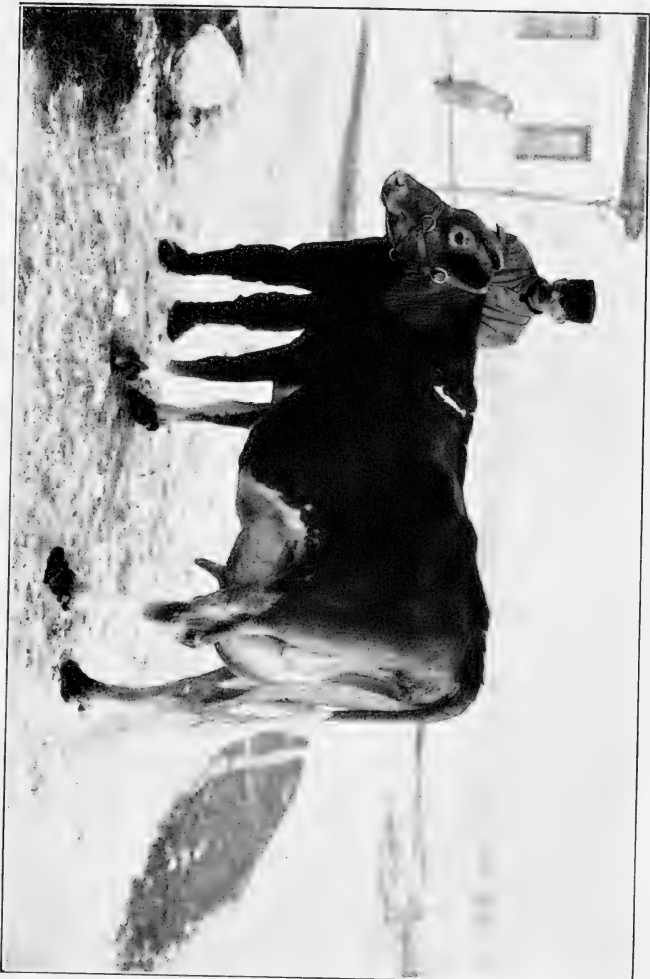
Pigeons require as much attention as poultry if success is looked for. The loft should be cleaned at least twice a week; provide tobacco stems and straw cut in short lengths for nest material, and keep a close eye on the growing squabs. The birds are dressed for market in the same way as broilers. The time to ship is just before the young birds are able to fly.

Turkeys require plenty of room, as the nature of the bird will not permit of confinement. The bronze turkey is the largest of the domesticated breeds. The "Standard of Perfection" gives the weight of the male as thirty-five pounds, and that of the female as twenty pounds. Next in point of weight are the Narragansetts, the male weighing thirty-two pounds and the female twenty-two pounds. The White

## THE PRACTICAL COUNTRY GENTLEMAN

Holland follow, the male weighing twenty-six pounds and the female sixteen pounds.

Turkeys should be kept entirely separated from the other poultry. In fact, it will be wiser never to allow them on the same land that the fowls have roamed over. This may seem carrying precaution to excess, but our Eastern turkeys have been so inbred that they are subject to diseases that do not affect our chickens. The disease to be most dreaded is black-head, and as this can be conveyed to turkeys through the medium of hen droppings, it will be seen that too much care cannot be taken to keep them entirely separated. In starting a flock, purchase birds at least two years old. One cock to four or five hens is the rule in mating. Turkeys require but little attention when once the insect world is astir in the spring, and from then until frost one meal a day in the late afternoon, composed of mixed grains, will be sufficient. For winter quarters an open shed facing south with perches well up from the ground will be all that is necessary. The turkey hen is disposed to hide her nest, but she can be



KATHLEEN II, OF LES HOUARDS, A FINE TYPE OF GUERNSEY, WITH AN OFFICIAL  
RECORD OF 566.43 POUNDS OF BUTTER IN ONE YEAR  
(Recorded by Mr. Alfred G. Lewis, Geneva, N. Y.)



## HIGH-PRICED SPECIALTIES

tempted to make use of an old barrel, turned on its side and partially filled with straw, if it is hidden under a clump of shrubbery or a brush heap. Every effort should be made to have the nest near the farmhouse, so that a watch may be kept on the hen and little turkeys when hatched, as they are very delicate at that time. For the first five or six weeks they must be kept out of the tall grass if it is wet, as they are very apt to become chilled and die. Some breeders make a practice of confining the mother turkey in a coop and allowing the little ones their liberty. Others keep the little ones in small yards about 6 by 12 feet, with a shelter for them to run under in case of rain, and allow the mother her freedom. The yards are made by using one-foot boards set on edge and supported by stakes driven into the ground. The writer prefers the latter way. The yards should, however, be moved to a fresh spot every other day.

For the first few days hard-boiled eggs and stale bread dipped in milk, and allowed to dry enough to crumble, makes an excellent diet.

## THE PRACTICAL COUNTRY GENTLEMAN

Bread made of two parts corn meal to one of bran with a little finely minced cooked meat, mixed stiff with milk and baked, is recommended by successful turkey-raisers. After the young turkeys are six weeks old, if they have thriven up to that time, they become quite hardy and may be fed upon the same foods that are suitable for chickens.

Turkey broilers weigh three to four pounds apiece and are finished off for market by feeding more corn and corn meal, and less grain of other kinds. As turkeys do not thrive when shut up they must be fattened while at liberty, a task requiring patience and no little skill. The birds are dressed and packed for market just as broilers are.

The growing of mushrooms, both for commercial and private use, is increasing each year; large and extensive buildings are being used, and it has now become a recognized industry. This is largely due to the constant demand and remunerative price received for mushrooms, and also to the fact that failure is largely overcome by following a few simple directions. No

## HIGH-PRICED SPECIALTIES

crop, however, is more exacting as to conditions than the mushroom. The bed must be prepared carefully; the materials used should be in the required condition; the spawn should be obtained from a reliable source, fresh and good; temperature at the time of planting the spawn and during the growth must be right, and the matter of moisture carefully looked after.

The idea that mushrooms can be produced only in caves, pits, and houses which have been specially built for the purpose, is erroneous. They can be successfully grown in almost any building, cellar, or shed which can be darkened. Beds can be made on ground floor, or on shelves, in tiers; also in the greenhouse under the benches or in spent hotbeds, and out of doors on the lawn, or in the orchard or meadow.

Great care should be taken in the selection of material to be used in making the bed. Fresh horse manure should be used, composed largely of short manure with a small proportion of long, strawy litter, adding loam or rich soil at the rate of one bushel of soil to four or five bushels of manure. This mixture should

## THE PRACTICAL COUNTRY GENTLEMAN

be prepared by stacking, turning, shaking, and re-stacking every three or four days, until it is in condition for preparing the bed. These operations permit of the escape of noxious gases and prevent burning. Keep moist, but not too wet, and in about two weeks the material will be ready for the bed, which should be about twelve to fourteen inches thick after being thoroughly tamped or pounded down so as to become firm and compact; then cover with long straw. The usual width of a bed is two and a half to three feet, and any length desired.

If the material is in proper order, the mercury in the thermometer (which can be bought expressly for such work) will rise to 100 degrees or more, then after a time it will fall slowly. When ninety degrees has been reached, the time for planting the spawn has arrived. If English mushroom spawn is used, it should be broken into pieces about two inches square and planted nine inches apart each way and two inches deep. Be sure to firm the manure over the spawn. After the spawn has been planted for a week or ten days, it should have begun



## HIGH-PRICED SPECIALTIES

“ running,” and a coat of rich, loamy soil, an inch thick, should be spread over the entire bed, the surface being made smooth and firm; then cover with litter and keep the house at a uniform temperature of fifty-seven degrees. The bed should remain covered with light litter until exhausted.

If properly made, a bed will produce mushrooms during a period of two or three months. The time for starting mushroom beds varies in different parts of the country. Almost any season will suit. Early spring beds for the open; May and June, August and September for cellars and sheds; while for greenhouses, any month will answer that will not bring the crop into the months of July and August.

Many failures in growing mushrooms are caused by over-watering. While they thrive best in a soil which will not crack but keep moist enough to press together nicely, it must not be wet. At the same time, if it be allowed to become too dry, decomposition will be too rapid, and the bed will become exhausted before the crop is harvested. The water used

## THE PRACTICAL COUNTRY GENTLEMAN

should be lukewarm and not applied to the bed direct, but to the litter covering same. The mushrooms should appear above the surface in about six to eight weeks after spawning, unless there is some defect in the materials, temperature, or moisture, in which case they sometimes remain barren for two or three months and then turn out excellent crops. The crop will depend largely upon the management of the bed; the average result being a half-pound to each square foot of bed. In gathering the crop, do not cut with a knife, but detach from the stem by a quick twisting motion. By this means the threads of the mycelium are broken; small tubercles will form on the ends of the broken threads and will eventually become mushrooms.

In order to start a small game preserve it will be best to join with a neighbor; one to raise the birds on a small ten-acre tract, and the other to keep a large enclosure to hunt over, stocked with birds every year from the nursery. One hundred and ten rods of four-foot fencing will be sufficient to enclose ten acres and will

## HIGH-PRICED SPECIALTIES

cost about fifty dollars. The posts can be cut from the woodlot.

G. E. Walsh says, in "Forest and Stream":

"The pheasant is one of the most popular inhabitants of the modern game preserve, and the work of breeding them successfully on a few acres of land is neither difficult nor expensive. Twenty years ago it was the popular impression that these beautiful birds could only be raised successfully on large estates, but to-day the fallacy of this argument is fairly proved by many notable examples. Several breeders have raised pheasants on small suburban grounds with less than two acres of land for accommodations for houses and exercising grounds."

Pheasants, although high-strung and nervous, are easily tamed and raised as pets. A ten-acre preserve, with a running stream of water, a pond or lake, and an acre or two of open fields or thicket, will support several hundred pheasants, quail, partridge, and wild turkeys. None of these will interfere with the breeding and increase of the others. The main point to be remembered in breeding such game is the food supply in winter, and shelter against the

## THE PRACTICAL COUNTRY GENTLEMAN

severe storms. These are much more easily provided on a small preserve and consequently the chances for success are greater. Speaking on this very point Mr. Walsh says:

“Our cold winters are exceedingly destructive to quail, and more are killed in one winter by the snow and by starvation than by the hunter’s gun. When the natural supply of food is covered with a foot or two of snow, poor Bob White has a hard time of it. Thousands of quail may be found snowed under after every severe storm; and in their search for food they dig under the frozen snow until feet and legs are cruelly lacerated. Buckwheat, sorghum, millet, and cane are the most nutritious foods for the quail. They should be planted freely in the open field along with Canada peas for the birds; and when winter comes, the straw and grain should be gathered in some sheltered place where the birds can resort. Food must be planted in the fields both for the summer and winter. Barley, oats, and rye harvested in the straw and kept for winter use are also necessary for success. A feeding shelter is very simple. It may be that nature forms sufficient shelter under spruce and cedar trees; or an artificial bower of branches covered with straw can keep the ground comparatively free from drifting snow.

“So far as possible nature should be imitated in feeding and caring for the birds. Stacks of wheat,



Courtesy of Messrs. Lord & Burnham Co.

CAULIFLOWERS READY FOR MARKET



## HIGH-PRICED SPECIALTIES

oats, rye, or buckwheat in the field or under the shelter will attract the quail. They prefer to find food in the natural state and not threshed out and spread around. A visit to the feeding shelters once a week in winter is sufficient to see that all is going well with the birds."

The restocking of a preserve with birds is a simple and inexpensive matter. Quail, contrary to the general impression, will remain in the vicinity where they were born year after year, if not frightened by dogs or shooting, so that after a start is once made it will seldom be necessary to introduce new birds. The time to begin operations is in the spring. In the case of quail, three hens and a cock make the right proportion of sexes. Place the box with the birds near a stream and open at night. Mr. Walsh suggests that the open end of the box be partly filled with straw and grain. Then the birds will emerge from their confinement with less fear than if exposed suddenly to broad daylight. Partridges should be started the same way. Pheasants should be started in pairs. Wild turkeys can be bought in twos.

If no dogs or shooting are allowed in the

## THE PRACTICAL COUNTRY GENTLEMAN

nursery, the birds will all become more or less tame and will multiply very rapidly.

In regard to thinning out, Mr. Walsh says:

“The thinning-out process should be made with box traps, and not with the shotgun. The latter alarms the birds, so that many may desert the preserve and seek shelter in some public woods or on other private property. The box trap works silently and captures the birds alive without disturbing their mates. They can be sold for breeding birds, to parks and game preserves, at good prices. A pair of live quail are worth double the price of two dead ones.”

If after stocking up with birds it is found that they bring more sold alive in pairs for breeding purposes, then you will not need to join with a neighbor.

Most of us connect bees with flowers and fruit blossoms. We know their value as pollen carriers and realize that without their aid we should have little or no fruit, but as regards an intimate acquaintance with these little benefactors, we are obliged to confess a good deal of ignorance. That bees are profitable there is no doubt, and we should all be the better off for having, at least, a few hives on our farms.



## HIGH-PRICED SPECIALTIES

In the past ten years the bee industry in the United States has grown very rapidly, many devoting their whole time to the business. Profits vary, as in any other business, depending largely on the operator. Mr. Ferris, in "Gleanings in Bee Culture," gives this balance for his first year, which is interesting, because bees were new to him, and most of his knowledge of them was gained from books. Here is the financial statement of his apiary from May 23, 1902, to July 23, 1903:

May 23, 1902, bought 7 colonies of bees, 33 old hives, 10 lb. foundation, three-frame extractor, and a few other things, for . . . . .	\$80.00
August 15, 1902, one colony bees . . . . .	3.00
1000 lb. sugar at an average of \$4.15 per cwt. . . . .	41.50
45 lb. foundation at 45c, and 50 top stories at 45c . . . . .	42.75
1 queen for \$8.00; lumber and moulding, \$7.00 . . . . .	15.00
750 brood frames, \$10.50; queen-cages and smoker, \$2.00 . . . . .	12.50
	\$194.75
Sold 3200 lb. honey for . . . . .	262.00
Increased to 105 colonies of bees worth \$2 each . . . . .	210.00
Sold 23 lb. wax at 30c, and 29 queens for \$19 . . . . .	25.90
Increased 750 good straight brood-combs, valued at 15c each . . . . .	112.50
	\$610.40
<i>Total income</i> . . . . .	194.75
	\$415.65
Actual gain (personal labor not included) . . . . .	\$415.65
Actual gain per swarm in 14 months was . . . . .	51.95

## THE PRACTICAL COUNTRY GENTLEMAN

In starting with bees it will be wise to visit some friend who keeps them and spend the day learning the ins and outs of their management, how to tell the queen, workers, and drones, the opening of hives and handling of frames. More information can be gained in a short time in this way than could be gotten from a book in months of study. Before buying any bees send for a hive and study all its parts. There are many different makes of good hives, but the Langstroth pattern is, I believe, the standard. Usually bees are bought hive and all, but frequently the hive is not the right sort, and then the bees have to be transferred.

An outfit of five hives and all the necessary tools for beginning can be bought for about eleven dollars. Italian queens cost from three dollars to ten dollars. A good select tested queen, suitable for starting with, can be had for three dollars. It will be much less expensive to start with a one-frame nucleus in each hive, which if properly managed, will make good strong colonies by fall. These will cost two dollars each. So each hive will stand the pur-

## HIGH-PRICED SPECIALTIES

chaser seven dollars and twenty-one cents if he put a good queen and a one-frame nucleus in each. Again, one hive will cost two dollars and fifteen cents, a three-frame nucleus three dollars and fifty cents, and a queen three dollars. The outfit complete, eight dollars and sixty-five cents.

Location is not important. Until a few years ago, it was thought that bees could be kept only in certain localities, but now since the introduction of Italian bees, they are kept even in large cities on the housetops. For those living in suburbs, the rear of the lots would be the best place; on farms, the back of the house or an orchard. The ground should be kept smooth, and the grass closely mown, around the hives. If possible, do not place the hives near the highway; if it is necessary, however, a high board fence should be built between the hives and the street. A hedge, trellis, trees, shrubbery, or anything that will cause them to raise their flight to a height of ten or twelve feet above the streets, may be used. Never allow the bees to go directly from their hives on a line with the passers-by in the highway, or a lawsuit may re-

## THE PRACTICAL COUNTRY GENTLEMAN

sult for damages from bee-stings. In placing the hives in the orchard, if the trees are large, four or five hives may be placed under each. Two hives are enough to go under the smaller trees. Set them on the north side so that they will get the early morning and the afternoon sun. Too much shade is bad, as likewise is too little. A good windbreak will prove a great help in keeping the hives warm in the early spring and fall. The hives should not rest on the ground on account of dampness.

Bees are divided into two classes, workers and drones. The Italians are the most profitable and the easiest to handle, as they are very gentle. Many bee-raisers work among their swarms of Italians without any protection. The Italian worker-bee has a distinguishing characteristic, namely, three yellow bands, the first next to the waist and very plainly seen; then a thin black band, followed by a broader yellow stripe, another thin black stripe, then the broadest yellow band of all. The workers make all the honey and usually work themselves to death in about three months. The drones live as a rule a

## HIGH-PRICED SPECIALTIES

shorter time and have a hard life. The queen often lives to four or five years as she does very little out-door work.

Every swarm has a queen, whose duty consists in laying eggs from which are hatched the future workers and drones. A healthy queen will lay during her life-time from 900,000 to 1,200,000 eggs. Swarming is the result, generally, of a colony outgrowing its hives. By using large hives this will in a measure be prevented, although after-swarming sometimes gets to be a sort of mania with bees, and they swarm, apparently, without a reason. No one can study the habits of these curious insects without becoming more and more fascinated; then, before one realizes it, one becomes an enthusiast. Thus, like some other departments of the farm, bees are not valuable solely or even chiefly for their earning capacity, but will aid in evoking, especially in the younger members of the family, an abiding interest in farm life.

Bees must be able to find plenty of honey-bearing plants in order to produce honey. The basswood (or linden), ranks next to alfalfa,

## THE PRACTICAL COUNTRY GENTLEMAN

sage, and white clover, as the best honey-producer. These trees are not only easily grown, but mature early and are covered with delicious, fragrant blossoms, in which the bees delight. Buckwheat is another favorite plant for bees. It is a profitable crop, too, in rough land, especially where fowls are kept. Flowers supply bees with a great deal of honey-making material, and also add beauty and color to the farm. An average of thirty-five pounds of honey per hive can be counted on in good seasons, and this will bring about ten cents per pound wholesale. If sold to private families, comb honey in sections brings from twenty to thirty cents.

Honey is the most wholesome of all sweets, and the most delicious. It is by far the most wholesome sweet for children, and in many cases has proved beneficial to their health. Bees and ducks are the only combination that will not work. The ducks eat the bees, and the bees sting the ducks while in the process of being swallowed; the result being no bees, no honey, no ducks, no profit.

## INDEX

### A

- Adams, J. W., his experience with strawberries, 133.  
Agriculture, United States Department of, quoted, 70; New York State Department of, quoted, 138.  
Apples, for market, 128, 130-133.  
Asparagus, to raise, 137.

### B

- Baby beef, 69-74.  
Bailey, L. H., quoted, 89, 145, 152; author of "Forcing Book," 154.  
Barn, hay, 29.  
Beef, for market, 45, 67-74.  
Bee hives, 180-183.  
Bees and the bee industry, 178-184.  
Berries, for market, 128, 133-136.  
Biggle, Jacob, quoted, 165.  
Bordeaux mixture, 104, 105, 137, 138, 140-142.

- Brooders, 158-160.  
Brooks, Professor, quoted, 81, 96, 100, 108, 109.  
Buckwheat, value of, 184.

### C

- Carbohydrates, value for feeding, 80, 81, 83-85.  
Carrots, to raise, 105, 106.  
Cauliflower, in forcing house, 151.  
Chestnuts, for seed, 110.  
Chickens, *see* Poultry.  
Clover, value of, 109, 131, 134.  
Colts, teeth of, 62, 63; mouth of, 65.  
Concrete floors, 31-36, 40, 74, 96.  
Connecticut, rotation of crops in, 103.  
"Convenience tables," 82-84.  
Conveniences, farm, 32, 33, 116-126.  
Corn, to raise, 99, 100, 106-109, 125.

## INDEX

- Cornell University Farm, 102.  
Corn-harvester, use of, 125.  
Corn planter, use of, 121.  
Cows, 43-47, 79-86; dairy, 44, 47; dual-purpose, 44, 47; beef, 45, 67.  
Crops, to raise, 93-110; to market, 127-137; to force, 143-155.  
Cucumbers, in forcing house, 151.  
Cultivator, use of, 104, 106-108, 120, 131, 134.  
"Cyclopædia of American Agriculture," quoted, 89, 166.
- E
- Eggs, for market, 55-57.  
Engines, gasoline, 19, 20, 117, 122; hot-air, 20, 21; electric, 21; hydraulic ram, 21-26.  
Experiment Station, Oklahoma, quoted, 139.
- F
- Farm buildings, 27-42, 95, 96.  
Fat, value for feeding, 80, 81, 83-85.  
Feeders, 67, 68, 70, 71.  
Feeds and feeding, 77-92; Wolf standard of, 82, 83.
- Fertilizers, 93-96, 98-101, 104-110, 152.  
Flowers, in forcing house, 145-155.  
Fodder-shredder, use of, 122.  
"Forcing Book," L. H. Bailey, 154.  
Forcing house, 143-155; advantages of, 143-145; cost of running, 145-147; to build, 147-151, 153, 154; soil, fertilizers, and water in, 151-153; books on, 154; to destroy insects in, 155.  
Fowls, *see* Poultry.  
Fruit, for market, 128-137, 139-142; in forcing house, 144-155.  
Fungi, 97, 132, 153.
- G
- Game preserves, 174-178.  
Graham, Professor, quoted, 161-163.  
Grain drill, use of, 120.  
Grapes, to spray, 140.  
"Greenhouse Management," Taft, 154.  
Grist mill, use of, 126.
- H
- Hale, J. A., quoted, 133, 134.



## INDEX

- Harrow, use of, 105-107,  
120, 134.
- Hay, to raise, 121, 130.
- Honey, 184.
- Horses, 58-66, 78, 79; food  
of, 59-61, 78, 79; teeth  
of, 61-66.
- I
- Implements, *see* Tools.
- Insects and pests, 97, 104,  
105, 132, 137-142, 155.
- K
- Knechtel, M., quoted, 110.
- L
- Land, *see* Soil.
- Lettuce, in forcing house,  
151.
- Lime, value of, 109, 110.
- M
- Mangel-wurzels, to fertilize,  
101; value of, 105; to  
raise, 106.
- Manure, 31, 68, 93-96, 98,  
100-107, 131, 132, 152,  
171, 172.
- Manure spreader, use of,  
120.
- Marketing, farm products,  
127-142.
- Massachusetts, rotation of  
crops in, 102.
- McGeehan, R. D., his expe-  
rience with strawber-  
ries, 135, 136.
- Melons, in forcing house,  
144, 151.
- Milk, in dairy, 79-85.
- Mower, to select, 121.
- Mumford, H. W., quoted,  
72, 73.
- Mushrooms, for market,  
170-174.
- N
- Nursery, to start, 111-115.
- O
- Oats, to fertilize, 98-101;  
for green food, 105.
- Onions, to fertilize, 101.
- Orchard, to spray, 124, 140-  
142; care of, 131-133.
- P
- Paris green, 104, 105, 137-  
140.
- Parsnips, to fertilize, 101.
- Partridges, to raise, 177.
- Pasture, value for feeding,  
87, 88.
- Peaches, for market, 132,  
133.
- Pears, for market, 132, 133.

## INDEX

- Peas, to fertilize, 100-102;  
for green food, 105; to  
kill insects on, 137.
- Peppers, in forcing house,  
151.
- Pheasants, 175, 177.
- Pigeons, 164-167; for  
squabs, 163, 164, 166;  
nest boxes for, 165;  
food of, 166.
- Piggery, 33-36.
- Pigs, 47-53, 87-89; for  
bacon, 48-53, 87; food  
of, 86-90.
- Plant food, 93-95, 99, 131.
- Plough, use of, 119, 120,  
134.
- Plums, for market, 132, 133.
- Potatoes, to fertilize, 98,  
100, 101; to raise and  
market, 103, 105, 123,  
129, 130.
- Potato-digger, use of, 123.
- Potato-planter, use of, 123.
- Poultry (chickens, broilers,  
etc.), food of, 90-92,  
158, 159, 162, 163, 168-  
170; fattening pens for,  
161-163;  
Broilers, 55, 56, 157, 160.  
Capons, 56.  
Chickens, 55-57.  
Ducks, 57, 58.  
Roasters, 44, 55, 56, 160-  
163.  
Turkeys, 167-170, 177.
- Poultry house, to build, 36-  
40, 158.
- Protein, value for feeding,  
80, 83-85.
- Pumps, water, 19-26.

### Q

- Quail, to raise, 176-178.
- Quinces, for market, 132,  
133.

### R

- Radishes, in forcing house,  
151.
- Reaper and binder, use of,  
124, 125.
- Roller, use of, 120.
- Root crops, 105, 106.
- Rotation, crops, 96-98, 102,  
103.
- Rye, to raise, 86.

### S

- Seed, 106-114.
- Seeder, use of, 106, 125, 126.
- Sheep, 53-55, 74-76; for  
mutton, 53, 54; for  
lamb, 54, 74-76; food  
of, 76.
- Sheep shed, 36.
- Silage-cutter, use of, 122.

## INDEX

Smith, H. R., quoted, 69.  
Soil, 94, 97, 102-115; im-  
plements for, 119-123.  
Specialties, to raise, 156-184.  
Sprayer, use of, 123, 124.  
Spraying, 104, 105, 123, 124,  
132, 137-142.  
Squabs, *see* Pigeons.  
Stables, 30, 31, 95, 96.  
Steers, for baby beef, 69-  
74; food of, 69, 70.  
Strawberries, to fertilize,  
99; for market, 128,  
133-136; to spray, 140.

### T

Tomatoes, to kill cutworms  
on, 138, 139; in forcing  
house, 144, 149, 151.  
Tools, use of, 103-108, 115-  
126; list of, 118, 119.

### V

Vegetables, for market, 136-  
139; in forcing house,  
144-155.

### W

Walsh, G. E., quoted, 175-  
178.  
Water tanks, 16-19, 24.  
Water supply, 14-26, 30.  
Weeder, use of, 121.  
Wells, 15, 16.  
Wheat, to fertilize, 100.  
Wilson, W. C., his experi-  
ence with strawberries,  
136.  
Windmills, 18, 19.  
Wing, J. E., quoted, 75, 76.  
Wolf standard of dairy  
nutrients, 82, 83.  
Woodlot, to start, 110, 114,  
115.  
Wright, Thomas, quoted,  
166.



**T**hree books which  
should be in the  
library of every pro-  
gressive farmer.

# FARM DAIRYING

By LAURA ROSE

*A Work Comprising All that is Newest  
and Best in this Lucrative  
Branch of Farming*

EVERY phase of the Dairy business is covered from the farmer's standpoint in this little book, which is written by a recognized authority on the subject. Miss Rose has for the past twelve years taught dairying in the Ontario Agricultural College, and she has lectured on the subject from coast to coast both in the United States and Canada. The practical dairyman in both countries, and the teacher and student in agricultural colleges, will find the book most useful.

## CONTENTS

- I. Introduction — Dairy Agriculture
- II. The Dairy Farm
- III. The Cow Stables
- IV. Suggestions for Building Stable
- V. The Dairy Breed of Cows
- VI. The Cow
- VII. A Standard and a Record Necessary
- VIII. Calving Time
- IX. Care of the Calf
- X. The Heifer
- XI. The Feeding of Cows
- XII. Rations — The Nutritive Value of Common Foodstuffs
- XIII. Fodder Crops

# FARM DAIRYING

## CONTENTS — Continued

- XIV. Silos and Silage
- XV. The Farm Water Supply
- XVI. Watering the Cows
- XVII. The Cow's Digestion
- XVIII. Composition of Milk
- XIX. The Udder and the Secretion of Milk
- XX. Milking the Cows
- XXI. Milking Machines
- XXII. Straining the Milk
- XXIII. Milk for the Cheese Factory
- XXIV. Creaming Milk
- XXV. Separators
- XXVI. Bacteria in Relation to the Dairy
- XXVII. Pasteurization of Cream
- XXVIII. Cream for Cream Gathered Creameries
- XXIX. Culture or Starter for Ripening Cream
- XXX. Dairy Room and Churn
- XXXI. Care of the Churn and Wooden Utensils
- XXXII. Care and Ripening of Cream for Churning
- XXXIII. Butter-making
- XXXIV. Difficulties in Churning
- XXXV. Defects in Butter
- XXXVI. Packing Butter
- XXXVII. Butter for Exhibition
- XXXVIII. The Retail Milk Trade — The Producers' and Consumers' Responsibilities
- XXXIX. The Retail Cream Trade — How to Standardize Milk and Cream
- XL. Milk Preservatives
- XLI. Milk Definitions
- XLII. Food Value of Skim-milk and Butter-milk
- XLIII. Profitable Use of the By-products of the Dairy
- XLIV. The Value of Manure and Use of Absorbents
- XLV. Farm Cheese-making
- XLVI. Soft Cheese-making
- XLVII. Dainty and Popular Milk and Cream Dishes
- XLVIII. Babcock Milk Test
- XLIX. Acidimeter-Test for Acid in Milk
- L. The Ice House
- LI. Flies
- LII. Diseases Common to Cows — Symptoms and Treatment

*Fully Illustrated. Cloth, 12mo. \$1.25 net; by mail, \$1.35*

# PRACTICAL FARMING

By W. F. MASSEY

*A Plain Book on Treatment of the Soil and  
Crop Production. Especially Designed  
for the Everyday Use of Farmers  
and Agricultural Students*

“PRACTICAL FARMING” has been designed by the author to fulfill a mission that many so-called “books for farmers” do not: — to explain to the farmer and student, in the plain language of the farm, many of the things which the investigations of scientists have proven in regard to the treatment of soil and the production of crops.

To his effort to explain scientific matters in plain language, Mr. Massey has drawn in addition from successful experience of a long life spent in the practical work of cultivating the soil, and he has made “Practical Farming” a farmer’s book on farming, nothing more, nothing less.

To the farmer anxious to get the most out of his land, and to the student interested in the “why’s” and the “wherefore’s” of agriculture will this book appeal, and a thoughtful, painstaking study of its



# PRACTICAL FARMING

pages cannot but result in the accumulation of much practical and profitable knowledge.

A number of useful tables for constant reference in the back of the book add greatly to the value of the work.

## CONTENTS

- Preface
- I. The Soil
  - II. The Physical Character of Soils
  - III. The Relation of Soils to Moisture and Air
  - IV. The Anatomy and Physiology of Plants
  - V. Plant Food in the Soil
  - VI. Manures and Commercial Fertilizers
  - VII. Life in the Soil
  - VIII. Tillage and Its Purposes
  - IX. The Washing of Soils and Methods of Preventing this Loss
  - X. Crop Rotation — Its Purpose and Practice
  - XI. Crops and Cropping
  - XII. The Indian Corn Crop
  - XIII. The Wheat Crop
  - XIV. The Oats Crop
  - XV. The Cotton Crop
  - XVI. The Tobacco Crop
  - XVII. The Irish Potato Crop
  - XVIII. The Hay Crop
  - XIX. How the Legumes Aid Us
  - XX. The Grasses
  - XXI. The Commercial Fertilizers for Various Crops
  - XXII. Useful Tables for Constant Reference

*Cloth. 12mo. \$1.50 net; by mail, \$1.62*

# AMERICAN POULTRY CULTURE

By R. B. SANDO

*A Complete Handbook of Practical and  
Profitable Poultry Keeping for the  
Great Army of Beginners  
and Small Breeders*

**T**HE object of this volume is to furnish reliable and practical information on the profitable care and management of poultry. The author has endeavored to take the reader into the field of practical poultry work, telling him what to do, and how and when to do it.

Mr. Sando has catered especially to those who desire to keep only a small flock of fowls for pleasure or profit, but most of the matter in his book will also apply to poultry keeping on an extensive scale.

In order to make "American Poultry Culture" as brief and yet as comprehensive as possible, everything of a theoretical or imaginative nature has been omitted, as well as all unnecessary things. Mr. Sando has made use of only valuable and practical

# American Poultry Culture

facts, which are the result of his personal experience in the handling of fowls on both a large and a small scale. His book is essentially a business book for busy people.

All interested in the reduction of the living expenses of their family or who would like to make a few dollars at a pleasant occupation, should read "American Poultry Culture."

## CONTENTS

- I. Poultry Keeping and Poultry Keepers
- II. Poultry House Construction
- III. Plans and Specifications of Modern Poultry Houses
- IV. Poultry Yarding and Fencing
- V. Poultry Fixtures
- VI. Incubators and Brooders
- VII. Breeds Described
- VIII. Selecting a Breed — Getting a Start
- IX. Foods and Feeding
- X. Hatching and Rearing Chicks
- XI. Rearing Chicks After Brooding Age
- XII. The Fancy
- XIII. General Information
- XIV. The Seasons Affecting Poultry Keeping
- XV. Parasites and Diseases of Poultry

*Illustrated. Cloth. 12mo. \$1.50 net*

*By mail, \$1.62*

---

**A. C. McCLURG & CO., Publishers**

New York

CHICAGO

San Francisco





APR 12 1911

1911 APR 12

One copy del. to Cat. Div.

APR 12 1911

**LIBRARY OF CONGRESS**



00025862211