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Breeding Registered Dairy Cattle---The Farm, Yards and Buildings

ARTICLE No. II.
By W. MILTON KELLY

BREEDING registered dairy cattle may be conducted successfully on any farm that is naturally adapted to dairy farming. The location of the farm, natural fertility, permanent improvements, water supply, drainage conditions and land values are some of the important things to consider in getting a farm that will give the largest net returns on the investment.

Location is an important factor in finding good markets for the dairy products and displaying the breeding stock to prospective buyers. Many breeders, however, find it possible to produce milk and rear young stock more economically on farms further removed from the markets and transportation lines. It requires less fixed capital and young stock can be reared more economically where considerable of the land is utilized for pasturage. In fact, many successful breeders of dairy cattle, who have well located breeding farms, have invested in cheaper land on which to rear and develop their young stock. Young animals at pasture are under the very best conditions to insure good health and constitutional vigor. The spread of tuberculosis is very rare among cattle in the open. Assisted with a little grain the best of animals are produced on grass. Grass solves the labor question so far as the land it occupies is concerned, and the same may be said of the farm as a whole where considerable grass is grown. The cost of production is practically nothing after a start is made. It requires only a little weeding, seeding and top-dressing occasionally. If the land is used for pasture it seldom loses fertility and usually gains. Grass is a safe, sure and cheap feed for breeding cattle and growing animals.

A productive soil is essential to the economical production of food crops for dairy cattle. Grasses, forage crops, corn and small grains are the basis of successful dairy feeding everywhere. Grass is the natural food for dairy cattle. With a capacity for handling large amounts of bulky feed and a corresponding insatiable appetite for fresh, green grass to supply their needs of their digestive systems, they derive the most benefit from grass and green forage crops. Hay and silage furnish almost as important a part of the winter supply of feed for dairy cattle as grass and forage crops do in the summer. With a farm that will furnish an abundance of grass, forage crops, corn and small grains the cost of making up efficient rations is reduced to the lowest possible notch, and the health of the cattle is better maintained than when too much grain and protein concentrates are fed.

As soon as the dairy farm begins to increase in productivity the costs of production lessen. The doubling of crop yields means a reduction in labor costs. The team that now travels five hundred miles in plowing and cultivating to fill the silo with corn may fill two silos. The extra silo full of corn will nearly double the stock carrying capacity of the farm. The extra mow

of hay gained by the increased productivity of the farm will leave more humus in the soil and furnish more roughage for the cattle to work into manure. The extra bin of oats will provide sufficient grain for the work horses and help out in feeding the young stock. The first step toward dairy farm efficiency is the improvement of the land.

Locating the Yards.

The cattle yards should not be located in a hollow or other low ground, and the location should be either naturally well drained, or on a gravelly formation, or, if on a clay or spring soil, plenty of agricultural tile should be used. The ideal location is protected from the prevailing cold winds, by either a hill or screen of timber. Ever-

green hedges afford the best protection, but they should not shut off the view from the public road. The dairy barns, horse barns and other buildings can all be so arranged as to furnish protection for the cattle yards. If good drainage conditions are lacking a portion of the yards should be paved and the balance covered with five or six inches of cinders.

Hundreds of costly accidents and complications in the conduct of breeding farms are traceable to yards, fences and gates that fail of their duty. If the gate had been shut or the fence in good condition this accident or that would not have occurred. Many breeders of dairy cattle have had occasion to reflect along this line when one of

their valuable cows has been served by some scrub bull that made his way into the yard through a broken panel in the fence or a dilapidated gate. Strong and durable fences and gates are essential, both as a matter of protection and convenience. The breeder of dairy cattle should plan to make his cattle yards as valuable an asset from the advertising point of view as the successful merchant does his show windows. The appearance of the cattle and young stock in the yards will frequently result in making a satisfactory sale.

Comfortable and sanitary barns are needed for housing breeding cattle and young stock. A large amount of perfectly good money has been squandered on buildings that are far too costly for the uses to which they are adapted. It should not be held up against the dairy or breeding business because some men with more dollars than sense have indulged themselves in working out half-baked theories about the building of model breeding plants and dairy barns, which have failed to yield proper returns upon the investment. A vast amount of money has been wasted on country places and if some men build model plants in the same way that is their affair. They must get their returns in the satisfaction of their whims. Dairy buildings must be built and improved from time to time as the requirements of the business demand, and not built offhand according to some fanciful notion. Barns are needed for housing the milking herd, young stock, horses and feeding materials. Good, sensible buildings in which every dollar invested adds to the efficiency of the organization are needed on the breeding farm that is being operated as a money-making proposition.

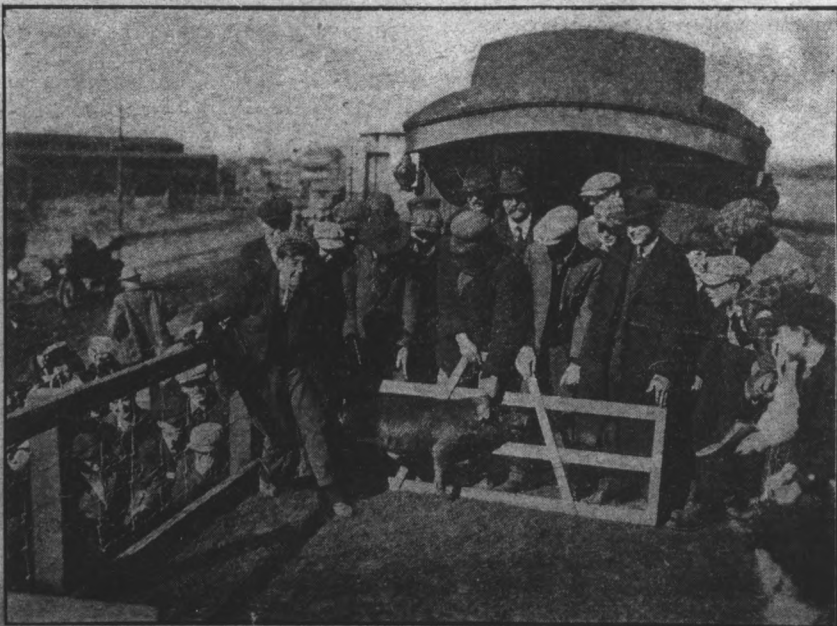
Economy and efficiency in handling the dairy herd is rapidly evolving a standard dairy barn. This barn is about forty feet wide and long enough to accommodate the number of cows in the herd. A barn so constructed provides for two rows of cows facing outward, with a ten-foot driveway between through which the manure spreader or carrier can be driven for the removal of the manure. It affords plenty of room to facilitate the work of feeding the cows and cleaning the barn. Assuming that we have a two-foot wall, which is approximately correct for a heavy building, the inside measurements will divide up nicely. So far as height is concerned eight feet is generally admitted to be correct. Too high ceilings means cold stables because the warm air rises above the cows and the fact that the air below is cold does not necessarily mean that it is pure. If the ceilings are low it is very difficult to get enough light, sunshine and ventilation. As regards the lighting, it is best to avoid extremes. Plenty of light and sunshine is essential to the health of the cows. It is, however, expensive to have too much glass and glass is much colder than a good wall. To get maximum benefit from sunshine the barn should stand

(Continued on page 454).

Northeastern Mich. Live Stock Special



Scenes Showing Live Stock Demonstration Train Run by the Michigan Central and Detroit & Mackinac Railways, Cooperating with the Northeastern Michigan Development Bureau and the Michigan Agricultural College.



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DETROIT, NOVEMBER 10, 1917



CURRENT COMMENT.

Bean Price will Following the receipt
Not be Fixed. ting the price of beans
for current army re-
quirements which was published in our
last issue, after conferring with State
Market Director McBride and repre-
sentative dealers and growers, Mr. W.
J. Orr, president of the Michigan Bean
Jobbers' Association and Michigan
member of the government's bean pur-
chasing committee, wired the Food Ad-
ministration as follows:

Weather still continues bad. Heavy
damage done New York and Michigan.
About twenty elevators ceased doing
business. More reported going to do
likewise. Cannot afford taking risk of
doing business until the government
states specifically how it can be done
safely in order to avoid loss. Market
director distributing your information.
Growers not at all pleased; thoroughly
dissatisfied. Prospect seriously endan-
gers acreage next year. Some dealers
reduced paying prices to six dollars
today and no offerings. Please rush
license and license requirements here,
care Wayne Hotel.

Immediately following this confer-
ence, Mr. W. I. Biles, manager of one
of the largest bean firms in the state,
proceeded at once to Washington to
present the situation as it refers to the
condition of Michigan's bean crop, di-
rectly to Food Administration officials.
Following these presentations, on Oc-
tober 31 Mr. Orr received the follow-
ing wire from the Food Administra-
tion:

Tell elevators to trade as usual until
receipt of licenses, which will not mate-
rially affect conditions. Only object
to prevent speculation and not to fix
price. We will do nothing to discour-
age the growing of beans next year
and will assist growers to get just
prices for product. We are not consid-
ering buying beans as we have confi-
dence that jobbers can handle them
more advantageously to all concerned.
No reason for elevators to close; they
are entitled to a just net profit; law
gives us no authority to set price; each
buyer must be his own judge as to
price he pays growers.

This announcement definitely settles
the future policy of the Food Adminis-
tration with regard to one of Michi-
gan's great cash crops. It not only
practically assures bean growers of a
compensatory price for this year's
crop, but insures as well the planting
of a liberal acreage of beans next year
when this wholesome and nutritious

food stuff is likely to be needed in still
greater volume for army and civilian
consumption both at home and in Eu-
rope.

It is the opinion of well informed
dealers as well as growers, that in con-
sideration of the shortened yield and
damaged quality of the Michigan and
New York crops, owing to peculiarly
unfavorable weather conditions which
have prevailed during the harvesting
period for the late crop, that all of our
product of merchantable beans will be
needed and taken for consumption at
recently prevailing prices about as rap-
idly as they can be put into marketable
condition. Growers should market
their beans at a fair price of around \$8
per bushel as rapidly as they can be
gotten into salable condition.

Many of the frosted beans will not
be in fit condition to thresh until they
have cured out thoroughly in mow or
stack, since it will insure a larger per-
centage of merchantable beans to give
them time to cure out and harden
down in the pods before threshing,
than to attempt to dry them out after
they are threshed. The State Market
Director is attempting to work out a
plan by which a special market grade
may be established for frosted beans
which will at once benefit the grower
by insuring him a better price for this
product than would be the case if these
beans are picked to the present stan-
dard, and the consumer who would
thus be afforded a wholesome but
cheaper product for consumption than
strictly hand-picked beans.

The outcome of this effort will de-
pend not a little upon the quality
shown by the late crop after threshing,
and cannot be predicted with any de-
gree of certainty at this time. It will,
however, be good policy on the part of
the grower to permit the late harvest-
ed beans to cure out well before
threshing, as this will insure a better
product than could be gotten from
them by any method of handling if
they are threshed while in a soft and
uncured condition.

The question of the
County Agricultural Agents. cooperative employ-
ment of a permanent
county farm agent
was under consideration by the boards
of supervisors of a number of Michi-
gan counties at their October session.
In a number of these counties favor-
able action was taken and a county
farm agent will be appointed as soon
as a suitable man can be secured to
fill the place, a portion only of the ex-
pense being borne by the county and
the balance paid by the federal and
state governments. In some counties
the board either took adverse action or
failed to make the necessary appropria-
tion for carrying on this work. In at
least one county of which note is made
elsewhere in this issue, an inquiry by
the supervisors disclosed a single line
of work which had been conducted by
the special or emergency agent which
they deemed of sufficient importance
to entirely change their attitude to-
ward the employment of a permanent
agent. When it was shown that
through the activities of the temporary
agent an ample supply of seed corn for
next year's planting had been assured
the county, the members of the board
were convinced of the practical possi-
bilities of this work. In very many
counties men who have been opposed
to the appointment of a county agent
on the ground that the chief benefi-
ciary would be the man who got the job,
have entirely changed their attitude
after a careful investigation of the re-
sults which have been attained in
counties where farm bureaus have
been maintained and county agents
employed.

This is the general trend of public
opinion wherever the facts have come
to the attention of the interested in-
vestigators. The federal government
has made a large appropriation to aid
in the employment of a county agent

in every county in the country where
local cooperation can be secured as a
war emergency measure. The state
stands ready to do its share in every
case where local interest promises suc-
cess for the work. Where the neces-
sary action has not been taken by the
board of supervisors of any county,
public spirited citizens should at once
satisfy themselves as to the benefits to
be derived from the employment of a
county agent if they are not already
satisfied on this point, and use their in-
fluence with their members of the
board of supervisors to have the plan
approved and the necessary appropria-
tion made at the next meeting of their
board.

The value of this work is too obvi-
ous to require further comment. Here-
tofore the work could be extended only
gradually, due to the limited funds
made available by the government for
this purpose, but with the funds now
available the people of every county in
the state should avail themselves of
the opportunity to cooperate in the es-
tablishment of county agent work
which has proven to be so popular and
of such great benefit in the counties
which were so fortunate as to secure
such an organization at an earlier
date.

THE DETROIT MILK MEETING.

Delegates of the eastern branch of
the Michigan Milk Producers' Associa-
tion feel that their meeting at the De-
troit Chamber of Commerce November
6 was a distinct success in the con-
structive cooperative efforts that were
set in motion on that occasion. In the
first place, these delegates had become
fully aware that the field now supply-
ing milk to Michigan's metropolis ex-
tends far beyond the limits of the east-
ern branch, which had heretofore un-
dertaken the arrangement of contracts
and prices with Detroit distributors.
The supplies for the city are now gath-
ered from points as far as two hundred
miles away. To meet this situation,
which had outgrown the jurisdiction of
the local branch, the delegates unani-
mously accepted the proffered offices
of the state society to handle the prob-
lem, by dissolving the eastern branch
and joining the state association, thus
making the several locals directly re-
sponsible to the state organization.

Another step which appears to have
the earmarks of good business sense
is the method agreed upon for arriving
at the price to be paid for milk by the
Detroit buyers. The delegates believed
that it was a proper procedure to base
the price upon the cost of production
and then support their position by an
intelligent public opinion. To gain this
end the state officers were requested
to lay the matter of production and
distribution costs before a jury con-
sisting of representatives of the milk
Producers' Association, the Detroit
Chamber of Commerce, the affiliated
women's societies of the city, the fed-
eration of labor, the state dairy and
food commissioner, the state market
director, and the head of the dairy de-
partment of the Agricultural College.
A similarly constituted jury was re-
cently appointed in Chicago and its re-
port was telegraphed to the session at
Detroit. According to the findings of
that commission the producers in the
Chicago area are to be paid \$3.22 per
cwt. for milk and it was further declar-
ed by the commission that 12 cents a
quart is a reasonable price for the con-
sumers of that city to pay.

The third matter of which we wish
to make mention here is the plan de-
vised for financing the work of the or-
ganization. The state society was di-
rected, if possible, to arrange with the
city distributors to have the latter hold
out one-half cent from the price paid
for every 100 pounds of milk delivered
to them, and to pay this over to the
state organization. This arrangement,
it was figured, would furnish sufficient
funds to meet the eastern district's

portion of the necessary expenses that
would likely be incurred in carrying on
the work of the producers' organiza-
tion.

These three items appear to be of
fundamental importance to not only
the milk producers of the Detroit dis-
trict, but of all producers throughout
the state. They will enable Michigan's
dairymen to present a solid front in the
effort to secure better contracts and
prices for their dairy products. They
will place the case directly before the
representatives of the business and
consuming public, that consumers
themselves may know the real condi-
tions surrounding the production of
this very important part of the human
diet, and they will provide an equitable
plan for meeting the expenses of car-
rying out and extending the work of
the organization.

HAPPENINGS OF THE WEEK.

Foreign.

The European War.—The Teutonic
campaign on the Italian front has
been the chief interest this week in
the great war. A fortnight ago the
Austro-German troops started their
drive and to date they have forced
back the Italians from the latter's long-
fought-for positions on Austrian soil to
Italian territory along the Tagliamento
river, where General Cadorna's men
are now holding the invaders at bay
with heavy artillery and rapid-firing
guns. A new peril threatens the Ital-
ian forces this week, however, the
movement of Teutonic forces from Ty-
rol or the Trentino district, into north-
ern Italy far behind the present line.
An encounter near Lake Garda
in which the Italians were victor-
ious would indicate that this was a
part of the plans of the central pow-
ers. French and English forces are be-
ing hastened to this section of the bat-
tle front. Thus far no additional ad-
vantage to the enemy has been gained.
The Italian navy has also been busy
and during the past few days captured
posts along the coast line in Venetia
and Trentino. High British and French
officials are now in Italy assuring her
every aid that can be rendered in the
way of men, munitions, food and other
materials to the end of winning what
might prove the decisive battle of the
war.—While Russia continues as a
nominal ally of the entente she has an-
nounced through her provisional gov-
ernment that England, France and other
allies must from now on bear the
burden of the struggle. In some of the
sectors where attempts were made by
Germans and Austrians toward frater-
nizing with the Russians the latter re-
plied with fire driving the enemy away.
—On the western front the French
took eighteen square miles of territory
from the Germans in the Ailette valley
and are now bombarding the enemy in
their new positions. The British have
taken additional strong points in Flan-
ders. Positions occupied by American
forces were fired upon by Germans ear-
ly this week, which was replied to by
our troops, shot for shot.—In Mesopo-
tamia the British troops have advanced
twenty miles further up the Tigris, ad-
vancing their position fully 100 miles
above Bagdad on that stream.

Count Von Hertling has been ap-
pointed to head the German govern-
ment as imperial chancellor. He will
make his first appearance before the
reichstag on November 22.

The opposition party, under the lead-
ership of Sir Wilfred Laurier, opposes
the draft program of the Canadian gov-
ernment, on which he desires a refer-
endum.

National.

Eighteen persons were burned to
death and several others injured when
the Paterson, N. J., Salvation Army
Home building was destroyed by fire
Sunday. There were eighty-five in-
mates in the home at the time of the
conflagration.

The United States shipbuilding labor
board has allowed the shipbuilders of
the Pacific Coast an advance in wages
of from ten to thirty per cent. Reports
indicate that the labor organizations
are not satisfied with the increase and
will make an appeal to President Wil-
son for further advances.

Five persons were hurt when two
electric cars on the Camp Custer line
at Battle Creek collided.

A Pontiac pattern and machine shop
was destroyed by fire Sunday morning
causing a loss of \$45,000. The fire is
believed to have been of incendiary
origin.

Six persons were killed and two in-
jured when an automobile was struck
by an electric car at Lafayette, Ind.,
early Sunday morning.

Profitable Crop Production

By I. J. MATHEWS

THERE is no profitable crop production unless we have a fertile soil and there can be no fertile soil until there is plenty of organic matter in the soil." This was the opening statement of the eminent soil specialist, Professor Roberts, of the Kentucky Experiment Station, when speaking before a group of interested farmers and institute speakers.

Professor Roberts emphasized the matter of profitable crop production and called attention to the fact that profitable acre production is not necessarily profitable man production. A fifty-bushel crop of corn may be profitable while a sixty or seventy-bushel crop may not be profitable because so much labor is required to produce the extra ten or twenty bushels.

Requirements for Profit.

The conditions which make for profit with any crop are listed under the following heads: Climatic, good seed, proper preparation and cultivation of the soil, control of pests and plant diseases and last, but not least, a fertile soil.

In order to be fertile, any soil must be well drained in addition to having a sufficient supply of available plant food and especially organic matter. The speaker emphasized the importance of organic matter and stated it as his belief that a soil without organic matter cannot make as good use of the fertilizers applied to it as can a soil that has lots of humus or organic matter. It is absolutely necessary to return organic matter to fields, either as green manure (being crops turned under), or as manure. The organic matter of the soil is important in determining its water-holding capacity or its ability to withstand drought. It also makes considerable difference as to whether the soil will absorb the various elements, such as lime, phosphate, nitrogen or potash.

"The continued application of a fertilizer, that may produce enormous gains at first, will eventually result in deterioration for the field or farm upon which the practice is carried out," were the startling statements of the professor. In other words, the application of lime, phosphorous and nitrogen to the soil which results in increased yields is a hand-to-mouth process. The way to make the result permanent is to use the organic matter which results from this increased crop production as manure or in some other way get it back onto the land.

It has been demonstrated, according to the speaker, that fertilizers and crop rotations alone cannot long maintain fertility. Many farmers say, "If I could only grow clover just as I used to, I believe I could keep up the fertility of my soil." The natural reply to this statement is, "Why didn't you keep up the fertility when you were growing clover?" and simmered down to actual brass tacks, the truth becomes evident that clover cannot maintain soil fertility in itself or in a rotation.

Here are the actual facts in the case of clover. Of the nitrogen which the clover plant gets, approximately two-thirds comes from the air, the other one-third coming from the ground. Then again, if the tops of the clover plants are removed, approximately two-thirds of its fertilizing value is removed and the roots hold one-third of the total fertilizers in the ground. So it is a simple mathematical calculation that clover produced under those conditions and when none of the organic matter produced is returned to the soil, there is no gain in soil fertility.

The Acidity of Soils.

The results which soils show in relation to the various chemical tests may not be a very good criterion of the facts in the case as to whether clover or sweet clover will grow well. In this

connection, Professor Roberts cited a case in Kentucky where a field that seemed to be neutral would not grow either alfalfa or sweet clover in abundance until lime had been applied. Another case cited was of a soil that was some forty tons per acre deficient in limestone but this soil produced alfalfa in profusion when only four tons of limestone were put on it.

Sweet Clover Best Soil Renovator.

"Sweet clover is the best soil renovator," is a statement that was made to stand out in striking relief. It was pointed out that sweet clover will grow where the supply of lime is not very abundant, yet there must be some present. Several demonstrations have proven that sweet clover will grow on wet and undrained soils and it will stick along gullies and keep them from any further washing, due in measure to the long roots which it sends down deep into the subsoil.

The greatest single reason why sweet clover is preferable to any other crop on a worn soil is because there is no other which will so quickly supply this soil with the organic matter which it always lacks. This, of course, bearing in mind the statement that there can be no profitable crop production without a fertile soil and that there can be no fertile soil without organic matter.

Peculiarities of Clover Seeding.

"We have noticed that where a phosphatic fertilizer has been applied, clo-

ver seed sown in the spring will grow and give two crops without the addition of lime. Where the clover seed is sown in the fall or in August, the ground must be limed as well as fertilized with phosphate in order to make a successful catch." This emphasized a peculiar thing that Professor Roberts has noticed in several instances.

On worn lands, even though they are neutral, successful clover seeding is usually best had when ground limestone is used. The ultimate aim on such lands is not the growing of clover, for that alone will not maintain the soil fertility. The final outcome of all fertility systems is to restore the organic matter to the soil and then by supplying lime and phosphorus, and potash in a few cases, permanent fertility will be established. This, coupled with proper management, will result in profitable crop production.

"SAVE YOUR SEED CORN," WARNING TO MICHIGAN FARMERS.

More attention must be given to seed corn this fall if Michigan is to be assured of an adequate supply for planting next spring, according to Secretary A. M. Brown, of the Michigan Agricultural College, and the State Board of Agriculture.

"Many farmers don't appear to be

aware of the gravity of the seed corn situation," declared Mr. Brown, "but it is nevertheless true that as far as Michigan is concerned the condition is serious. Every ear with grain fit for planting must be saved.

"The corn intended for seed should not be allowed to stand out in the field. Such practices may do in ordinary years, but this season every desirable ear should be plucked at once and dried artificially if necessary. The seed corn supply should be carefully conserved.

"This is especially important in the light of the fact that only Michigan or a stove to furnish artificial heat to corn will do well in Michigan. If seed

is brought in from outside states it is more than likely to result in disappointment for the purchaser."

The method recommended by M. A. C. agronomists for the drying of seed corn is this:

"The ears should be placed where they will receive free ventilation. No two ears should be allowed to touch. The ears should be strung on binder twine and hung from a rafter, or where large amounts of seed are to be handled, special drying houses are desirable with numerous windows or panels which will give free circulation of air, or a stove to furnish artificial heat to hasten drying and prevent freezing."

Cribbing the Soft Corn

By N. A. CLAPP

ACCORDING to the report of the Department of Agriculture, Washington, D. C., about one-third of the corn raised in Michigan during the present season has been injured by frost. Much of the corn was planted late in the season, and the prevailing cold weather during the large part of the growing period did not bring it forward rapidly, consequently the frost nipped it while it was growing, making it impossible for it to mature and make merchantable corn. Such corn has a feeding value well worth considering, and the best means known that will save it for use during the coming year should be adopted. The characteristics of frosted corn should be known and considered.

Frosted, immature corn is full of

the case if the corn ears were fed without the husks.

Considered from a practical point of view, cribbing soft, frosted corn between the ribs of the live stock kept on the farm, is both a safe and profitable scheme. Used in the shape of shock corn, fed in the mangers in small bundles to the dairy cows, it will be found convenient and profitable feed. It will stimulate an increase in the flow of milk, and will be found much cheaper feed than the commercial feeds sold on the market.

In feeding immature shock corn to cows, good judgment must be used in order to get good results. The feeder should begin with a small quantity at first and increase the amount gradually and carefully, up to the point where the animal is taking all she can digest and assimilate. Watch the flow of milk, and if there is no increase in the flow when there is an increase in the amount of feed given, the cow is getting all she can use. Also watch the excreta to see if the feed is well digested or not. To feed more than the animal can digest, is to bring an injury in two ways; the flow of milk will be diminished, and there will be a general derangement of the whole system.

Immature corn fed in the bundle to young cattle or beef steers, is an excellent feed, if properly handled. The corn is soft and sweet, is eaten with a relish and is easily digested. The gastric juices of the stomach flows freely while the corn is being chewed, and act upon the soft mass as it enters the stomach; and again at the time of remastication, and readily take all the nutrients from it. Palatability in this case, as in many others, is beneficial.

While the corn that is frosted before it is matured is damaged, the real feeding value should not be overlooked. It is wise to save it and utilize it to the best advantage. In some cases the first may prove a blessing in disguise. Corn that might have been sold from the farm if it had matured, if fed to the cattle on the farm may bring a profit in the shape of milk and meat, while the manure pile may be enlarged which may be a material aid in increasing the fertility of the soil on the farm. Make the most of the frosted corn.

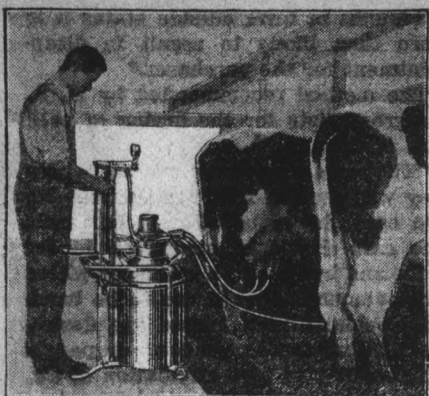
THE CASS COUNTY BOARD FINDS AGENT VALUABLE ASSET.

The Cass county board a few days ago decided without full knowledge of the results of his work to dismiss its agricultural agent for "economy's sake." The vote was ten to eight against retaining him.

But the board members shortly had pointed out to them the seriousness of the seed corn situation and were informed of the value of the county agent's services in securing the conservation of the supply by looking up desirable corn and saving it from the silo. The results of the agent's efforts in this one direction led the board almost over night to hire him back again, this time by a vote of fifteen to three.



Efficient Horse Power Will Increase the Efficiency of Man Power on this Farm Next Year. Let it do the Same Thing on Your Farm.



At Last!

AT last! A perfect milking machine. Readers of the Michigan Farmer are hereby informed that, at last, they can get a milking machine that does the work safely and does it right. Those old objections to milking machines are now eliminated. This machine is

Shippert's Valveless Hand Milker

Run by hand—just the thing for the farmer with 6 to 60 cows.

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Introductory Offer!

Special discount direct to you:—price, for two units, \$84.75—that's all for two units. **Not one cent of installation expense. Total cost of complete outfit—\$84.75!** 1/2 the price of others not as good. (Six months to pay if desired.)

30 Days' Free Trial!

Not a bit of obligation if you don't like the machine after the trial.

Write

For My Personal Letter!

explaining how I came to invent this machine; how, after working over cows for years, I hit upon the principle that's absolutely right.

It is high time now for the progressive farmer to investigate the milking machine question. My personal letter explains.

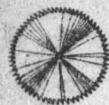
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Dear Sir:—Without any obligations, please send me your personal letter explaining about your hand milker.

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Every blade guaranteed to be free from flaws, cracks and splits, teeth to hold their edge and corners not to crumble. Not to be compared with the cheaper mail-order house saws.

Size	Gauge	Price	Size	Gauge	Price
20"	13	\$3.00	26"	11	\$5.00
22"	12	3.50	28"	10	5.75
24"	11	4.25	30"	10	6.50

Steel Saw Frame with self-aligning dust-proof boxes; cannot pinch shaft; thoroughly braced; heavy balance wheel. Special low price, \$20.00.

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Cut Out And Save this ad, if not ready. Will not appear again unless prices change.

Satisfaction Guaranteed or Money Back.

Farmers' Cement Tile Machine Co.
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DITCHING

A Mile a Day

to Easy With this Simplex Ditcher-Terracer. Equals 100 men. Low cost. Builds terraces and levees. Grades roads. Mostly all steel. Reversible. Ten days' trial.

Write for prices and money-back guarantee. Simplex Farm Ditcher Co., Inc. Box 63 Owensboro, Ky.

Please Mention The Michigan Farmer When Writing to Advertisers

Better Seeds and Earlier Maturity

By W. J. COOPER

OUR seasons have been growing shorter each year for several years now. Whether this is a sort of evolution that occurs every so often or not, it is hard to say. One thing is certain; we have got to get our crops in earlier in order to get them to mature, and in connection with this we must seed with the very earliest varieties, and of the highest vitality procurable until our seasons change for the better.

There is no doubt that much of the seeds planted, or sown, are of low vitality, vigorous enough to germinate but not to furnish a rapid continuous growth. A stunted plant always makes a bad finish.

In the case of corn, don't leave the corn you intend to plant a day longer where it is a subject to freezing than necessary, kiln dry it first where possible, then store in a dry place, not necessarily such a warm place after it is thoroughly dry; but a dry place. You will have no trouble with lack of germination, or growing vitality.

Real late potatoes, or potatoes that never get ripe in the ground make poor seed. You will notice that potatoes that are all rough from peeling through immature handling, are slow starters, as well as poor growers, and rarely give quantity, or quality in the crop.

The potato crop is an expensive one to raise all around. It requires the best land on the farm, unless the crop is made artificially with manures, or commercial fertilizer. It costs more to plant, in labor; it takes a larger proportion for seed to the crop than many crops, is troublesome to raise, in the nature of the crop, including the potato bug; is bulky to handle, and perishable through frost, or much wet weather. It is of first importance that we have the very best seed, well matured, free from scab and blight, of uniform shape, and size to insure a good and uniform crop.

Particular care should be used in storing seed where it is not too warm, as continued sprouting lowers the vitality just to that extent. It is pretty generally conceded that the seed furnishes a very great start to the early and continued plant growth and is a very great factor in a good crop, so if the potato is reduced to a mere sponge by continuous sprouting, most of these elements in the early growth of the plant are absent, and the plant suffers accordingly.

The selection of seed beans will be a very important matter this next season, as so many of our beans were frosted, at various times before finally harvested, many lying on the ground under the snow for days, when in a soft condition. There is no doubt that these latter should not be planted at all. For, while a large per cent might germinate in a good many cases an uncertainty would always exist. They would be apt to be poor growers, and would mature late and very uneven, making heavy pickers; in fact, would make the whole stand late, as the harvest must be delayed for the latest. Be sure and get early beans, beans that ripen evenly. If you did not grow them yourself, drive if necessary, ten miles to get them where you know they are absolutely right.

The bean crop has come to be a mighty important crop in Michigan in particular, and Uncle Sam is looking to make good and "do our bit" in raising the maximum crop next year, as beans cannot be grown successfully in but a very restricted area. If this were not so, there would be no ten dollar beans; that is the reason that the price has been going higher and higher for the past fifteen years.

There is mighty little doubt that the farmer who can get the help to raise beans for the next few years will get handsome prices for every bean he can

get to market, as well as be a mighty big asset to his country in this period of great crop need, as the white bean furnishes the very greatest food value in a most concentrated form, a sort of tabloid of nourishment from Nature's laboratory.

In a word, Michigan's beans and Michigan's sugar will be a very great factor in feeding our fighting units, and in winning the war. In conclusion, don't wait until you are already to seed next spring to prepare your seed but get it now, clean it good, give it the proper heat, and freedom from moisture, store it away from the rats and mice and other vermin so that when the seeding season arrives you will be all ready for the fray, for preparedness is half the battle.

HOGGING BARLEY AND WHEAT.

I would like Mr. Lillie's opinion on the advisability of "hogging" barley in the field. Also, will the beards have a tendency to choke the shoats? At the present price of wheat and hogs would it pay to "hog" the wheat? I paid \$3 per day, with board, for help during harvest, and six cents for threshing wheat, besides boarding the men, furnishing five men to care for the grain, and coal.

Jackson Co.

SUBSCRIBER.

I don't believe you can get anywhere near as good results in hogging barley and wheat as you can in hogging corn. They are so different. Yet if it was impossible to get help or if the expense were too great in harvesting the barley and the wheat and one had the hogs, I can see that it might be feasible to attempt to hog it.

One would have to work a little different in hogging barley or wheat than corn. It wouldn't do to turn a bunch of hogs into a good barley or wheat field as very much of it would be destroyed. One ought to have extra fencing so that the hogs could be confined in a narrow strip until the barley or the wheat was all consumed, then the fencing moved a few feet or a few rods, depending upon the number of hogs and the size of the field, and do this continually until the field was covered. I believe in this way one might make a fair success in hogging down these crops.

I don't believe that the beards on the barley would affect the shoats. I think they could take care of that part of it without any difficulty. Barley beards wouldn't be very much worse than the beards on bearded wheat and they would be so masticated by the pigs that I don't think there would be any serious danger.

At the present price of wheat, however, with a guarantee, I don't believe that a man can afford to hog down a good field of wheat. Under the very best of conditions I think there would be considerable loss. This wheat would be lost and trampled into the soil. Not only that the wheat wouldn't be properly masticated like corn, it is too fine. A good per cent of it, if the wheat got hard at least, would pass through the alimentary canal without being properly digested. Before the wheat or the barley got hard this loss wouldn't be serious, but if it did get real hard I would be afraid that there would be quite a per cent of the wheat that wouldn't be properly digested and therefore wouldn't be assimilated. In the case of corn trampled into the ground it would finally be picked up by the hogs. We all know, however, that when hogs are turned into the stubble fields after the wheat crop is harvested that they pick up the wheat thoroughly. One reason for this is that they don't find the wheat very readily and more time is taken for mastication and that is the particular reason for not allowing them to have the whole field to hog down. Make them eat on a small portion of it before giving them more ground.

Even at the price you paid for threshing and the price for labor, I am of the opinion that it would be better to harvest both these crops and grind the barley and wheat, too, for that matter, and feed it in the form of a slop rather than to hog it down. It is less labor to harvest wheat and barley than corn.

COLON C. LILLIE.

NEW ROADS IN MICHIGAN.

The roads now being built in Oakland county will cost very close to \$520,000, according to estimates of Engineer Lau of the road commission. In addition roads, costing about \$451,500 are being surveyed and petitions calling for expenditures of \$644,500 have not yet been acted on. These are roads to be built under the Covert law and had the commission carried out all the work for which petitions have been received during the period from June 3, 1916, to October 1 this year they would have spent \$1,866,433 in this branch of road work alone. Eleven of the eighteen roads asked for under the Covert law were concrete and the rest gravel.

Kent county has voted a half-mill tax for building new roads next year, and the total amount raised will be approximately \$111,000. The sum of \$35,000 asked for by the commission to maintain roads already built was voted down.

In Clinton county the trunk line road of four and a half miles between Pewamo and Fowler is under construction, with E. J. Martin, of Fowler, in charge. Work has been started also on the road between Elsie and Ovid, two and three-fourths miles, with F. A. Smalling as contractor.

Lapeer county has about twenty miles of new Class B gravel road completed, twenty-three and a half miles under construction, twenty-five miles contracted for and about thirty additional miles ready to let. A year ago the board had forty petitions on hand, representing a total of 200 miles. Today there are sixty petitions, or an additional thirty-five miles.

Chippewa county has appropriated \$60,000 for road work next year, among the leading items being \$8,000 for the Pickford-Mackinac road, \$5,000 for Soo-Pickford road, and \$10,000 for completing present road contracts.

Marquette county expended over \$80,000 on road work during the past year, and has appropriated \$65,000 for this work during the coming season.

Ottawa county has set apart \$92,000 for building permanent trunk roads of concrete, sixteen feet wide. This will include three miles on Holland-Green road, one and a quarter miles on the Holland-Zeeland road, one mile on the Holland-Macatawa road, one-half mile on Spring Lake-Coopersville road and a quarter-mile on the Grand Haven-Muskegon road.

Hart township, Oceana county, will vote November 15 on a bond issue of \$25,000 for good roads.

Eaton county has appropriated \$61,600 for good roads next year.

Fees for auto license tags, including motorcycle and chauffeur licences, received at the secretary of state's office, Lansing, during the first nine months of 1917, aggregated \$2,436,924.28. All this money goes into road improvement, half of each county's share being sent back for road building and repair and the remainder being paid in road rewards by the state.

Kent Co.

ALMOND GRIFFIN.

When housing the farm implements for winter make a list of repairs needed to put them in shape for efficient service next year. Order these repairs at once and have them on hand when needed. Such precaution may easily save days of delay next spring. Materials are so short that manufacturers will not carry more parts than seems absolutely necessary. An order placed now means that you will not be disappointed next spring.

Sweet Clover

THE really remarkable discovery has been made by a good many farmers that sweet clover, that formerly despised weed that grows tall and rank on barren, waste places, is a first-class forage crop for horses, sheep, and in fact, all kinds of farm animals. This does not mean that it is a make-shift, something which stock will eat in the absence of good hay, but that it is actually relished and that it is one of the very best bone and muscle makers for animals. Nutrition and digestion experiments by the Agricultural Experiment Stations show that it is actually the equal of red clover and alfalfa as a feed, and that as a pasture plant it is superior to either, since it will grow on very poor soils and is decidedly drouth resistant. These heretofore unknown qualities are leading to larger and larger areas being planted to the crop for hay and pasturage in many parts of the United States. On account of the succulent character of the first cut it is sometimes hard to cure hay in humid sections when the weather conditions are not good but when properly cured it is greedily eaten by stock. It is also coming into great favor for silage. Like the other legumes, it is an excellent soil improver as its big roots loosen and add humus and nitrogen to the soil, and when fed as hay it makes the strongest of manure for returning fertility to the soil. Sweet clover is also a remarkably good honey plant as it produces nectar over a long period in all sections of the United States.

With the possible exception of alfalfa on fertile soil, the Department of Agriculture states, no other leguminous crop will furnish as much nutritious pasturage from early spring until late fall as sweet clover when it is properly handled. Live stock which have never fed on sweet clover may refuse to eat it at first, but their distaste is easily overcome by turning them on the pasture in the spring as soon as the plants start growth. Many cases are on record where stock have preferred the sweet clover to other forage plants.

Now, many a farmer's boy in the region where sweet clover has not yet found a home will turn up his nose in superior disgust at the idea of planting sweet clover, and reply "nothing doin; that stuff's no good. The stock won't eat it." This has been the universal opinion for a century but now it seems that a fine but neglected plant is coming royally into its own. It can be pastured earlier in the spring than most forage plants and it thrives all through the hot summer months. It is especially valuable for poor soils where other crops make but little growth, and thousands of acres of such soils are now rapidly improving under its crops and at the same time furnishing abundant pasturage for all kinds of stock. Over broad areas in the middle west where native pastures will provide only a scant living for a steer on four or five acres, a proper seeding of sweet clover will provide forage to carry one animal to the acre through the season.

To the farmer who all his life has seen his stock pass by sweet clover without even sniffing it this may all sound like verbal mirage, but as good authority as the Department of Agriculture has issued a sweet clover leaflet which reads like the discovery of a gold mine. Some of the best pastures in Iowa are said to consist of a mixture of Kentucky bluegrass, timothy, and sweet clover. When dairy cows are turned in on sweet clover from ordinary grass pasture the flow of milk is increased and its quality improved and this plant will carry at least one cow to the acre during the summer months. An acre of sweet clover will pasture twenty to thirty shoats in addition to furnishing a light cutting of hay. Experiments in Iowa show that

two lots of pigs, eighteen in number, pastured on red clover and sweet clover made an extra gain of \$16.41 in favor of the sweet clover.

As a soil improver sweet clover must appeal to every farmer, especially in present times with the price of nitrogen fertilizer up in the skies. At the Ohio station wheat was planted on two fields, one had lain idle and on the other sweet clover had been grown as hay for four years. The wheat yields were twenty-seven bushels per acre for the sweet clover lands and eighteen and one-half bushels for the other field. At the Tennessee station one field was planted to sweet clover and this was plowed under after cutting of hay had been removed. Another field was planted to rye and the whole crop plowed under. The fields yielded fifty-nine bushels against forty-one bushels of corn per acre in favor of the sweet clover field.

Washington, D. C. G. E. M.

ALFALFA AFTER BEANS.

I would like Mr. Lillie's opinion of alfalfa sowed on disced bean ground, in the spring. Do you think land should be plowed?

Jackson Co.

SUBSCRIBER.

My opinion is that you couldn't find a better place to seed alfalfa than after beans next spring. I wouldn't plow the ground. Disc it up thoroughly, harrow it until you have a fine seed bed two or three inches deep. This will be very much better for the alfalfa than as if you plowed it. If you plow it you must go to work and roll the ground and compact it before you have a proper seed bed for fine seed like alfalfa.

You could use one of two methods in sowing this alfalfa. If you wanted to keep cultivating the ground, say every week until the middle or last of June, and then seed to alfalfa you would have no trouble from weeds because by so thoroughly cultivating the ground you would destroy all weeds in the surface soil. This probably is the safest way if your land is weedy, but if it is not very weedy and you can prepare the land just as early as the season will permit, and seed to alfalfa at once you stand a chance of getting a cutting of alfalfa the same year. I know where a farmer lost his wheat stand by freezing, who disced up the ground in this same way early in the season and had two cuttings of alfalfa the same season, but this was on prime land for alfalfa. It was rich and well drained. If the land isn't quite fertile I am sure that it would pay you to top-dress it with fine stable manure or use a good dressing of commercial fertilizer at the time you sow the alfalfa.

COLON C. LILLIE.

ADVISES SAVING OF ALL FROSTED BEANS.

James N. McBride, State Director of Markets, is recommending to growers of beans that they save all of their crop which may have been frosted. It is probable, he said, that an outlet for them will be found abroad.

"Where there is a considerable amount of frost damage to beans," the statement from the markets office declares, "it will still pay to have and cure well before threshing. It is hoped to establish a special grade of frosted stock that will eliminate the expense of picking and realize their food value at the same time."

"It is probable that an outlet for this grade will be found abroad. Small samples may be sent to this office for the securing of estimates of grade and values."

Stockyard figures gathered by the Food Administrator show that 73.3 per cent of the calves slaughtered at nine large packing points in this country during the first nine months of this year were males.



L Brand Arctic. High quality, low price.

LAMBERTVILLE RUBBER FOOTWEAR

Gives you more than
your money's worth

IN this day of high prices you want to make your dollars go as far as possible. The demand for 100 per cent. satisfaction for every 100 cents you pay makes Lambertville the logical rubber footwear to buy. For every cent you put into Lambertville boots and shoes you receive a double measure of long wear and comfort.

Lambertville Rubber Footwear is made as strong and sturdy as possible from best quality materials. It will come through the hardest wear or weather without a complaint. It will keep your feet snugly protected from water and cold. Regardless of what you pay, you can't buy better boots or shoes than Lambertville. You can identify any Lambertville boot and shoe by the Green Oval Label.

There's a Lambertville Brand for Every Purpose and Every Purse

The five different brands are listed below — each the very best of its kind and every Lambertville brand can be distinguished by the Green Oval Label.

Snag-Proof—All rubber and duck. Seven thicknesses of rubber ground into the heavy duck.

Redskin—Made of long wearing red rubber.

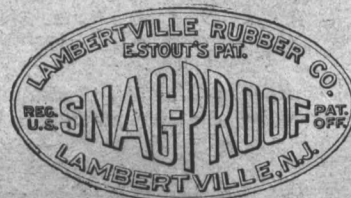
Lamco—Pure gum reinforced with seven stout ribs to prevent cracking or breaking.

L Brand—Duck vamp, sturdy rubber. This brand offers exceptional service at a moderate price.

White—Pure white rubber in Snag-Proof quality—steam cured in vacuum, designed for extreme severe service.

You should find Lambertville Footwear for sale at the best store in your locality. Not all stores sell the Lambertville line because we limit the sale to merchants who value a satisfied customer above a quick profit. If you do not find a dealer near you, write us direct and we will see that you are supplied.

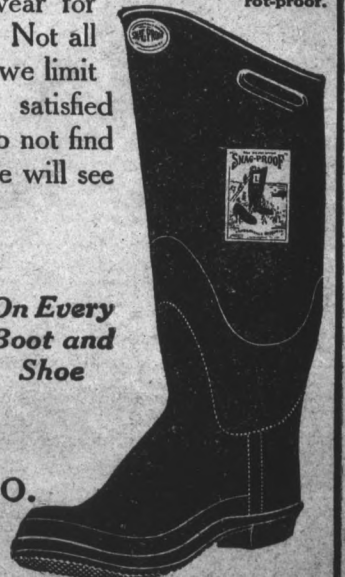
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On Every
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LAMBERTVILLE RUBBER CO.
Lambertville, N. J.

Snag-Proof Short Boot. Faultless, wear-proof, rot-proof.



THE labor problem was discussed by M. L. Ruetenic, of Ohio, at the recent National Vegetable Growers' Convention, and was given the closest attention, as there were many that had found labor their worst problem. But Mr. Ruetenic did not mention the draft or the competition with other industries. He has solved his problem on a long-term arrangement by adopting the profit-sharing plan. His plan was described as follows: He puts down the farm and equipment at cost. The amount paid to men as wages is added and called capital, upon which dividends are declared every six months. Then a man earning \$700 per year with him gets dividends on that amount. If the plant earns ten per cent, the man gets an additional \$70 for the six months' period. Every man must work on the place for a year before he is given the chance to share in the profits. After the second year the men are allowed to invest in the plant at the rate of \$200 per year for ten years. Thus, after ten years every man will have the \$2,000, plus his wages, to draw interest on. Mr. Ruetenic has followed this plan for twelve years, and loses only about one man out of fifteen hired.

Farm Vegetable Storage.

This proved a subject of very timely interest as the matter of storing products on the farm gives evidence of increasing. R. W. DeBaun, of New Jersey, led in the discussion. He outlined three principal means of farm storage—the use of a root cellar, out-door pits and trenching of vegetables, covering with salt and hay manure. For root cellar, he suggested building on level ground rather than banking in a side hill. He advised building along the vegetable packing house or some similar building so that the cellar may open into the building rather than into the open. He would excavate about three or four feet and build up with concrete or hollow tile, bringing the walls up about four to five feet high before starting the arch roof. Arch the roof over, making the cellar about seven feet high, and cover over the roof with earth. The earth covering should be made about two feet. Provide well for drainage and ventilate with six-inch tile set in the ridge of the roof. Cover upper end of the tile with woven wire to keep out rodents. Run a six-inch tile along tile floor and out underground to an outdoor opening. This, together with the tile in the roof, will give opportunity for ventilation. Ventilate when the outside is at the freezing point, or nearly so; never when outside temperature is high. Store the vegetables in this cellar in bins made with slatted bottoms and partitions. Among the advantages of a storage cellar is the important one that the best prices during the winter come in a stormy spell. If vegetables are in a cellar they may be gotten out and sold to advantage.

Methods of Storing Vegetables.

In using pits and trenches, Mr. DeBaun advised covering first with hay and straw and putting on a rather thin covering of earth. Then as the weather grew colder, cover heavier with manure as needed. The discussion developed interesting facts on the value of precooled vegetables before putting in refrigerator cars for shipment. C. B. Lewis, of New Jersey, related experiences on the point. He said that he had shipped sweet corn that had been in storage for seven days and four days on the road and it came out in good condition. Having a cold storage plant on the farm, he precooled all vegetables before loading, and then by allowing ventilation between packages in the car he had little trouble in shipping. He had made a test on ventilating vegetables in shipment and found that there was as high as thirty degrees difference in the temperature in different parts of an unventilated car and practically no variation in cars

Some Phases of Vegetable Growing

with packages stored to permit free circulation of air.

Drying of Vegetables.

A. G. B. Bouquest, of Oregon, discussed the "Commercial Drying and Evaporation of Vegetables." He outlined the rapid development of the kiln drying and dehydrating processes in the west. He noted that the practice was more needed in the west than here because of the cheaper freight cost in shipping a dry product long distances. He assured us that the dry product could and would come into general use when the public became acquainted with it. The modern drying process does not leave the dried product dead and shriveled, but turns it out with all tissues intact. As such, the further use of the dehydrated product is in line with modern conservation demands, product may be transported cheaper, may be put in cheap cartons and does not require expensive packages. The only drawback to its instant acceptance by the public is that the dried product must be soaked for some hours before it can be used, hence is not what the housewife would term an emergency dish. Dehydrating will make use of all excess production and all of the waste and culls but a cull is always a cull, and is not advised. Standardization of the dry product when it comes into general use will be as important as with other vegetables.

Auction System of Marketing.

The auction system of marketing

vegetables was discussed by Mr. Scott, Boston representative of the Southern Citrus Fruits Company. He pointed out that the large cooperative companies are all coming to the auction system which has been in use in England for more than a hundred years and in use in New York and Boston for more than fifty years. In Boston now from twenty to seventy-five cars of fruit with a gross value of \$1,250 each are sold every week day. He described the auction method in detail and made the following observations: Auction bidding is always upward; dealer buying is always downward. The auction system sells the lower grades as advantageously as the higher. Theoretically it is possible for the buyers to get together in an auction sale and regulate the price, but they never do. It has been tried but does not work. All records are kept by the auctioneer, and there is a record even to the name of the buyer open to anyone who wants it. Cars are unloaded as soon as sold, and very little of the product goes to a speculator. He knows that he will have to compete with other goods coming in and selling the next day, hence any matter held merely adds to the competition of the following days. There is no room in the auction business for tricks; everything is open and above board. The only question of the application of the auction system to vegetables is the question of standardization.

A Valuable Orchard and Garden Asset

NEVER before in the history of this country have the garden and the orchard meant so much to both producer and consumer. The garden movement of 1917 looms large in the problem of feeding the world's millions. The importance of a garden and of fruit of all kinds, both on the farm and in the smaller towns and villages, has been brought home during the last few months as never before. When a man says his garden and few fruit trees are half his living, he is not talking in exaggerated terms. More and more the small land owner is arriving at a period when he can make a good living by growing fruit and vegetables. Even in farming districts dotted with comparatively small towns, the local demand for these products often exceeds the supply.

A Natural Help.

In the face of the foregoing facts, it follows that anything that will help the gardener or the orchardist in producing a good crop, is of importance. Never before in the history of the race has man been compelled to fight so many pests in his attempt to grow crops. This is especially true of the fruit crop. Barrels of poison are required each year to keep down the pests and make possible the growing and maturing of fruits of various kinds. To almost as marked a degree does the vegetable gardener find himself hampered by innumerable pests and compelled to resort to every device known to man in ridding the garden of the ravagers. Could the natural enemies of these insect pests be induced to live in the vicinity of gardens and orchards in sufficient numbers, many of the troubles and worries of mankind would be removed. Foremost among these natural enemies come the birds. And this brings us to the particular bird whose existence has occasioned this article—namely, the house wren.

In several important respects, the house wren differs from all our other beneficial birds, when it comes to the question of increasing his numbers in the vicinity of orchards and gardens. One important feature is found in the fact that this bird is so small that it can nest in a place too small for the English sparrow to enter. Were this

not true, it would be worse than useless to try and increase the numbers of these insect-eating little busybodies. Boxes properly made and placed on fence posts or in trees or in any favorable location, will attract wrens. The hole should not be more than seven-eighths of an inch in diameter. If it is larger than this, the English sparrow will enter and drive away the wrens.

Another important factor in making the wren a garden and an orchard asset, is found in the fact that the various pairs will nest within short distances of each other, which is not true of most other birds. The wrens, too, seem to take a liking at first sight to boxes prepared for them. In neighborhoods not hitherto frequented by these birds, several pairs have been known to nest the first season, when attracted by boxes arranged for their accommodation.

Still another item in the practicability of making the wren a valuable addition to the insect fighting force is found in the prolific propensities of the bird. Without fail a pair of wrens will nest twice each season, and will rear if unmolested, from six to ten offspring. From this it can readily be seen in how short a time an orchard or garden may be made the dwelling place of a good-sized number of these tiny workers.

The Wren Beneficial.

In addition to the above mentioned facts, the wren is absolutely beneficial. He has no bad habits. He is so purely an insect eater that birds killed for the purpose have been found to contain less than two per cent of vegetable matter. Small though he is, the wren consumes each year, a countless number of detrimental insects. He attacks every variety of insect pest which preys on fruit and garden products. He assails the canker worm and all the other ruthless enemies of the orchard. The large number of young raised each year keeps the wren hard at his hunting, and often he may be seen tugging a some worm apparently half as large as himself.

In the great problem of food conservation this little house-wren, tiny and insignificant though he may seem, can be made to play an important part.

Naturally, the wren nests in wild, out-of-the-way places as well as in the vicinity of homes. The wise gardener or orchardist will erect boxes and try to induce the wrens which would otherwise go to the woods, to nest where damaging insects flourish. Success is sure to follow an honest effort. In these artificially arranged nesting places the young almost always grow to maturity, as they are safe from cats, squirrels and other natural enemies.

The Aesthetic Value.

It would not do to close this article without mentioning in a sentence, the aesthetic side of this garden and orchard asset. The gardener or the orchardist who works all day in company with these blithe, happy, incessant little singers, can scarcely have sad or hateful thoughts. From the middle of May to the middle of August, the wren is a constant singer. One which nested in the writer's garden this year was unusually late in rearing the second brood, and sang to the exceptionally late date of September 8. Fully two weeks later I heard his so-called "Fall Song," known to but few people. This is a low, broken strain, as though the bird were singing to himself. If you have an orchard or a garden invite the wrens to visit you. It will pay in dollars and cents and in added enjoyment.

Hillsdale Co.

J. A. KAISER.

HAVING VEGETABLES NICE AND FRESH ALL WINTER.

A great many people do not seem to realize just how many different kinds of vegetables they may store away and keep them nice and fresh during the entire winter months. The storing of such vegetables is quite an item, especially in these days of high prices and shortages in some crops. On almost every farm there will be found many different vegetables that may be stored away for use a little later on. There is also a profit to be derived from storing away vegetables for winter as they will find a ready market in case we have more than we need for home consumption.

The ideal conditions, and essential as well, for storing all small vegetables and root crops, including such vegetables as cabbage, beets, turnips, carrots, parsnips, potatoes and many others, are, that they be kept in a cool, moist place away from the action of all air. We store all such vegetables and this is done fairly late each fall, being careful to have them put away before freezing weather comes to stay.

Storing a Simple Matter.

The storing of vegetables is really a simple matter and where one has a large cellar that is not too warm and wants to store such vegetables as will be needed along during the winter for home use, I have found this to be an ideal place to store them. The great advantage lies in the fact that the temperature is more even in a place of this kind, neither too cold and at no time too warm. If large quantities of vegetables are to be stored, however, then perhaps the trench method would be the best, especially where a large quantity of potatoes, apples, or cabbage, etc., are to be stored away and perhaps not used or opened up until very late in the winter.

In storing vegetables out of doors, they should be placed in a location where there is natural drainage. This is very important. A covering of eight or ten inches of straw or leaves should be thrown over the pile of vegetables to be stored. This keeps them bright and clean. Then a good heavy layer of soil should be put on evenly all over. In very cold climates a covering of manure over the soil after freezing weather comes will help to keep the vegetables in better condition. When stored away carefully in this manner vegetables may be kept in perfect condition all winter or until we want to use them.

Pennsylvania. MRS. E. O. SWOPE.

TRACTOR TESTS

Conducted at Fremont, Nebraska

July 26 to August 2, 1917, by the Agricultural Engineering Department of the University of Nebraska

Prof. L. W. Chase in Charge

A series of interesting tractor tests have just been made. Every farmer may now know facts, then judge accordingly.

The object of the experiments was to determine under *actual* farm conditions the amount of fuel required and the rate of doing various field operations, and to study the quality of the work done. Also the effect of different depths of plowing in the same field. The tests were not of a competitive nature, but were made with the object in view of observing tractors in actual farm work so that all farmers might have exact figures.

The tests were made with Case Tractors operating standard farm equipment, under the auspices of the Department of Agricultural Engineering of the University of Nebraska, directed by Prof. L. W. Chase, assisted by Prof. O. W. Sjogren, Mr. Louis Runnels and Mr. Ray W. Carpenter.

For Free Distribution

A bulletin has just been published covering twelve tests. This is the first authoritative statement of its kind.

It shows the equipment used, the kind of fields, the different operations. Of chief interest to all farmers is the fuel consumption and cost per acre. Much of this information has hitherto been speculative. Now it is down in black and white. It shows the advantages of Case Tractors.

Some of the Data

Each test is complete; different size tractors are used.

Some tests are for plowing at different depths. Some are for spike-tooth harrowing and disking, etc.

Kerosene was used, and based on a cost of 8½ cents per gallon the cost per acre for plowing under different conditions and depths is shown. These are exact figures—not estimates. The temperature was 100 degrees in the shade—but the heat, however, had no effect on the operation of the tractors in any way.

A Typical Test

The Bulletin shows twelve tests. We quote herewith test No. 6. The depth is 6 inches. Other tables show depths from 4 to 8 inches.

Test No. 6

July 28, 1917

Case 10-20 Tractor Pulling 3-Bottom 14-inch Plow 6 Inches Deep

RESULTS:

Net amount of land plowed during test.....	1.78 A
TIME:	Hrs. Min. Sec.
Plowing.....	1 51 42
Turning at ends.....	7 51
Total.....	1 59 33
FUEL—Amount of Fuel Used During Test:	Gals.
Gasoline.....	.163
Kerosene.....	3.94
Total.....	4.103
Average per acre.....	2.3
Per 10-hour day.....	20.6

PLOWING DATA:

Depth of plowing.....	6 in.
Width of land plowed.....	62 ft. 3 in.
Length of furrow.....	1250 ft.
Rate of travel while plowing.....	2.29 miles per hour
Percentage of time spent in turning at ends.....	7 per cent
Average time required to plow an acre.....	1 hr. 6¾ min.
Or.....	.895 A. per hour

COST OF FUEL

PER ACRE..... 20¾ cents

NOTE—The recommended depth of plowing in this field was 6 inches, and therefore this and subsequent tests were made at that depth.

Send for Your Copy

This bulletin created a sensation at the Fremont Tractor Demonstration. All farmers have been waiting for conclusive figures. Case, the leader for 76 years in power farming, now sets a new pace. No farmer should fail to get this bulletin.

Copies are free. Merely send us your name and address, asking for "The Tractor Tests Bulletin," and a copy will be forwarded at once—without charge. The first edition is just off the press. So don't delay—write today.



Case 10-20 plowing, pulling 3-bottom plow over clay hills

J. I. CASE THRESHING MACHINE COMPANY, Inc. (Founded 1842), 765 ERIE STREET, RACINE, WIS.



CASE



Corn Silage Cuts Beef Costs

THE University of Missouri College of Agriculture has published data of two feeding tests which should be of interest to every beef producer in the United States, especially with the present high cost of feeds and beef. Seventy head of two-year-old steers were fed in two tests conducted during two different years: first, to secure data concerning the possibility of fattening cattle by the extensive use of corn silage without the use of additional corn in the ration; second, to study the importance of a high protein concentrate when combined in a ration of shelled corn, corn silage and alfalfa hay; third, to compare the relative value of old process linseed oil meal and cottonseed meal in rations containing corn silage. The first test was conducted during the winter of 1915-16 and the second during 1916-17. The two tests lasted 133 days and 130 days respectively. Detailed information on these feeding tests will be found in Bulletin 150 of the College of Agriculture, Columbia, Mo.

In both years the cattle which received a liberal allowance of corn silage with alfalfa hay and cottonseed meal or linseed oil meal made the cheapest gains. The steers in the first trial which received cottonseed meal, corn silage and alfalfa hay, made a profit of \$9.87 per steer. The cost of gain per hundred pounds, with the gain on hogs credited at \$8 a hundred, was \$10.15. The cost per hundred pounds gain on the steers which received linseed oil meal, corn silage and alfalfa hay was \$8.57, and the profit per steer was \$14.56.

During the second trial the cheapest gains were likewise made by the steers which received cottonseed meal, corn silage and alfalfa hay; linseed oil meal, corn silage, and alfalfa hay. The cost of gain per hundred pounds on cattle, with the gain on hogs credited at \$13 a hundred, was \$14.28 in the case of the lot which received cottonseed meal, corn silage and alfalfa hay; and \$14.06 in the case of the lot which received linseed oil meal, corn silage and alfalfa hay. The profit per steer was \$11.59 and \$15.62 respectively. With corn at \$1 a bushel and silage at \$6 per ton the profit per steer would have been \$19.38 and \$23.57.

The following is an extract of the conclusions drawn from the experiments by H. O. Allison, who conducted the investigations: "The records of feed as fed in the lots receiving cottonseed meal or linseed oil meal with corn silage and alfalfa hay show the possibility of fattening from three to four two-year-old steers per acre of corn. The average daily gains in live weight made by the cattle in the lots which received no corn other than that contained in the silage, while not as large as those in the lots where shelled corn was fed, were satisfactory for fattening cattle. The average daily gains in live weight on the cattle were increased by the addition of a high protein concentrate to shelled corn, corn silage, and alfalfa hay. The gain made by the hogs was greater in the lots which received linseed oil meal than in those which received cottonseed meal, both when combined with shelled corn and when fed without corn.

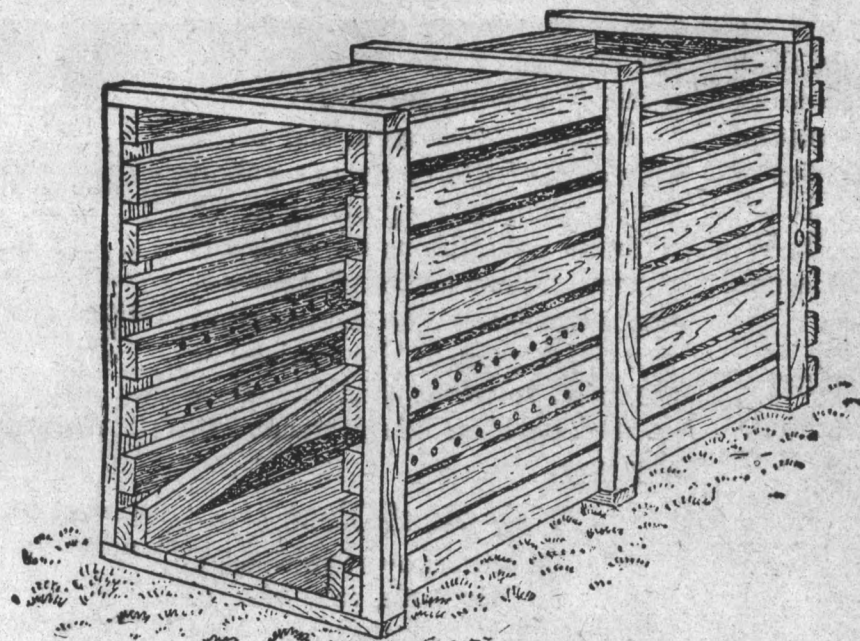
"The steers which did not receive shelled corn in their rations, although not the best, were sufficiently satisfactory to command a good price and to make a good grade of beef, as indicated by the net profit per steer. The difference in the market price of cattle was not sufficient to justify the feeding of shelled corn in the first trial. In the second trial this difference was sufficient to justify the feeding of corn at \$1 a bushel and silage at \$6 a ton, but it was not sufficient to justify the feeding of corn at \$1.50 a bushel and silage at \$11.50 a ton.

"Judging from the two tests it may

be said that it is ordinarily advisable to feed a high protein concentrate to fattening cattle which receive shelled corn, corn silage and alfalfa hay. The net profit per steer was greater in both trials in the lots which received linseed oil meal rather than cottonseed meal, both when fed with shelled corn and without corn."

HOG BREEDING CRATE.

The following description and illustration of a breeding crate for hogs is reproduced from Farmers' Bulletin No. 205. It is not as good a breeding crate as some of the commercial kinds, but will serve the purpose satisfactorily for the average farmer. It should be built six feet long, two feet four inches wide and two and a half feet high. It is made of 2x4-inch scantling, closed in front and open at the rear end. On each side nail a 2x4-inch strip, reaching from the bottom at the rear and to a point about fourteen or sixteen inches from the top at the front end for the boar to rest his feet on. The holes in the side cleats are for an iron rod to run through, jut behind the sow's hocks. The cut shows the bottom



boards put in lengthwise. If put in crosswise the boar will not slip so much, or light cleats nailed crosswise of the floor will prevent slipping.

HOG INCREASE IS NECESSARY.

To win the war we need more meat. To get an increased meat supply quickly hog breeding must be increased materially throughout the country, and in certain states an increase of from twenty-five to fifty per cent in the number of hogs is recommended by the United States Department of Agriculture.

The situation is of great importance. We must have plenty of meat for our armies and the armies of the allies in the field, and sufficient meat for our civilian population and the civilian population of the allies at home.

To have this meat, breeding animals must reproduce themselves so the offspring will be available for slaughter in the future.

Hogs can be increased quicker than any other kind of live stock.

Therefore a larger number of sows must be bred now, than in recent years.

In addition to the fact that there is an imperative demand for more meat as a war measure, it should be taken into consideration that we now have an abundance of feed crops—corn, oats and barley—with which to produce this necessary increase in the number of hogs. The demand for meat is certain and it will be profitable to the farmer to market some of this heavy grain supply on the hoof.

The increase in the number of hogs

for various states, as recommended by the department, is as follows: Missouri 50 per cent; Alabama 30; Iowa 25; Kansas 25; Indiana 20; Illinois 20; Mississippi 20; Arkansas 20; South Carolina 15; Ohio 15; Kentucky 15; Tennessee 15; Maryland 10; North Carolina 10; Michigan 10; Nebraska 10; West Virginia 5; Georgia 5. The increase needed for the entire country is 15 per cent and is covered by the above schedule. Other states than those named should breed no fewer sows than last year.

The result of these increases will be to provide sufficient animals to make the meat that is absolutely essential to the feeding of our armies.

Pork can be transported more readily and economically to troops in the field than can any other meat. Great supplies of bacon must go to the boys in khaki at the front. Unless now a larger number of sows are bred, the amount of meat we will require next year will not be available.

The estimated number of hogs is 4,000,000 less than it was a year ago in this country; and in the face of this we need more hogs than ever before. How can we get them? By breeding sows at once.

The exportation of pork products has increased since the war began and will

ton belt. In the second place every sheepman is not a success, and corn, clover and hogs has proved a combination in the corn producing states that is hard to beat. Moreover sheep raising on any large scale necessitates considerable capital and many men prefer to place their money where returns are more positive while not a few believe the bottom will fall out of the wool industry as soon as the war is over and conditions return to normal. Taking all phases of the industry into consideration this is not likely. The rapidly advancing use of mutton as food will aid the grower of the future over the rough places.

The man who wishes to start with sheep and who does not care to go in with pure-breds will find western ewes profitable. These may be obtained through a reliable commission house and give one a good start in the wool and mutton game. However, in buying be certain that the ewes are young ones and avoid old, broken-mouthed ones. Yearling, or at most, two-year-old ewes, are about all that can be considered profitable. Pick the well-built ewes and rams that carry a dense fleece. These western ewes are very hardy and a good-sized one will shear from six to eight pounds of wool of good quality. They forage well and as a rule produce strong lambs.

Although sheep are generally regarded as excellent foragers the man who expects his sheep to live by foraging alone should not have a flock in excess of the feed upon which they must live. The best plan is to feed, and certainly this must be done in the winter, but the best sheep growers provide plenty of feed at all times. At lambing time it sometimes becomes necessary to almost live with the flock but such care pays in the end. Good, warm quarters are indispensable at this time.

Along with the increased consumption of wool, mutton has become a food of no mean importance. It is estimated that three-fourths of our sheep crop is marketed in the shape of lambs. The demand for bucks, ewes and wethers is small, yet there is no telling how that demand may fluctuate should the war be prolonged for any great length of time.

While there is no fortune in sheep for the average farmer the doctrine of a few sheep on every farm is well worth listening to. More than that, many farms can increase the size of the flock without lessening the farm's efficiency in other lines and in such cases it will be well worth the trouble to do so for the day when wool must go a begging for a buyer at a good price and when lamb chop and leg o' mutton will not bring their worth, is far distant.

Indiana.

W. C. SMITH.

THE HORSE SHOW AT COLUMBUS.

Never in the history of horse shows in Ohio has there been such a show of good horses as was held in connection with the National Dairy Show of 1917. Draft horses, saddle horses, harness horses and ponies, splendid representatives of their respective breeds, jammed the big horse building on the Ohio State Fair grounds to capacity. Some of the best saddle and harness stables in the land were represented. Saddlers from the stables of Power & Best, Charles Elmer Riley, Edgar T. Doty, R. E. Moreland and McCray Bros., came all the way from the bluegrass region of Kentucky. From the state of Missouri came E. D. Moore with his saddlers, and Mrs. Loula Long Combs with her famous stable of high stepping heavy harness horses. Dividing heavy harness honors with the Combs stable were horses from the stables of Walter H. Hanley, John L. Bushnell and John R. Thompson.

Saddle horses from the above mentioned stables made possible some of the greatest saddle classes ever aggregated. (Continued on page 457).

WOOL AS A WAR CROP.

In less than two years wool has advanced around 100 per cent and, in view of the fact that manufactured woolen products which are exported from this country increased more than 400 per cent for the year ending June, 1917, over the preceding year, the advance in the price of the raw material is not hard to explain. War, says the average man, and war is right. Yet there remains the fact that the world's supply of wool has remained practically stationary for years and the wool-consuming population has continued to grow. This, too, while the gospel of more sheep has been preached from all agricultural pulpits. Wool has always been more or less of a staple and never so undependable as cotton.

In the first place there is no one area that must live by wool alone as has been the case at times in the cot-

My Father's Help To The Farmer!



In a little settlement of pioneers, called Maria Stein, Ohio, many years ago, Joseph Oppenheim, my father, was the teacher. Studious and quiet, he yet had a personality that appealed, for he was helpful to all. Farming then wasn't so profitable as now, and the women and children had to work in the fields.

The Settlers who came to this country generations back were frugal people. They had to be. Yet they were far-sighted, too. They knew that land could be exhausted—they knew it must be fed if it was to continue feeding them. So they wasted little fertilizer. Barnyard manure was their reliance—as it is yet.

Hence it was scattered on the fields with great care. My father made a hand in this labor occasionally. The children from his school bent weary backs over the task. Their drudgery appealed to his heart. He knew what it meant in aching muscles, neglected schooling and dwarfed opportunity. He knew that such machines as were available neither shredded the manure nor spread it fine and wide.

So he set out to build a machine that would do this and save the hard work. It wasn't easy. Money was scarcer than this generation understands. In his little school house he worked out the idea he had—to make a machine that would help keep his boys and girls in school, and ease the labor of their parents.

It's a long story of how the village teacher saved a nickel here and a dime there, worked early mornings and late nights and eventually built a spreader that carried the principles that make the New Idea the leader today.

So much better was it than the old method of wagon tail distribution that the sturdy farmers called it "Oppenheim's New Idea." After a while, when the work had been brought to a practical stage, we called ourselves the New Idea Spreader Company.

Working out this idea to perfection in the midst of poverty cost great sacrifice and much toil, but ever uppermost in the mind of the inventor was the need of his people. The small shed shown above was built and work started on six machines. They were so practical that he protected the child of his brain by patents, patents that have revolutionized the spreader industry.

How this small plant has grown until ten acres are covered by the present plant, which sold over two million dollars' worth

of spreaders last year, is a story my father could hardly believe if he were alive today to hear it.

But his big heart would swell with pride that he had made so great a contribution to American agriculture—that his efforts had brought prosperity and ease not only to his little circle of friends, but to many thousands more.

He lived only to see the business begun. At his death it fell to me—a boy of fifteen—to carry out his plans. My mother put every cent of her little insurance into making it go—and the New Idea was so valuable to the farmer that today he recognizes the New Idea Spreader as the greatest aid to permanent fertility of his fields.

Because this business is an inheritance of the brave effort of my father to contribute something worth while, it is equally dear to me. And because of his ideal, this machine never will be less than the best we can build.

Our catalog tells of its superiority better than we can here and our free book "Helping Mother Nature" gives some new and valuable information on the use of manure. Send the coupon for them today and see how Joseph Oppenheim made the most notable contribution of his generation to the American farmer. See the machine at the New Idea dealer's in your vicinity. If you don't know him we'll send you his name.

B. C. OPPENHEIM, Mgr.

NEW IDEA SPREADER CO.

"Spreader Specialists"

MAIN OFFICE AND FACTORY:—COLDWATER, OHIO

Branches: Harrisburg, Pa., Columbus, O., Indianapolis, Ind., Jackson, Mich., Chicago, Ill., St. Louis, Mo., Minneapolis, Minn., Omaha, Neb., Kansas City, Mo., Guelph, Ont., Canada.



Swartz Creek, Mich.
We have just finished hauling out about 100 loads of sheep manure which everyone knows is the hardest kind of manure to spread and your machine did the work the best of any spreader I ever saw work, leaving no bunches, but spreading it all very even and throwing no manure whatever on the driver. As to draft, we have only had a span of colts, one three years and the other four years old to haul it and have no use whatever for the third horse. I believe it to be the strongest built machine on the market and all parts are easy to get at in case it should ever need any repairing.
ELMER GOTSHALL.

Hamilton, Mo.
I bought one of your spreaders about three years ago and I consider it one of the best buys I ever made in the implement line. I didn't think at the time I had ever seen a spreader that was equal to yours and I am still of the same opinion. I have given it some pretty severe tests, but it has stood all of them and has not cost me a penny for repairs. No farmer with 40 acres or more can afford to do without one of your spreaders, and there is no machine on the farm that will pay for itself as soon as the spreader. I can safely recommend your spreader to anyone.
S. H. McLAIN, Box 98.

New Richmond, Ind.
We purchased one of your spreaders last winter and have given it very hard usage for several months without cost for repairs. Hauling several hundred loads of wet, heavy manure from the cattle barns during the winter months over rough, frozen ground is a severe test for any spreader and we believe we shall have less expense and longer life in your machine than any other make, and we have used about all of them. We are especially pleased with the even spreading accomplished, there being absolutely no dumping or slugging no matter how high the load is piled.
SHAWNEE PRAIRIE FARMS CO., W. A. Withrow, Secy.



These Books
FREE

NEW IDEA SPREADER CO.
Box 531 Coldwater, Ohio
Please send me without obligation your New Idea Catalog and
FREE BOOK—"Helping Mother Nature."

Name.....
P. O.
County.....
State.....

A Ration for Dairy Cows

Please advise me about feeding the following named ration: Oats 250 lbs.; corn 100 lbs.; bran 50 lbs.; cottonseed meal 50 lbs., for Holstein heifers and cows giving 30 to 60 lbs. of milk at two milkings. Would you advise cutting out the bran and adding dried beet pulp, or not to feed either? I wish to feed as many oats as possible to make up the ration profitably. The above to be fed with corn silage morning and night. Mixed hay (90 per cent clover) once per day and bean straw once a day; could feed oat straw at noon if necessary. Do not want to feed much cottonseed meal. I would like to know how Mr. Lillie feeds his calves the first six months.

Calhoun Co.

E. O. P.

I would call this mixture and proportion of grains a splendid ration for dairy cows. I hardly see how it could be improved. Of course, it could be changed and perhaps be just as good a ration. E. O. P. says he would like to use all the oats possible. Now, I am sure that the amount of oats in the ration could be materially increased with no detriment to the ration. In fact, it could be doubled. You could put in 500 pounds of ground oats, with 100 pounds of corn, fifty pounds of bran, fifty pounds of cottonseed meal and have a splendid ration. Oats are a mighty good dairy feed. They make a pretty good ration when fed alone. All my cows are getting now is ground oats for grain, but of course they have pea vine silage and alfalfa hay, and both of these roughages are rich in protein, consequently the grain ration need not contain feed stuffs like cottonseed meal and wheat bran.

I don't like to mix cottonseed meal with the other feed stuffs; one is liable to not get it evenly distributed, consequently one can well cut out cottonseed meal. I like to feed the cottonseed meal to each cow separately and know just how much each is getting. It isn't so very much bother to do this. After the cow is fed the ensilage the attendant can take the cottonseed meal and by having a small measure that will hold just about what one wants to feed he can scatter it on the ensilage so that none of it will be lost, and then you will know just how much each cow is getting. This is a very concentrated food and I, like E. O. P., don't like to feed too much of it. In fact, I have cut it out entirely because I have to depend on hired men and if you feed too much of it you are apt to have trouble. As long as they have corn silage as a roughage I wouldn't think it would pay you to cut out any of these grains and substitute dried beet pulp. Dried beet pulp is a good thing if you haven't got ensilage because in a way it takes the place of a roughage succulent food but at the present price of it I wouldn't advise it in connection with this corn silage.

Feeding Young Calves.

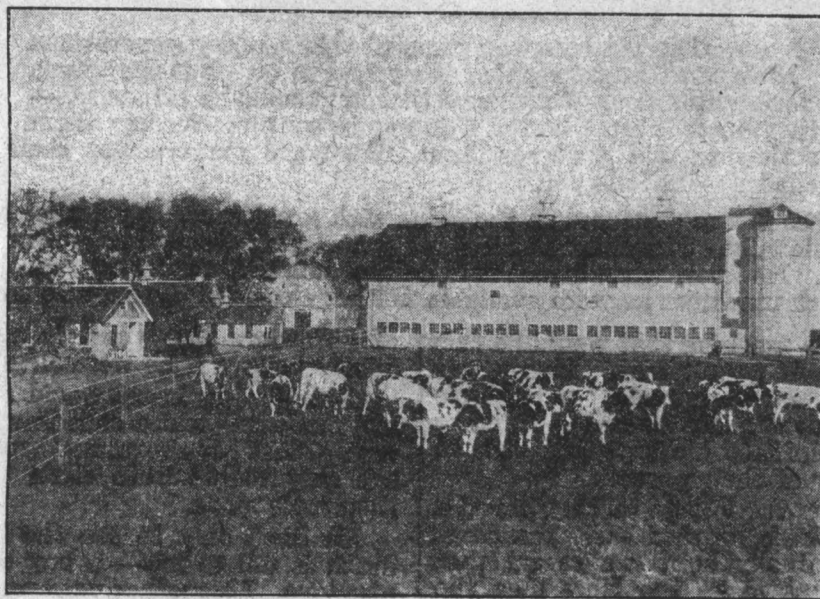
We leave the young calf with its dam one day, so that it can nurse and get the colostrum, or first milk, of the cow, which is quite essential to put the digestive apparatus of the calf in first-class condition. Then the calf is taught to drink and we feed it new milk for one week then we gradually substitute skim-milk for the whole milk, leaving out just a little whole milk and substituting just a little skim-milk, increasing the skim-milk gradually until at the end of the second week the calf is on a ration of skim-milk.

Now, as the fat has been practically eliminated from the calf's ration, some substitute ought to be given and the best thing I have found is ground flax seed made into a jelly. Flax seed contains thirty per cent fat and this is a fairly good substitute for the butter-fat in the milk. It isn't necessary to cook this and yet it makes it a little bit more easily digested. When flax seed is finely ground, however, you can place it raw in the milk and it will not settle to the bottom of the pail like corn meal and the calf will do very well. We feed the flax seed one part

flax seed to six parts water and let it come to a boil. This makes a nice semi-jelly condition that is nicely fed and easily digested. At first we give the calf about two tablespoonfuls of this jelly and gradually increasing it as the calf grows older.

Sometimes we have been unable to get the flax seed and then I think about the best thing there is is oil meal or wheat middlings. This also can be fed raw but they are a little better for a young calf if they are cooked and made into a mush jelly.

Just as soon as the calf goes on skim-milk we begin to coax him to eat other things as well as milk. In fact, we never feed a very large ration of skim-milk. Four or five pounds to a feeding with each Jersey calf is all that we give. Of course, with larger calves more can be given. But if you begin to give large rations of skim-milk you are liable to get into trouble because it is a one-sided ration, unbalanced, it doesn't contain enough fat in proportion to the protein, so we commence to get the calf to eat clover and alfalfa hay. Of course, he will only eat just



The Dairy Industry Promises Large Returns in the Near Future to the Men Who Keep their Herds Filled to Capacity.

a little at first, but he keeps increasing in the amount eaten and in a short time one is surprised how much hay a little calf will eat. Not only this, but we drop in a handful of ensilage. He won't eat very much at first and what is left ought to be taken out so that it won't get sour but every day drop in a handful of ensilage and in a short time it will all be eaten clean, then you can gradually increase the amount until the calf has all that it wants.

We also commence, soon after the calf goes on skim-milk, to add a little grain, whatever we happen to have. In fact, we usually feed whatever grain we are feeding the cows except cottonseed meal. This shouldn't be fed to a young calf. When we put in a handful of ensilage we drop a little gluten feed or a little ground oats or a little wheat bran or whatever we have, on the ensilage and they soon begin eating it. In this way we teach the calf to eat ensilage as well as roughage and they grow and develop into strong, vigorous animals.

It is quite an intelligent job to feed the calves and feed them properly. The person who does this ought to be in sympathy with animal life. He not only ought to know what the calves ought to have to eat but he ought to see to it that they get it and get it regularly, that their mangers are kept clean, etc. If he does all this, there is no trouble about raising healthy calves.

COLON C. LILLIE.

FILL UP THE CRACKS.

Before the cold winter blasts are actually upon us, the dairy barn should be gone over and loose boards nailed

down, shingles replaced if any have worked loose, and cracks covered. During the hot summer months we grow careless of such matters. In the winter, such cracks are very apt to materially diminish the profits. Unless the barn is floored, there may be places about the foundation where the dirt has whipped away. Such places should be refilled so no cold air space is left under the foundation.

A good ventilation system is highly desirable in the dairy barn, but this should be so arranged that no draught will be created. Warm quarters are essential for best results. If the cows shiver on account of cold draughts through unnecessary cracks, they are consuming energy that should be used in the production of milk. It is much cheaper to use a little coal, too, in the tank heater than to force the cows to warm the water with expensive feeds.

Nebraska.

P. H. E.

MILK SUBSTITUTES IN CALF REARING.

Whole milk is the natural feed for calves for it contains nutrients in the proper proportion, as everyone knows. "It will produce larger gains in live

amount of whole milk so that when the calf has reached the age of five or six weeks the calf meal will have replaced all of the skim-milk. At this time about one and one-quarter pounds of the calf meal should be fed daily. Gradually increase the amount to from one and one-half to one and three-quarters pounds per day at six months of age.

"Good results may also be obtained by making a gruel of three-quarters of a pound of rolled oats to from six to eight pints of boiling water, letting the mixture stand until cool enough to feed. Substitute this for whole milk gradually after the calf is from ten to fourteen days old.

"Calf meals, whether home-made or commercial, are used simply as substitutes for milk and a good roughage with a liberal supply of good growing concentrates, such as oats and bran, with possibly some corn or barley, should be given if satisfactory development is to be obtained."

Lessons from Columbus

I CAME to the National Dairy Show direct from the great army cantonment at Chillicothe where 40,000 of our young men are being taught to kill and destroy. As I looked upon the inevitable wastes of war, looked over this tremendous camp, so big that it takes half a day to go over it thoroughly in an automobile, and computed that it is but one of sixteen similar cantonments and probably that many more army depots, and saw that 40,000 men needed to maintain them and tried to get an idea of what 20,000,000 men under arms must be consuming, the magnitude of the task before the American farmer almost appalled me. But when I looked over cows such as Sophia 19 of Hood Farm, that during the last six years has produced 5,537 pounds of butter from 75,290 pounds of milk; and a string of Holsteins with records up to 26,000 pounds of milk, talked with dozens of quiet, determined dairymen, and looked over a number of improved labor-saving devices, I believe the trick can be turned and the American farmer can do it; that he will do it in 1918, but he needs to work hard, and above all things work intelligently.

The greatest food idea today is conservation and as I looked over the Dairy Show it seemed to me the greatest single lesson might also be said to be conservation. By this I mean the saving and developing of those animals not necessarily with the longest pedigrees, but with the greatest capacity for production. To be able intelligently and accurately to pick these animals, we must know what our animals produce; in other words, keep daily records. A number of object lessons of the value of this were shown. The one that impressed me the most was a bull owned by three good northeastern Ohio dairymen and finally sold for bologna. Four of his tested daughters produced an average of 25,210 pounds of milk containing 977.3 pounds of fat in 365 days. Think of what a fortune each of these men permitted to slip away. In another case a cow-testing association had a string of cows with a legend defying anyone to pick out the four tops from the four boarders.

In these days of \$50 grain and impossibility to get hired men, there are plenty of dairymen in Ohio who would have done the best day's work of the winter had they attended the dairy show and taken home the idea of weighing each cow's milk. You don't need to wait for a cow-testing association. The need for food is so great that it is almost criminal to carry a boarder cow this year.

Another great lesson of the show to me was Peter Small's great exhibit of four generations of cows. The marked similarity of type, the tremendous capacity transmitted from mother to daughter, mature cows running around 25,000 pounds of milk, with younger

weight than skim-milk and other feeds," Prof. W. E. J. Edwards of the Animal Husbandry Department of the Michigan Agricultural College advises, "but these gains are made at a greater expense, owing to the high value of whole milk as a human food. Calves should, however, be given whole milk for the first two or three weeks, or perhaps, somewhat longer. This insures a good healthy start.

"When high-class breeding stock is being produced, whole milk can be fed at from two to four weeks of age, depending upon the health and thriftiness of the calf, care being taken that the change from whole to skim-milk is made very slowly.

"But with the demand for whole milk increasing yearly as a result of growing consumption of it in our large centers of population, skim-milk is not readily available on many farms. Several satisfactory milk substitutes, however, which have been used quite extensively for calf feeding, are on the market. A good milk substitute will produce practically as healthy and rapid growth in the calf as will skim-milk, and at a greatly reduced cost.

"Recent investigations have shown, however, that home-made mixtures which cost much less will give good results. One of the best is made by thoroughly mixing equal parts by weight of hominy feed, linseed meal, "red dog" flour and dried blood. A small amount of this mixture may be used with the whole milk when the calf is from seven to ten days old. Gradually increase the meal, mixing it with water in the proportion of one part to seven parts of water. As the mixture is increased, decrease the

stuff showing proportionately better records, one cow producing on Monday almost five pounds of butter after having twin calves and being shipped two hundred miles, showed conclusively the value of real dairy blood. There were plenty of individual animals in the show that were highly finished; specimens of a breeder's skill, but running through from one generation to the next, the showing of Small's was the most remarkable I have ever seen, and in itself a liberal reward for any man's time spent at the show.

The shortage of labor is compelling the solving of many problems which otherwise would be deferred. There were many interesting exhibits, the one that took our eye as probably the most unique was an arrangement for washing, sterilizing and putting the lid on and stowing milk cans entirely out of the way without touching by hand. Another machine you fed empty milk bottles in and they came out capped and in cases. The milking machines are unquestionably being improved. We have tested out several different makes of machines and we are confident that the man who takes a machine, not as a perfect thing, but as a wonderful mechanical aid and does his part to meet its limitations is helping solve the labor question.

Cheese Making for Northern Mich.

DURING the past twelve years I have traveled through the great dairy districts, the wheat belt and the famous apple sections of the northwest. The last two named sections have had great booms in the price of lands. Then the bottom fell out, as it were, and property became a drug on the market. For instance, the apple craze was on in the northwest and sage brush lands sold from \$350 to 800 per acre, while bearing orchards sold for as high as \$2,000 per acre. Today much of the best land can be had for from \$100 to \$150 per acre, and in places the orchards are being cut away and the land sown to alfalfa. Similar changes have taken place in the wheat belt. There never were such booms in the dairy regions, but the land prices advanced gradually and without reactions.

The most prosperous community I was ever in was in Green Bay county, Wisconsin. This county is devoted entirely to dairying and hog raising. The history of the county will be interesting to many. The county lies along the Illinois state line. The greater part of the land is rolling. The soil consists of clay loam, muck sand and gravel with all modifications.

The first settlers were Swiss direct from the old country. They came up the Mississippi and settled on land covered with timber. A few acres were cleared and sowed to wheat. Their surplus crop had to be hauled on wagons across several counties of poor roads to Milwaukee, which took days of time. Prices were not very good in those days, which set these hardy pioneers to thinking, and they finally changed to dairying, using the milk for the manufacture of cheese.

The logic of this change is evident. These pioneers found that marketing conditions determined their style of farming. Cheese had comparatively little bulk and consequently could be taken to market with much less expense and trouble than could the raw grains. Besides the lumber woods furnished a demand for practically all of their output.

Since these first settlers began dairying back in the fifties the industry has continued to grow. Today there are perhaps few if any counties in the country that are returning larger profits or putting out more dairy products than Green county is. There are five condensaries, numerous creameries and scores of cooperative cheese fac-

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tories taking the milk produced on the well-kept farms of the county. Some of the more prosperous farmers have as high as one hundred and fifty head of milking cows. Frequently a single farmer employs a cheesemaker during the summer months and manufactures the milk produced upon his farm into cheese.

Not only do these farmers and the factories which are dependent upon the farmers ship out of the county scores of carloads of dairy products but in the spring hundreds of veal calves are shipped to Chicago and in the fall hogs fed partly upon the waste from the dairy business go in the same direction. Besides the sale of these products much money comes to these men through the sale of dairy cows.

At the present time land in this community is selling from \$150 to \$300 per acre. Usually the land is sold to home people. Young men will either take over the business of the fathers or they will rent land until they get a start and then buy some property and go in for themselves. I know of one man who went in debt \$14,000 eight years ago. Today he has his land clear of debt besides making many improvements upon it. His line of farming has been confined to dairying and hog-raising. He did this in spite of the fact that conditions deprived him of the opportunity of securing an education.

I am telling this because I believe there are parts of Michigan which would lend itself to just such development. The northern part of the lower peninsula has features that will adapt it to the cheese-making business. The important things are cheap pasture, cool nights and abundant water. The biggest money is made in the cheese business when the cows are upon good pasture.

Where advantage is taken of the heavy production of cattle while on grass, the farmers have their cows freshen in March and April. This enables the cows to go on good feed when giving their heaviest flow of milk, and they are practically dry when winter comes. This allows the farmers to carry them through the cold months on lighter feed than would be necessary if the milk flow was to be kept up.

The cheese factory is the cheapest of the several different kinds of dairy manufacturing institutions. Besides there is not much labor required to keep a factory going during the busy season. In a small factory one man with the assistance of a second for a portion of the time, can handle the work. A group of farmers with cows enough to produce 3,000 pounds of milk a day can run a cheese factory successfully.

The cheese-making business, as I have mentioned it, is a financial success in northern Wisconsin and northern Minnesota and I can see no reason why it cannot be made a success in northern Michigan. In the latter state the farmers can grow such forage crops as rye, oats, vetch, clovers and fodder corn. These can be made into silage or cured as hay and used for winter feeding. Most any of our breeds of cattle especially the larger kinds, can be wintered on such feeds and come out in the spring in good shape, and when they go on pasture should be able to produce a good flow of milk.

Ohio. LOUIS BIEMER.

CORN SILAGE AND THE SILO.

The chemical processes that occur in the silo during fermentation makes the material much more digestible. This process is supposed to be almost identical with the change that takes place in the stomach of a cow. The main effect worthy, also of serious consideration is to break down the fibrous substance and render it more soluble then it is much more easily digestible.

The effect of feeding silage to milch cows is the same as that of turning them into a green pasture. Knowing

this, it is little wonder that this method of feeding is gradually but surely replacing almost any other method of feeding during those months when pastures are not available. Another thing of importance is the fact that the silo provides a cheap feed that can be used with excellent results at any time of the year, either winter or summer. It also has solved the problem of unnecessary sacrifice of young stock on account of shortage of feeding materials. This is a great point alone in favor of a silo, but this is only one of the many good things that can be said in favor of the silo.

A silo utilizes all the cornstalks, takes drudgery out of winter feeding and by a little observation we find that the largest percentage of silo owners are well pleased with their new plan of feeding. It is not only a good investment as a feeding inducement but a silo is also a permanent improvement and adds to the value of any farm, no matter where located.

Another thing worthy of attention is the fact that corn is the greatest silage plant known in this country. It is adaptable to a wide range of latitude and longitude and will produce the largest amount of nutritive silage per acre of any other crop that we can possibly grow on our farms. This is one point in favor of corn growing on a larger scale, but there are other points also worthy of consideration. Among these is the fact that corn responds to good ground, fair ground, and just ordinary clay. The main thing is planting at the proper time and thorough cultivation.

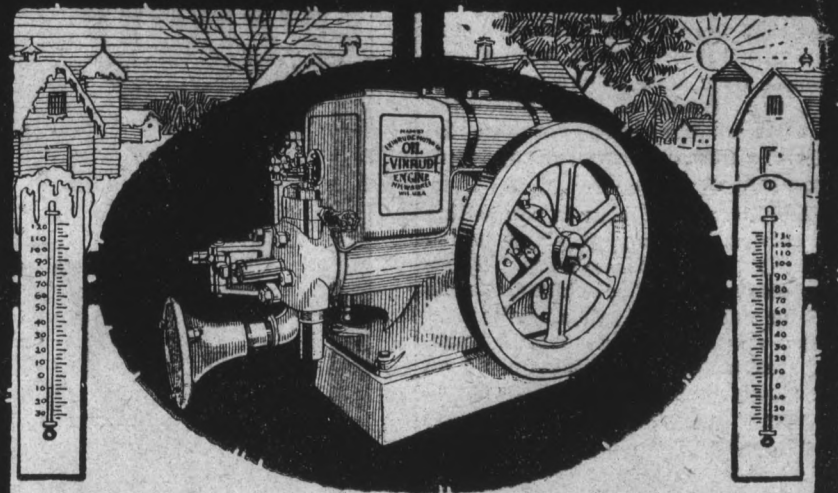
Of course, it is a well known fact that we get larger yields of corn from naturally rich land or on land that has been made so, but notwithstanding all this, I have seen yields upward of sixty to seventy bushels per acre on comparatively thin land. Even where yields can be obtained around sixty bushels per acre, in such localities as these it will pay to erect the "pickling jar" and take care of the crop by putting it into the silo and fed in that manner during the winter. A great many experiments have shown that corn for silage purposes contains the most nutriment or good feeding value when the kernels just begin to glaze or when the denting process is just rightly started, and before the lower leaves have become withered and dried. Having experimented along this line myself, I am convinced that this is the best time to cut for silage. Over-ripe silage makes a tough, fibrous feed, but when cut too green the feeding value is not there, so I have decided that a happy medium between the two is just about right.

If silage is to be fed with the best satisfaction at all times, it must then be sweet and in perfect condition. It is easily spoiled by coming in contact with the air. This being the case, it is of utmost importance that the silo be not of too great diameter. To be well proportioned the height of a silo should never be more than twice the diameter in order to keep silage perfectly and to feed out an even amount of silage each day. While this matter may seem trifling, yet it is one of the common failures found among silo owners who complain that the silage does not keep as it should. It is therefore important to know this in building a silo.

Pennsylvania. H. W. SWOPE.

The ninth annual students' national contest in judging dairy cattle was held at the National Dairy show at Columbus. Thirteen state agricultural colleges were represented. Each team consisted of three students, accompanied by the professor of animal husbandry who had coached the team. The students were required to judge eight classes of cattle, consisting of four bulls and four cows of each of the following breeds: Ayrshire, Guernsey, Holstein and Jersey. The three teams winning highest honors or sweepstakes in the contest were as follows: 1, University of Missouri; 2, Iowa State College; 3, University of Nebraska.

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Our Interest In Popular Government Abroad

By EVARTS B. GREEN

Professor of History, U. of Ill.

IN his memorable message to Congress of April, 1917, President Wilson, after describing at some length the recent proceedings of the German government, declared that "in the presence of its organized power, always lying in wait to accomplish we know not what purpose, there can be no assured security for the democratic governments of the world." "We are glad," he continues, "to fight thus for the ultimate peace of the world and for the liberation of its peoples, the German peoples included; for the rights of nations, great and small, and the privilege of men everywhere to choose their way of life and of obedience. The

world must be made safe for democracy; its peace must be planted upon the tested foundations of political liberty."

In this passage the President has asserted for himself and the government of which he is the authorized spokesman two important propositions: The first is that sympathy with democracy, with "government of the people, by the people, for the people," may properly be expressed not only in the private utterances of individual Americans, but even in the official and public utter-

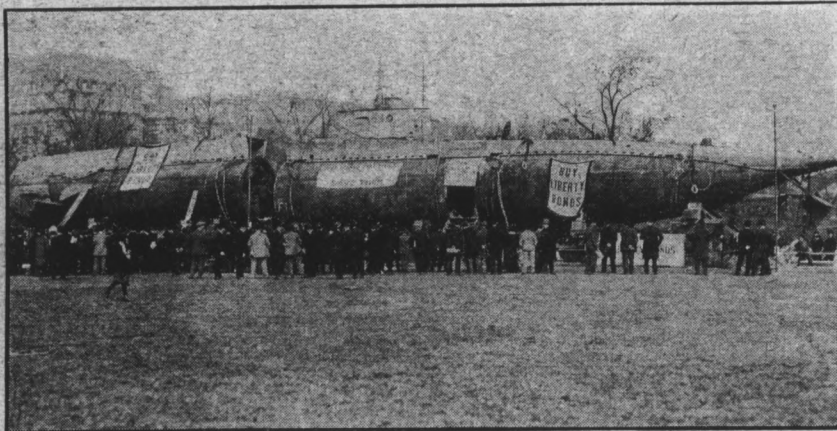
ances of our government; that there democratic ideals of the American people may properly be taken into account in the conduct of their foreign relations.

The second principle clearly implied is that this association of democracy at home with democracy abroad rests not merely upon sentiment but upon an essential element of common interest—a common interest among democracies as such for mutual protection against states whose authority is secured largely by military force in the

hands of hereditary rulers. With the increasing interdependence of all the nations upon each other, the dominance of one type of government or the other is a matter of vital concern to the world at large. To those who think democracy worth saving in America, its fate in Europe or Asia can no longer be an indifferent matter. "The world must be made safe for democracy."

For the defense of these principles, the American people are now engaged in a great war whose demands upon us no man can measure; and when diplomacy takes the place of war we shall have new problems hardly less perplex-

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German Mine Layer Exhibited in New York to Aid Liberty Loan Campaign.

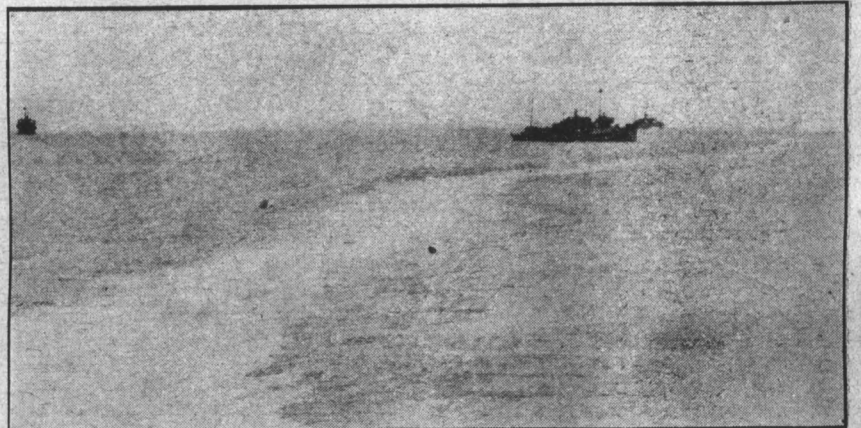


Photo Shows Zig-zag Course Taken by Steamer going Through Danger Zone.



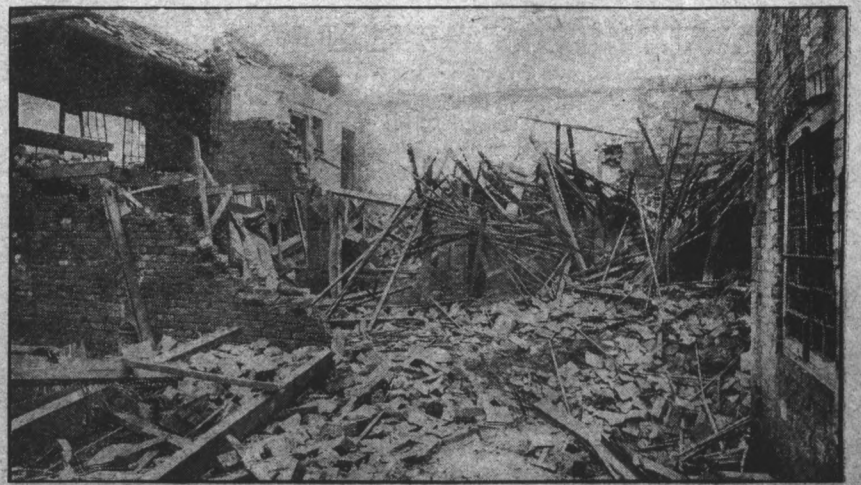
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ing. As we assume these larger responsibilities we may naturally ask, as the President himself has done in his Flag Day speech, whether we are making a radical departure from the historic traditions of the Republic, or whether we are seeking to secure for these old ideals a new and more complete realization. In trying to answer this question it seems best, so far as possible, to let the fathers speak for themselves.

Going back to the first days of the Republic, we must remember that the leaders in our struggle for independence themselves appealed to the sympathy of European liberals not only in France and Holland, but even in England itself. That is an outstanding fact in the correspondence of such men as Franklin and Adams, who represented us in France and the Netherlands, respectively. There is no question, either, that this appeal met with a generous response and that it was one of the factors, not the only one, of course, in bringing about that French alliance which finally secured American independence. The policies of the French ministers were, indeed, mainly determined by considerations of national interest. The Seven Years War had disturbed the balance of European power; French support of the American rebels would weaken England and restore France to something like its old prestige. But the French court was not agreed on the soundness of this policy and in the delicate balance of official opinions, the sympathy of liberal French thinkers unquestionably helped to tip the scales in favor of American freedom. Franklin felt this so keenly that he deprecated the appeals frequently made to the French on the basis of their economic self-interest. "This," he wrote to Livingston in 1782, "is really a generous nation, fond of glory, and particularly that of protecting the oppressed."

The great French economist and statesman, Turgot, was not in favor of French intervention, but shortly after the treaty of alliance was signed he expressed in striking language the conviction shared by many forward-looking Europeans that the significance of American liberty was not confined to the New World. The American people, he said, "is the hope of mankind. It must show to the world by its example that men can be free and tranquil and can do without the chains that tyrants and cheats of all garbs have tried to lay on them under pretense of public good. It must give the example of political liberty, religious liberty, commercial and industrial liberty. The shelter which it is going to offer to the oppressed of all nations will console the earth. The ease with which men will be able to avail themselves of it and escape the effects of a bad government will oblige governments to open their eyes and to be just." Thus Turgot, like other European liberals, thought of America as a laboratory where a new political experiment was being worked out not only for the western world but for Europe as well.

A few years later this idea found a partial realization in the great French Revolution, many of whose leaders, especially in its earlier and more moderate stages, had seen service in America. The first attitude of most Americans was one of enthusiastic sympathy with the French reformers, but as the movement became more violent the sympathies of our people were divided. When the Revolutionary republic became involved in a general European war our government adopted a strictly neutral policy and ultimately abrogated the old treaty of alliance. The farewell address, in which Washington defended this policy, is frequently but not always fairly quoted. It is not usually remembered, for instance, that Washington did not object to "temporary alliances for extraordinary emergencies." In another formal public address delivered in the same year, he expressed

his own sympathy and that of the American people with the cause of popular government abroad. In accepting from the French minister the colors of the new republic Washington spoke of having given his best years to secure the establishment of political liberty in his own country, and added: "My anxious recollections, my sympathetic feelings, and my best wishes are irresistibly excited whensoever, in any country, I see an oppressed nation unfurl the banners of freedom * * *. In delivering to you these sentiments I express not my own feelings only but those of my fellow citizens in relation to the commencement, the progress, and the issue of the French Revolution."

The unhappy developments of the next few years disappointed the hopes of democracy on both sides of the Atlantic. The ideals of republican France were repressed and almost forgotten in the ruthless militarism of Napoleon. Even Thomas Jefferson, the most ardent friend of French radicalism, was disillusioned—so much so that in 1802 his administration was ready to "marry" the "British fleet and nation," if necessary to prevent the spread of imperialism to the New World. When, in defending ourselves against aggressions on neutral rights, we finally fought with England instead of France, in the war of 1812, we did so not because of any special tenderness for Napoleon's government, but largely because the dignity of American citizenship and the sanctity of human life seemed to us then, as they do now, more important than the mere infringement of property rights.

The war of 1812 had hardly come to an end when our interest in popular government received a new test. After the fall of Napoleon the great sovereigns of Europe undertook to organize a mutual insurance society against militant imperialism on the one side and revolutionary idealism on the other. The most consistent defender of hereditary autocracy was the Austrian house of Hapsburg, and its high priest was the Austrian minister, Prince Metternich. Closely associated with the Hapsburgs, then, as now, was the Prussian house of Hohenzollern; then, however, the "great headquarters" of the combination was at Vienna instead of Berlin. For fifteen years after Waterloo the people of continental Europe lived under a regime of Prussian-Austrian-Russian military autocracy, which with the help of a most elaborate system of espionage, threatened to stifle altogether the freer spirit of the revolutionary era. Popular movements in the German states, in Spain and Portugal, and in the Italian states were ruthlessly put down with the help of foreign troops. So far as the Continent of Europe was concerned, the system of Metternich and his associates seemed to be effective.

Europe was then infinitely farther away from America than it is now, and yet not too far away to escape American interest. President Monroe's annual message to Congress in 1822 contained several references to popular movements in Europe. He did not propose American intervention; indeed, any such right of intervention was specifically rejected. Nevertheless, the President did not hesitate to express in unmistakable language American sympathy with these liberal movements. He mentioned the Greek struggle for liberty against the Turks with special enthusiasm and referred to "that great excitement and sympathy in their favor which have been so signally displayed throughout the United States." The message also touched briefly upon the reform movements in Spain and Portugal and praised the "extraordinary moderation" with which they had been conducted. Monroe went on, however, to express his anxiety about the "menacing symptoms" then appearing in Europe. If a "convulsion" should take place there, it would "proceed

from causes which have no existence and are utterly unknown in these states, in which there is but one order, that of the people to which the sovereignty exclusively belongs." Happy as the American people were in their isolation, he feared that even they might be drawn in against their will by some act of aggression.

On these perplexing subjects Monroe carried on an active correspondence with his two predecessors—Jefferson and Madison. Jefferson believed that America should have a separate system of its own, but he was willing to enter into an agreement with Great Britain which would "bring her mighty weight into the scale of free government" and so prevent the extension of the European system to the New World. Jefferson had in mind a proposal that the European alliance should intervene for the purpose of suppressing the revolutions in the Spanish-American colonies. Madison was less cautious than Jefferson about confining American interest to the New World. The British government having declared its disapproval of European intervention in South America, Madison asked whether it might not be "honorable" for the United States to invite Great Britain to extend its "avowed disapprobation" to the action of the European alliance in Spain, and even to join in some expressions of sympathy for the Greeks. Even if such a declaration should lead to war the United States would not be in serious danger in view of the British power on the sea. Madison expressed the same general idea in a letter to Jefferson: "With the British power and navy combined with our own we have nothing to fear from the rest of the world, and in the great struggle of the epoch between liberty and despotism we owe it to ourselves to sustain the former in this hemisphere at least." Monroe himself evidently had a certain amount of sym-

pathy with these suggestions of Madison's, for the first draft of his famous message to Congress contained, according to John Quincy Adams, an explicit condemnation of the French intervention in Spain and a "broad acknowledgement of the Greeks as an independent nation." The determined opposition of his Secretary of State, John Quincy Adams, forced him to confine his annual message more closely to American affairs; but it still contained a strong expression of sympathy with the aspirations of the Greeks for independence. There was, he said, good reason to suppose "that Greece will become again an independent nation. That she may obtain that rank is the object of our most ardent wishes."

Monroe's sympathy for Greece as a small people trying to gain liberty and self-government was shared by a number of prominent public men. The great financier, Albert Gallatin, proposed that vessels of the United States Navy should cooperate with the Greeks and when the matter was discussed in the President's cabinet two of its members, Calhoun and Crawford, expressed some sympathy with the idea. Even Adams himself, in a note sent to the Greek agent Luriotis, in 1823, explaining that the United States could not take part in the war, spoke of "cheering with their best wishes the cause of the Greeks." In Congress, Daniel Webster and Henry Clay were in favor of following up Monroe's declaration of sympathy by some more definite action.

In January, 1824, Webster made a long and impassioned speech in support of a resolution authorizing the President to appoint a commissioner to Greece, with the avowed purpose of giving congressional indorsement to the President's views. He maintained that such an expression of sympathy

(Continued on page 444).

The Needs of France

ARTICLE III.

By FRED B. PITNEY

THE French government is very bureaucratic, but the French people do not like to be over-governed. They object seriously to anything that savors to them of meddling in a man's private affairs. For this reason it has been extremely difficult to get a workable income tax law in France. The people immediately rose against the proposal to give the government the right to examine their books and find out if they told the truth about their incomes, or find out what their incomes were, if they failed to make a return. So a scheme was figured out for taxing a man on seven times his rent, if he made no income tax return, or one the government thought too low.

Saying how much or what a man shall eat is, also, getting pretty close to private affairs, and therefore, the French government, knowing intimately the people it has to deal with, is slow—s-l-o-w—in coming to such measures, even in face of the only too evident food shortage in the country. There have been efforts at price fixing, but they have not worked satisfactorily, one reason being that they have not been rational, but local. Paris, for example, has tried fixing the price of butter, but it has been found that the result has been to drive butter away from Paris to localities where it could be sold for what the market would pay.

National Price Fixing to be Tried.

A scheme of national price fixing is to be tried now with beans and potatoes. Both of these crops are far below the requirements of the country. I have seen many days when potatoes could not be bought in Paris, and it was a common thing last winter to have to run half over the city to find a market where green vegetables could

be bought. The national price fixing scheme for beans and potatoes will divide the country into districts and fix the price for each district, with a penalty for sending either commodity out of the district without permission.

So far, meat has withstood all efforts to control its consumption—there has been no attempt to control its price—and yet it is vitally necessary either to control the consumption of meat in France or to increase the supply. Otherwise, the end of the war will see the country so reduced in its herds that it will take many years to bring them back again to the point where France will be once more self-sustaining.

Supply Must be Increased.

Of course, the thing to do is to increase the supply. When a country has had its bread stuffs cut down to the extent which France has suffered, the people naturally fall back on meat. One might think they would fall back on vegetables, but the same reasons that have deprived them of grains have deprived them of vegetables. There have not been the hands to cultivate the ground. They could not raise more vegetables than wheat. And they have fallen back on beef, mutton and pork. The herds existed, and they have been eaten up. The people had to have something to eat.

To what extent the herds have disappeared is shown by the cutting down of the meat ration of the soldiers at the front. At the beginning of the war they were allowed one pound of meat a day. Twenty per cent has now been cut from that allowance. And I will point out again that only dire necessity will countenance reducing the food allowance of the soldiers at the front.

Civilians, naturally, were the first to

suffer, when meat became scarce. The price went soaring. Retail prices to consumers doubled and trebled. The poor cut down in quantity, one understands, and the very poor went without entirely. But those who could pay could have meat, if they were willing to give the price.

The time came, however, when there had to be an attempt to control the consumption. The army requires 36,000 tons of meat a month, or 432,000 tons a year. France's herds suffered enormously at the very beginning of the war. A total of approximately 2,500,000 cattle, sheep and hogs from the French herds were seized by Germany in the invaded provinces. Coming immediately on top of this loss France found herself compelled to find food for some millions of Belgian and French refugees. This had to be done at once and the herds remaining had to be slaughtered without stopping to ask questions about the future. One does not say to a starving man, "What will I do tomorrow, if I give you this crust of bread today?"

England therefore, undertook to supply France with 250,000 tons of meat a year, and this supply was kept up at the rate of about 20,000 tons a month until February of this year. At that time the English supply stopped. England was having then, all she could do to feed her own people on reduced rations.

Thus, since February, France has had to supply from her own resources 432,000 tons of meat a year to her armies, 1,428,000 tons for the civilian population, and another 350,000 tons for refugees, making a total of 2,000,000 tons of meat a year demanded by France.

Herds Depleted.

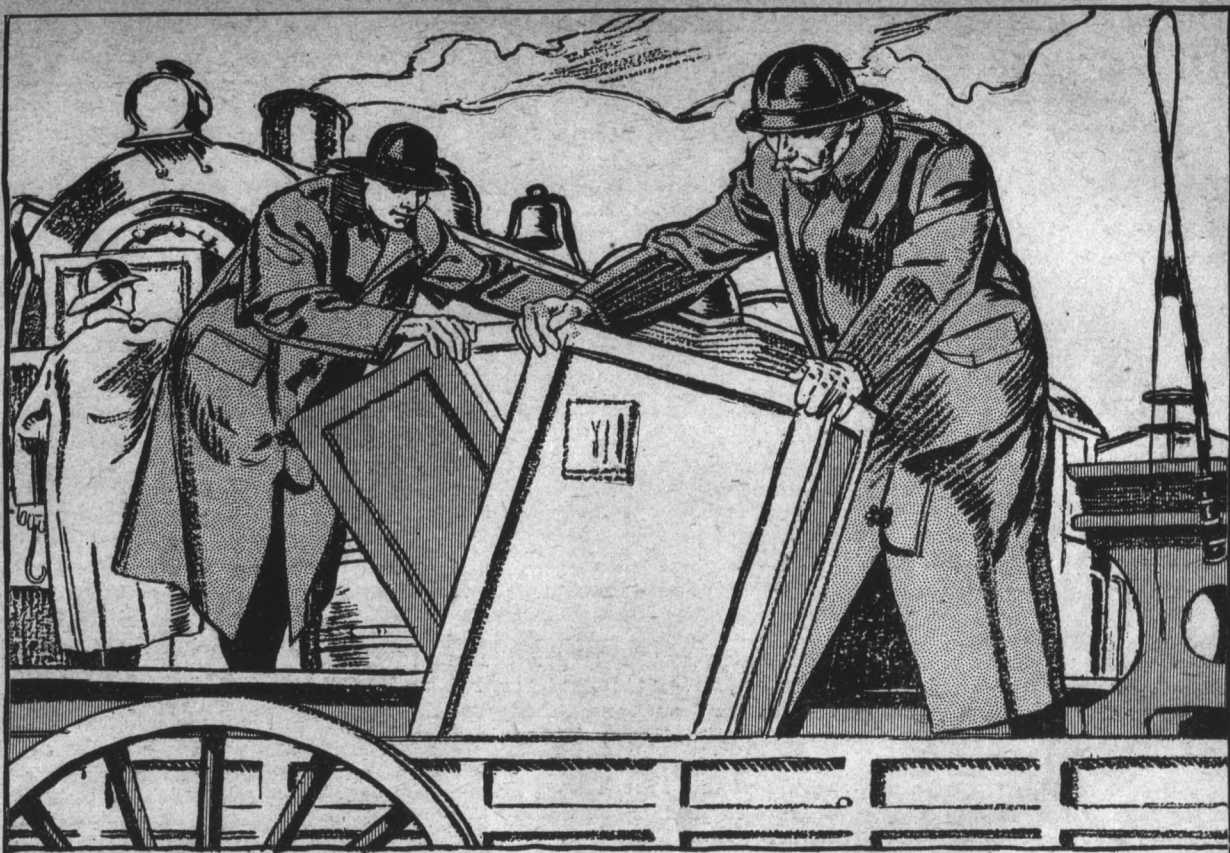
What are the herds she has to do this with? At the beginning of 1914 her cattle herds comprised 14,787,710 head; sheep 16,131,390, and hogs 7,035,850. By the end of 1914, after five months of war, her cattle were reduced to 12,668,243, her sheep to 14,038,361 and hogs to 5,925,291. Today her cattle herds are cut down more than twenty per cent, while her sheep number no more than 10,000,000 and her hogs 4,000,000—a loss of nearly fifty per cent of her hogs and three-eighths of her sheep, on top of the loss of twenty per cent of her cattle.

Cattle feed is short in France and the cattle are poor and under weight. More of them have to be killed in proportion to supply the needed quantity of meat. Milk cows have been killed and the shortage of proper feed has reduced both the quantity and quality of milk. Why, I have seen the time when it has been next to impossible to get milk. Why, I have seen the time when have gone from store to store, begging someone to sell me as little as two cents worth of milk for my baby.

Crying Need for Meat.

The government is trying to conserve the meat supply and save the herds now, by limiting the use of meat to one meal a day. The endeavor is made to accomplish this purpose by forbidding the sale of meat after 1:00 p. m. and ordering the butcher shops closed at that hour, while hotels and restaurants can serve meat only with the noonday meal. But this measure has had little effect on the use of meat as it serves only against the restaurants. Housekeepers can buy all the meat they want before one o'clock, and they do it, as there is no restriction in the amount that can be bought. Moreover, in the restaurants one can eat all the meat one wants at midday, and thus make up for having none at night, and this, also, is the practice.

There is only one real solution of the problem. France must have more meat. Her herds are disappearing rapidly. They are today far below the danger point. Soon they will have to be reconstituted entirely. Meat, meat, meat and again meat is a pressing need for France.



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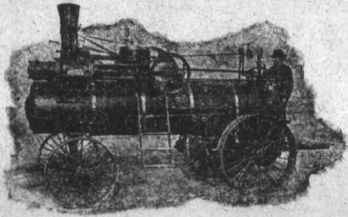
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OUR INTEREST IN POPULAR GOVERNMENT ABROAD.

(Continued from page 442.)

involved no essential departure from the established policy of the United States.

That policy, "springing from the nature of our government and the spirit of all our institutions, insofar as it respects the interesting questions which agitate the present age, on the side of liberal and enlightened sentiments. * * * As one of the free states among the nations, as a great and rapidly rising republic, it would be impossible for us, if we were so disposed, to prevent our principles, our sentiments, and our example from producing some effect upon the opinions and hopes of society throughout the civilized world * * * the great political question of this age is that between absolute and regulated governments * * * whether society shall have any part in its own government * * * our side of this question is settled for us even without our volition * * * our place is on the side of free institutions."

Webster did not advocate armed intervention by the United States in support of Greek independence, but he insisted that such moral support as could be given by a public declaration ought not to be withheld. Two paragraphs of this speech have a peculiar interest in this present crisis of our history:

It may now be required of me to show what interest we have in resisting this new system. What is it to us, it may be asked, upon what principles or what pretenses the European governments assert a right of interfering in the affairs of their neighbors? The thunder, it may be said, rolls at a distance. The wide Atlantic is between us and danger; and, however others may suffer, we shall remain safe.

I think it is a sufficient answer to this to say that we are one of the nations of the earth; that we have an interest, therefore, in the preservation of that system of national law and national intercourse which has heretofore subsisted so beneficially for us all. * * * The enterprising character of the age, our own active, commercial spirit, the great increase which has taken place in the intercourse among civilized and commercial states, have necessarily connected us with other nations and given us a high concern in the preservation of those salutary principles upon which that intercourse is founded. We have as clear an interest in international law as individuals have in the laws of society.

Finally, Webster declared that this expression of sympathy should be given at a time when it would do some good. "I am not of those who would, in the hour of national peril, withhold such encouragement as might be properly and lawfully given, and, when the crisis should be passed, overwhelm the rescued sufferer with kindness and caresses."

Webster's resolution, though supported by the eloquence of Henry Clay, was not adopted, but it doubtless helped to stimulate interest in the Greek cause. Some Americans enlisted in the revolutionary army and funds were sent over by "Philhellenic" committees. European liberals were inclined to attach some significance in this connection to the cruise of an American squadron in the Mediterranean under the command of Commodore John Rodgers; but, though there was some exchange of social courtesies between Rodgers and the officials of the Greek revolutionary government, there is no evidence of any departure from the rules of neutrality. American interest in the Greek cause was sufficient to bring out a letter of thanks from the President of their National Assembly to President John Quincy Adams, which he transmitted to Congress with his annual message of 1827. In this letter the Greek President declared that "In extending a helping hand toward the Old World and encouraging it in its march toward freedom and civilization, the New World covers itself with increased glory and does honor to humanity."

The attitude of the United States toward the Spanish-American revolution was the outcome of various motives, and there was at first sharp difference of opinion as to the stand

which the government should take. Henry Clay spoke for those who sympathized most strongly with the South American Republics. He suggested the possibility of intervention in their favor as early as 1816, and in the following year he opposed a bill to prohibit the building of ships in American ports for the Spanish-American "insurgents." In some of his most impassioned oratory he described "the glorious spectacle of 18,000,000 of people struggling to burst their chains and be free." The comparatively conservative attitude of the administration, guided by Secretary Adams, delayed our recognition of the South American Republics until 1822, when it had become reasonably sure that they would be able to maintain their independence against Spain. After their independence had been recognized, Clay and Adams were as one in opposing any increase of European interference in the New World. When the Russian minister read to Adams a note extolling the "principles of the European system of intervention against revolutionary movements," our secretary drafted in reply a statement so aggressive in its defense of the republican ideals of his own government that Monroe asked him to tone it down for fear of giving unnecessary offense to the Russian Czar. In one passage, which was struck out of this rough draft, Adams proposed to refer to "the great satisfaction with which the President had noticed that paragraph (of the Russian note) which contains the frank and solemn admissions that the undertaking of the allies (against liberalism in Portugal and Spain), yet demands a last apology to the eyes of Europe."

What Adams stood out for in 1823 was the idea of defending the western world from European aggression, and that was, in substance, accepted by Monroe. Undoubtedly we feared the possibility of European conquests in South America and in the West Indies; but the great message of December, 1823, the starting point, if not the complete expression, of our present Monroe doctrine, is charged through and through with the idea that the fundamental difference between American policy and that of the continental powers of Europe resulted from the nature of their political institutions: "The political system of the allied powers is essentially different in this respect from that of America. This difference proceeds from that which exists in their respective governments;" therefore "we should consider any attempt on their part to extend their system to any portion of this hemisphere as dangerous to our peace and safety." In short, the American government of 1823, before the days of the steamship and the ocean cable—not to speak of the wireless telegraph, the submarine, and the airship—at a time when America seemed a world by itself, thought it sufficient to say that the Western Hemisphere must be made safe for democracy.

Seven years after the Monroe doctrine was promulgated the European revolution of 1830 materially weakened the autocratic governments against which that doctrine was directed; but a still greater upheaval came in the "earthquake year" of 1848. France returned for a time to republican government, and German liberals joined in a promising movement which seemed likely to transform, if not to overthrow the divine-right monarchies of Vienna and Berlin. These hopes were for the most part doomed to disappointment, and America became the refuge of those German liberals who preferred liberty in a new home to autocratic militarism in the old. Again Americans listened with the keenest interest to the great debate between absolute and "regulated" government, between the advocates of ultimate control by the people and those who, as Webster said, believed "that all popular or constitutional rights are held no other-

wise than as grants from the crown."

The diplomatic correspondence of the United States for that period shows that these popular movements in Germany were given careful attention by our government. The reports of Mr. Donelson, our minister in Berlin, described the progress of the movement to liberalize the Prussian government then entirely without a constitution, and referred to the interest shown by the popular leaders in the federal and state constitutions of the United States. Finally, when representatives from the various German states met at Frankfort to organize a new federal government, based on the authority of the German people rather than of the reigning princes, Mr. Donelson was authorized by the President "to proceed to Frankfort and there, as the diplomatic representative of the United States, recognize the provisional government of the new German confederation; provided, you shall find such a government in successful operation." These instructions were issued on July 24, 1848; and in August of that year Donelson was appointed envoy extraordinary and minister plenipotentiary to the Frankfort government. In March, 1849, Zachary Taylor became President and his secretary of state, Mr. Clayton, took up the correspondence with Donelson at Frankfort.

Donelson's instructions of July 8, 1849, discuss the German situation at length and, though urging the importance of great caution on the part of our representatives abroad and disavowing in particular any intention of intervening between the liberal and reactionary elements, nevertheless emphasize the sympathy of the United States with the popular movement. Donelson was informed that his mission to Frankfort "originated in the strong desire of this government to manifest a proper degree of sympathy for the efforts of the German people to ameliorate their condition, by the adoption of a form of government which should secure their liberties and promote their happiness." It was the cordial desire of the United States that a constitution might be established "for all Germany, which will render the nation great and powerful, and will secure to every German citizen the blessings of liberty and order. Should either a republican form of government, or that of a limited monarchy (founded on a popular and permanent basis), be adopted by any of the states of Germany, we are bound to be the first, if possible, to hail the birth of the new government, and to cheer it in every progressive movement that has for its aim the attainment of the priceless and countless blessings of freedom." The following passage is worth quoting as illustrating the official American view of the fundamental issues at stake:

From what intelligence we have been enabled to gather on this side of the Atlantic we understand that there are, at this time, two parties in Germany, each seeking to establish a constitution for a Germanic Empire; and that the essential difference between them consists in this—that one of them desires to form a constitution, which has for its basis a recognition of the principle that the people are the true source of all power; and the other, a constitution based on the despotic principle that kings hold their power by divine right, and that the constitutions to be established under their auspices are boons granted to the people, by them, as the only legitimate sources of power. It is hardly necessary for me to say to you that all the sympathies of the government and the people of the United States are with the former party.

Americans learned of these things not merely by reading the papers but from the lips of political exiles who found a refuge in America. Republican idealists from Germany like Carl Schurz, Friedrich Hecker, and Franz Sigel found here a sympathetic hearing and gave to their adopted country that spirit of free loyalty which was discouraged in their old home. From Hungary, struggling to establish its in-

dependence of the Hapsburg dynasty, came the ardent revolutionist, Louis Kossuth.

Kossuth was a man of picturesque personality, and the Hungarian revolt made a strong appeal to American sympathies, which found expression even in the official utterances of our leaders. The administration of President Taylor showed its interest in the Hungarian revolution by appointing a special agent, with authority to recognize the independence of the new state "promptly," "in the event of her ability to sustain it." The language used in the instruction of this agent, which later became public, was strongly resented by the Austrian government because Hungary was described as "a great people rising superior to the enormous oppression" that had "so long weighed her down." In his annual message of 1849, "in accordance with the general sentiment of the American people, who deeply sympathized with the Magyar patriots, to stand prepared, upon the contingency of the establishment by her of a permanent government, to be the first to welcome independent Hungary, into the family of the nations." The hopes of Hungary had, he said, been defeated through the intervention of Russia, and the American government had not interfered in the contest; but "the feelings of the (American) nation were strongly enlisted in the cause, and by the sufferings of a brave people, who had made a gallant though unsuccessful effort to be free."

After the collapse of the Hungarian revolution, congress passed a joint resolution, approved by President Fillmore, March 3, 1851, declaring that "the people of the United States sincerely sympathize with the Hungarian exiles, Kossuth and his associates," and concluding as follows:

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the President of the United States be, and hereby is, requested to authorize the employment of some of the public vessels which may be now cruising in the Mediterranean to receive and convey to the said United States the said Louis Kossuth and his associates in captivity.

An American ship was accordingly sent to bring the exiles from Turkey. On his arrival in Washington, Kossuth was formally received by the President and by both Houses of Congress, and was the guest of honor at a congressional dinner presided over by the President of the Senate.

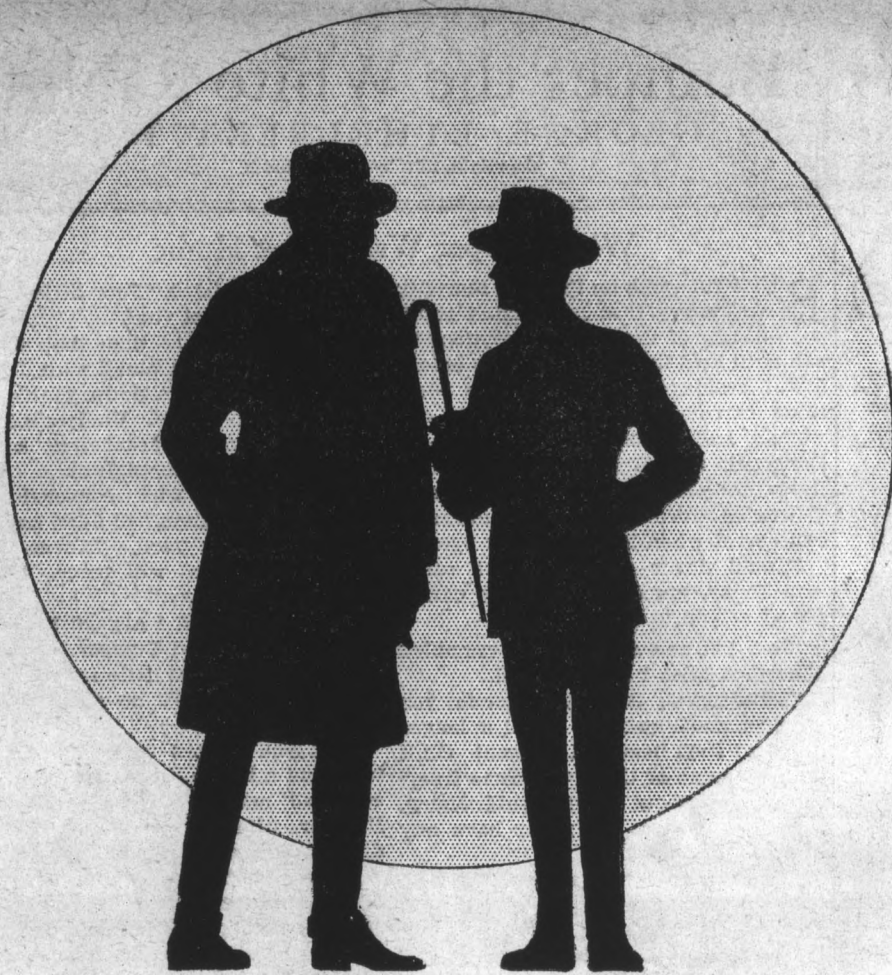
Against all this official and semi-official recognition of a revolutionary leader the Austrian government protested through its charge d'affairs in Washington. To this protest Webster, then secretary of state, made a vigorous reply in the so-called Hulsemann letter, which went somewhat beyond the bounds of conventional diplomacy and has since been severely criticized. It is nevertheless interesting because it contains another emphatic expression of American interest in popular government abroad. The United States, Webster declared, would not take a direct part in the struggles of foreign peoples for constitutional government. "But," he continued, "when the United States behold the people of foreign countries without any such interference spontaneously moving toward the adoption of institutions like their own, it surely cannot be expected of them to remain wholly indifferent spectators." Not only the American people but their government had, he declared, the right to express their own opinions "upon the great political events which may transpire among the civilized nations of the earth."

(Concluded next week.)

Now this blush of beauty upon the cheek without represents regular habits for the health within.—Hillis.

Every failure teaches a man something, if he will learn.—Dickens.

There are but three ways of living: by working, by stealing and by begging.—Froude.



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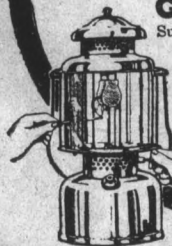
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Bumper the White Rabbit

By GEORGE ETHELBERT WALSH

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Why Bumper Was Left at Home

BUMPER woke up the next morning so hungry that he couldn't think of any of the million questions to ask until he'd finished eating his breakfast. Besides a cabbage, there were some carrots and beet tops: the old woman had fished out of a grocer's backyard, and Bumper had to jump lively to get his share. Jimsy and Wheedles were already on their second carrot when he opened his eyes. "You'll never catch up with me!" said Jimsy, greedily. "I'm one carrot ahead of you."

"And I'm one and a half," mumbled Wheedles, with his mouth full.

"I don't care. Sleep is better for you than so much eating. I had a longer nap, and such beautiful dreams! Oh, I do hope some of them will come true."

"Tell us about them," said Jimsy, forgetting to eat. "I never have any dreams."

"Neither do I," complained Wheedles. "You must tell us about your dreams."

"As soon as I finish my breakfast I will," replied Bumper. "Yes, they were beautiful dreams! I thought I was in a big place filled with crisp lettuce and golden carrots, and a girl with red hair picked me up in her arms and carried me away."

Bumper stopped talking while his brothers looked in amazement at him. They had heard the day before his story of the red-haired girl who wanted to buy him, and they were interested. But while they stopped and waited for him to proceed, Bumper chewed away at his carrot until it was all gone. Then picking up a second one, he said: "Now I'm up with you. I'm on my second carrot. Tomorrow morning I'll tell you the rest of the dream."

Jimmy and Wheedles were greatly surprised and angered at the trick Bumper had played upon them, and they immediately began eating their carrots again as fast as they could.

They were in the midst of their breakfast when the old woman came in the backyard with her basket. All the rabbits set up a commotion then, for they knew she would choose some of them to take away and sell. There were two reasons why they all wanted to be chosen.

One was they liked the change from their narrow quarters to the street corner and the sights of the city. Another was they all hoped some day to be sold and taken away to a big house where they would be petted and fed until their little stomachs would nearly burst open. They were a little crowded in their home, and new baby rabbits were coming all the time so that if some of them weren't sold they'd soon be walking all over each other.

"Now, which ones shall I take today?" the old woman mumbled, smiling upon all of them.

They all bobbed their heads and blinked their pink eyes, and Jimsy jumped over Bumper's back and hopped right into the woman's hands.

"Well, Jimsy," she said, "you seem very anxious to go, so I'll take you for one."

Wheedles tried the same trick, but it didn't work the second time. "No, Wheedles, you've got a cold," she said, pushing him back. "People don't want to buy rabbits that have colds."

Bumper had no cold, and he decided to try his luck, but Topsy, a big rabbit, got in his way, and nearly bowled him over. Bumper squealed, and the old woman pushed Topsy away.

"No, you can't go for being so

rough," she scolded. "Poor little Bumper, did Topsy hurt you?"

Bumper was sure then that she intended to take him along with Jimsy; but no! she put him down gently, and selected three others. Bumper's disappointment was so great that a tear came into one of his pink eyes.

It was mother who consoled him when the old woman had filled her basket and left the yard. "Never mind, dear, your time will come. You're younger than Jimsy."

"But why should I always be left at home?" complained Bumper.

"It's the place for little rabbits," was the reply. "There's no place so safe and comfortable."

"But you always told us some day we'd find a better home, with plenty to eat, and nothing to do," whimpered Bumper, who felt quite cross. "Why did you tell us that?"

Mother rabbit looked quite perplexed for a moment. "I think, dear," she said finally, "you ask more questions than any child I ever had."

Bumper's eyes shone with amusement. "I have a million more of them to ask, mother. I dreamt of them last night."

"Then," laughing at him, "find the answers to them in your dreams tonight."

The next day Bumper had his turn, and then again the following day, but each time he returned home unsold. Jimsy was bought by a little boy, and triumphantly carried off, and Wheedles was captured by a girl. Even Topsy, who was big and clumsy, found a purchaser, and disappeared from the backyard. On returning home the fourth time, Bumper was in a disappointed mood, and felt very unhappy.

"Why is it, mother," he asked, "that no one buys me? Am I so homely that no one wants me?"

"What a question to ask, dear!" smiled mother rabbit. Then, patting him on the head, she added: "Bend down your ears, and I'll whisper a secret in them."

Bumper squatted down, and pulled both long ears toward his mother so he wouldn't miss a word.

"It isn't good for little rabbits to hear what I'm going to tell you," she whispered. "It often makes them proud and vain; but I suppose you will know it some day."

Mother rabbit sighed, as if the secret was hard to tell, and not very pleasant to hear. Mothers are very queer sometimes, even rabbit mothers.

"It's because you're so beautiful, dear!" she whispered finally. "You're whiter than any of my children, and you have the softest fur, and the pinkest eyes. Now do you understand?"

No, Bumper didn't understand a bit. He was more perplexed than ever. If he was handsomer than other white rabbits, then why didn't people buy him first. Why did they look at him, and return him to the basket, and say: "I guess I'll take the other one?"

"It must be people don't know how pretty I am," he said finally. "What can I do to make them see?"

Mother rabbit laughed until her fat sides wobbled like a fur muff filled with playful kittens. "Dear, dear," she exclaimed, with tears in her eyes. "I thought you would understand. It's because the people don't have the money to give."

"Why don't they?" he asked, a little peeved. "Don't they have all the money they want?"

"No, dear, not all of them. Some are

have to be careful of their pennies. That's why they don't buy you. The old woman asks too much for you."

This didn't improve Bumper's temper any; but right away he thought of the little girl with the red hair. "Do you think she has plenty of money?" he asked. "She was beautifully dressed, and had a rose in her hair."

"I don't know. Some people put all their money on their backs, and starve their stomachs. It may be this girl was that kind."

Bumper was sure she was wrong, for the red-haired girl didn't look starved; but she didn't have any of her birthday money left, and she confessed she had spent it all for cakes and candies. Bumper wondered if she'd had anything to eat since, or if she was saving up her money to buy him.

That night he had another dream in which the red-haired girl appeared; but in the morning the old woman took him out of the box, and said: "It's your turn, Bumper. I must sell you today. I need the money badly."

(Next week's story tells how Bumper was sold).

A Submarine Camera

By MARK MEREDITH

THERE has just been invented in America an electric camera which takes accurate photos of the bottom of the sea, and all that is lying there, and which is able to put on a screen in a few hours what it would take divers days to secure. The camera is the invention of a New Yorker. It is controlled entirely from above the surface of the sea. There is practically no limit to the depth at which the apparatus will work, and no kind of under-sea photography for which it is not available. Leaving out of consideration the scientific data which this camera can pick up from the floor of the sea, it will be of great value in salvage operations, in survey work for location of sunken rocks, and perhaps in treasure hunting.

This new camera consists of several separate cylinders, suspended in and connected by a rigid steel framework, at the bottom of which is a shock absorber, terminating in a big ball. When this ball strikes the bottom the shock of grounding, which might otherwise upset the delicate mechanism, is taken up, and on the other hand, the ball is so connected that in case it is fouled a pull of no more than three hundred pounds is required to make it slip off and free the rest of the apparatus. Above the shock absorber is a gyroscope which gives stability to the whole apparatus against vibrations, and in order to take pictures in all directions it is necessary for there to be a propeller rotating the entire apparatus upon its vertical axis, and this is worked by an electric motor, supplied by current from above by means of a cable running from the ship. The camera tank is below the propeller tank, and is fitted with a steel cover, having an opening for the lens, which is fitted with the greatest of care for this camera must of necessity be waterproof. The camera tank also contains the distribution board from which the wiring radiates, the focussing apparatus, the mechanism for tilting the cylinder and for operating the shutter, and sundry other necessary accessories for a really up-to-date photographic apparatus. The focussing arrangements are especially novel, and yet they are operated by a switch, which allows of the shutter being worked, continuously, intermittently or remaining stationary, and the control of the camera is so complete and yet so simple that it is possible to achieve any desired series of evolutions.

Considerable secrecy is being maintained as to the internal working of the source of light, but there is more than a suspicion that nitrogen gas is used under varying pressures. The

heavy glass lens is protected from the heat of the light generator by an inner circle of transparent mica arranged at some distance from it and having small openings to allow slow circulation of the heated gas. Current for the light comes, of course, from the ship above and through the cable, and in addition to this live wire, there is a flexible steel cable to carry the whole weight of the apparatus, which is 1,500 pounds on land, and one hundred pounds when submerged. All the parts used are tested for a pressure of five hundred pounds per square inch, which corresponds to the sea-water pressure at a depth of some 1,000 feet. A fairly low voltage is used to operate the light projector and the various small motors though allowance has been made for the loss of current in traveling.

The practicability of this device will soon be in evidence, and it is not necessary to have a vivid imagination to see it in use over the bottom of that part of the ocean where the submarine victims lay—for there is some treasure there that is valuable and recoverable.

GERMANY'S PAPER YARNS.

BY M. MEREDITH.

According to one of the Berlin technical journals the manufacture of paper yarns and fabrics is likely to continue after the war, as it has proved to be so successful. If this actually proved to be the case Germany will be able to dispense with the importation of jute, and of matting fibres of the jute type, such as hemp, flax and china grass. The paper yarns provide a perfectly adequate substitute. Last year thirty million kilos of paper yarn were manufactured in Germany, and the paper spinning mills employed nearly 16,000 hands. Pine trees are the best material for producing the paper used for yarn, and the state department for the German forests is being called upon to provide two million cubic metres of wood per annum for the spinning mills. The demand is a moderate one since the total German consumption of wood is thirty-five million cubic metres per annum. The employment of paper yarn in weaving has been considerably extended in the last year, for the material can now be produced in a durable state and can thus be spun into fine counts. In addition to the paper yarn fabrics hitherto manufactured, such as rope ware, girths, belting, tents and sail canvas, bread bags, sacking, as well as tapestry and carpets material is now being produced for workmen's clothes, aprons, clothing, sporting attire and surgical bandages. Paper fabrics can also be used like wood fabrics for mats, covers, curtains, etc.

UNCLE JOHN ON BEAUTY.

BY IRMA T. SOPER.

Ye're admirin' grace and beauty—
All ye chaps as young and free;
But ye'll think some different, likely,
When ye get as old as me.

Beauty's fine, ain't nothin' gin' it
When there's goodness goes along
Hand in hand, and lips are smiling
As they sing a cheery song.

But the face, may be all freckles
And the nose somewhat askew
Hair be red—it will not matter
If the eyes are kind and true.

Ye'd fergit Jane's bein' homely,
When she told ye "how-de-do,"
Fer her smile lit up her face, like,
And her eyes were kind and true.

Folks wuz sick, er wuz in trouble,
Aunt Jane'd always lend a hand,
Anyway she could to help em:
Always seemed to understand.

I ain't much on these smooth talkers—
Stand and spiel a yarn ter you—
I like folks that's awful homely
If their eyes are kind and true.

The very word "education" is a standing protest against dogmatic teaching.—C. W. Eliot.

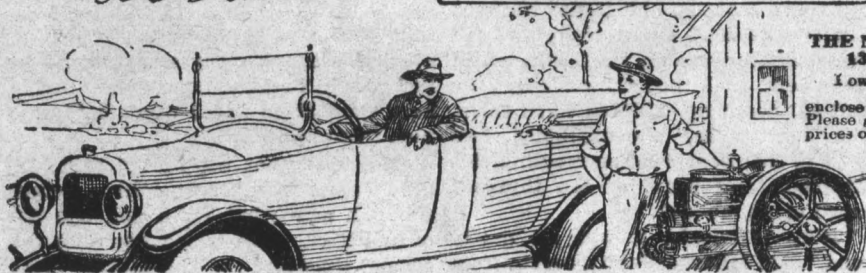
An honorable defeat is better than a mean victory, and no one is really the worse for being defeated, unless he loses heart.—Lubbock.



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No engine manufacturer will contradict the statement that more gasoline motors are ruined by being burned out through insufficient or faulty lubrication, which means lack of oil or the use of improper oil, than through any other cause. In reality, lubrication is the life of the mechanism. Friction must be eliminated to prevent wear, and in no case is this more true than of gasoline engines. Effective service can be expected from any reputable make of gasoline engine if it is properly cared for. Poor results are certain with the best and highest-priced engine that money can buy if the requirements of lubrication are not observed.—SUCCESSFUL FARMING



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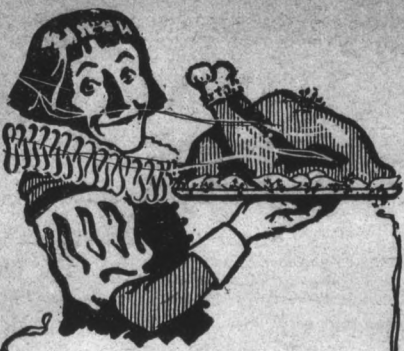
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The Domestic Crucible Grace Learns How the Other Half Lives

I'M willing to go almost any length in economy to help Uncle Sam, but there are some things I positively refuse to do," exclaimed Grace Ludlow. "Some things are thrift and some are downright insanity, and I refuse to line up with the mentally warped until a judge puts me with them."

"What's the matter now?" asked John. "Certainly not this dinner. Cold ham and fried chicken, plus cottage cheese, there are three proteins; and chutney and chili sauce are two appetizers. And with the scarcity in sugar, two sweets are extravagant, yet here, woman, I behold two kinds of real cake and cookies on the side. Loyalty begins at home, but I feel it my duty to write to Hoover."

"Hoover can go to the dickens," Grace said unpatriotically. "I kept house before I ever heard of him, and I guess I could worry along if he'd drop off tomorrow. I've been trying to get rid of that ham ever since your folks were here a week ago Sunday, and the hen was old enough to be drafted. I've just made that chutney and I've a right to try it if I want to, but Mildred likes chili sauce best, so I put that on for her. That fruit cake is almost a year old, anyway it's been made two months, and if the whipped cream cake isn't eaten right away it spoils. There were only a few oat-meal cakes left, so I thought we might as well eat them up, Mildred likes them. The matter is," she explained, "we went to that conservation meeting this afternoon and some of the things I heard made me sick."

"Why I thought it was all pretty good," said Mildred, John's cousin from Detroit who was visiting them. "What in the world did she say that you think was too extreme?"

"I'll bet some city woman told her how to make cottage cheese or fourteen ways to use buttermilk," laughed John. "Grace knows twenty-seven ways now, and her cottage cheese gets seventeen cents a pound in Lansing."

"You don't mean to tell me," Grace turned to Mildred, ignoring John's remark, "that you think any woman in her right mind would crack the prune pits from breakfast, salt the meats and serve them for salted almonds at dinner? Why, she's waste two hours and wouldn't save ten cents, making something the family would hoot at. Don't you think anyone could tell the difference between store almonds and home-made prune pits?"

"Maybe so," Mildred said meekly, "but I was just thinking I'd try that when I got back home. We love salted almonds, and all the other little luxuries we've had to cut out since April, and I was thinking it wouldn't take long to try it and if we did not like them I needn't do it again."

"Well, you can try it if you want to," Grace sneered. "But, believe me, I won't. My time is more valuable than that."

"Yes, yours is," agreed Mildred, "and mine would be, too, if I lived on a farm with as much to do as you have. Besides, you have hickory nuts and butternuts and walnuts for the picking, and all sorts of garden stuff and real hen's eggs and honest-to-goodness butter. If I were you I wouldn't waste my time salting prune pits, either. Instead I'd can all my surplus to sell next winter to luckless wights in the city at

fancy prices. And I'd gather the nuts and sell them. They were one dollar a bushel last winter and will probably be three times that this year. But seeing I live in a two-by-four flat in Detroit, and have no end of time on my hands and am not a producer nor a middleman, but just a poor, lorn consumer, caught between the devil and the blue sea, believe me, I try all the thrift hints I learn about."

"I suppose you even make jelly out of apple parings," Grace scoffed.

"Certainly," Mildred said calmly. "And I buy ten cents worth of apples at a time. That apple-paring jelly is old stuff. I've done that for ten years, and this year I improved on it. I made blackberry jam last week, had two boxes at twenty-five cents a box. I always have to take out the seeds or Bob won't eat it, so I made apple sauce from four quarts of apples the same day and boiled the parings and blackberry seeds together. I got four glasses of delicious jelly. Wasn't that better than throwing the stuff away?"

"Well, that's the limit," Grace stared wonderingly at Mildred, and beyond her at the bushel of snow apples awaiting her on the kitchen table. "You skimping away making jelly out of stuff I throw to the pigs, and me with that bushel of apples just for picking up, and twice as many more rotting on the ground because none of the neighbors want them and I won't bother to pick them up to sell."

"No, that's not the limit," said Mildred demurely. "My neighbor across the hall saw what I did and she did even better. She boiled her pulp the second time and got two glasses more than I did. I was quite furious to think I threw away that perfectly good jelly."

"Just the same I don't believe such things are thrift," Grace maintained. "I think it's just stinginess."

"So it would be in you," Mildred admitted. "But if you had to buy everything you put on your table and were paying fifty cents a peck for apples, half of them windfalls, you wouldn't feed to your pigs, you might change your mind. You see, you and I belong to different stratas of society. You folks are plutocrats, while I am just one of the proletariat. Why, I could tell you all sorts of things the women in our apartment house do to turn an honest penny. We have so little to do, no housework to speak of, and no children, that we are not wasting time when we do these things, as you farm women would be. One woman walked twenty blocks to a meat market where they advertised beef shanks at six cents a pound. She got twenty-eight cents worth, and you'd smile to hear what she did with that bone. The first day she cooked it in the fireless, and had soup, dressed up with cold oat meal left from breakfast and a bit of macaroni left from dinner the night before. The next day she cooked it again in the fireless and had vegetable soup from the stock. The third day, you might think the things were done for, but not so this thrifty soul. She trimmed off the lean meat, put the bone, gristle and fat back in the fireless with a quart of water she had boiled cabbage in, and that night she made a meat pie with the bits of lean meat, the stock, the outside pieces of a bunch of celery, one white turnip, an onion, a couple of carrots and a potato or two.

I'm not saying there was any nourishment left in that meat, but it gave the meat flavor the government is begging us to spread, and the vegetables and rich crust furnished the sustenance."

"You don't mean to say you have to do such things," John broke in. "Isn't Bob getting real money at Ford's? If he isn't, tell him to come out here and I'll give him a man's job."

"Of course Bob isn't working just for experience," Mildred answered. "And while I thank you for your kind offer of steady work at good pay, I must remind you that you can't make a silk purse out of a sow's ear. Bob would be just as much use here on a farm as you would be trying to hold down a book-keeper's job for Henree. Every one to his trade. I suppose, strictly speaking, I don't have to do many of the things I do, but I feel I should. Every paper I pick up tells me of a threatened scarcity of some necessity, and of a jump in price of pretty much everything. For though the government says it is controlling prices, prices to the consumer keep right on rising. I have loads of time on my hands and can just as well use it in studying ways to save. I feel that if I can save a little of the total supply, someone else who hasn't the time I have, will be able to get more. Also, my thrifty Scotch soul tells me that a penny saved is a penny earned, and why pay sixty or seventy-five cents a peck for apples for jelly, if I can get a good pelly from windfall Duchess parings? Also if I can make grape juice from a basket of grapes and then make jelly from the same pulp, why shouldn't I? I am told that in a certain canning factory in Michigan the boss washes the refuse off the floor of the room where the tomatoes and chili sauce are put up and makes the stuff into ketchup. If the unsuspecting public buys that, why aren't my clean apple-parings and once-boiled grapes perfectly good for home consumption?"

"I suppose it's good enough," Grace agreed, "but it sounds downright stingy to me, just the same."

"That's because you have plenty, and it would be stingy in you," Mildred replied. "I'd lose all respect for you if you did such things. But remember, when you are serving three desserts and two meats, not to mention jellies and relishes, and three or four vegetables at one meal, that thousands of other women can't get one dessert, and just common apples are a luxury to them. Government literature has been telling us that vegetables and fruit are cheap and plentiful, but we of the city fail to find it so. Two years ago I wouldn't pay \$1.00 a bushel for tomatoes to can, because I'd always got them for forty cents. This year the dealers asked \$3.00, and some of them kicked because they didn't ask more. With such conditions, I'd think I was a criminal if I didn't economize."

"It isn't right," said Grace, looking over the well-filled table. "We have too much, and thousands so near us can't get enough to eat."

"No, it isn't right," said Mildred. "I'll say 'Amen' to that, and I'll say it more fervently tomorrow when I get back home and pay twenty cents for fifteen apples, five of them little knotty things your chickens would refuse to peck. But what's the answer? Fewer investigations and a little direct action would look good to me, but the powers don't seem to see it that way."

DEBORAH.

LIME IN A TEAKETTLE.

BY I. M. S.

In limestone countries we take in too much lime. Bright's disease and all kidney troubles that make our living years miserable and our days short in the land, nine times in ten, get their start from too much lime in our drink and food. This is why a teakettle filled up with lime is an added menace.

It usually takes an acid of certain kinds to cause anything to let loose easily from stone, or lime from any substance we make teakettles of. To loosen long accumulated lime from a teakettle I boil vinegar in it, allowing it to finally stand and steam the lime throughout. Then it should let loose easily under a knife edge.

An iron teakettle accumulates lime faster, in my experience, and cakes it hardest, but yet can, above all other teakettles, best be cleaned by allowing the teakettle to burn dry for some time over a red hot fire, which heat breaks the lime loose and cracks it into bits. Remove these and try the vinegar to clean off the last bit of sediment. Granite kettles or tin are not so easily cleaned with heat as the spouts melt off.

The cleanest teakettle and coffee pot inside that I ever saw were those of a very wealthy woman who did all the cooking for herself and husband. On a visit once to her daughter, I caught the old lady one morning, carefully scalding out both teakettle and coffee pot before beginning our breakfast. Girl like, I demanded to know why she did that? She turned red in the face, looked angry, and snapped out, "Why, every clean person should do that every meal." Her daughter heard, and looked worried. Afterward she confided to me.

"It is awful, but it is not that mother is so cleanly. It is because she does not trust my brothers, nor me exactly. She is morbidly afraid of poison. Father is so rich, and quarrels with my brothers, who are all spendthrifts, and—well, mother has somehow got it in her head that it would not be past the nature of some one or more of these boys to poison father and herself in their hurry to get at the fortune. She has read of the like."

Not for the reason of this woman but another, wash the teakettle out often. Don't forget or neglect it, and you will meet with no danger from lime.

EMPHASIZE NOBILITY, NOT NEATNESS.

Dear Deborah.—For so many weeks, that they might be totaled into years, I have been reading your page in the Michigan Farmer and laughing and crying with you over your problems and your ups and downs. Sometimes the readers pat you on the back, and at other times they jump with both feet. It all amounts to about the same in the end, Deborah, and I imagine there is a goodly amount of solid old human nature hiding behind your forceful nom-de-plume. It breaks out in the jolly, rollicking swing of your snappy little editorials, and I have an idea that, like your namesake of palm tree fame, you could lead a host to victory, yet you are stuck fast on a simple little boy problem.

They won't hang up their nighties, or set their shoes away in the closet, their mittens are forever breaking company and wandering away to unknown fields; their trousers get creased and wrinkled from being thrown down in little heaps and, bless you, there is no end. Bless your heart, woman, no real live boy that amounts to the proverbial pinch of snuff has time to hang up things when he is nine or ten years old. He is a boy then, with a boy's business to look after, and he believes in letting the women look after theirs, which in his estimation consists in providing for his needs and comfort.

You have a vision of a girl growing up somewhere who is going to be intimately connected with his future. Well, Deborah, sometime in the dim and perhaps not distant future your boy will get the same vision and then just see what will happen. Things will have to begin to stand around then. Mittens will have to mate; shoes will be taken care of to keep them looking nice, trousers will be hung up to keep out the wrinkles. Don't worry, the same old Father Time who is going to draw wrinkles in our faces will erase the wrinkles in some of our problems.

Teach your boys honesty, true nobility of character, respect for womanhood, and you have done your duty even if they never hang up a garment. And the girl will love him for his sterling qualities of character and judge his mother by the strength of his manhood rather than the neatness of his nature.

Mother's tenderness and patience, the kindness of her counsels and the comfort of her sympathies stay with us long after mother herself has gone. So let us give our children an abundance of the things that endure, giving no anxious place to the little worries that time will remedy. And when they have grown large of heart and strong of character, in the beauty and nobility of the manhood and womanhood we have helped to create, we will lose sight of the careless little traits of human nature that are born with all of us and die with us.—Nightingale.

SMALL SPOILAGE BY COLD-PACK METHOD.

Four hundred and twenty-five Michigan housewives and girls who in the past three years have canned 35,687 jars of fruit in the way recommended by the government experts, have filed reports with the college's club leaders on the results of their work. These records show that in these 35,687 jars, only 685 jars, or less than two in 100, failed to keep—a result much better than has been obtained by any other fruit preservation process. The survey was conducted by Miss Anna B. Cowles of the college, state leader for girls, to counteract the work of certain agencies which it is said have been attempting to discredit the cold pack method for the purpose of increasing the sale of commercially canned goods. What small spoilage there was, it was found by means of the survey, was one-third due to poor rubbers, or defective tops for jars. Such other failures as were reported were attributed in large part to the fact that directions were not followed in detail.

SAVORY POTATOES.

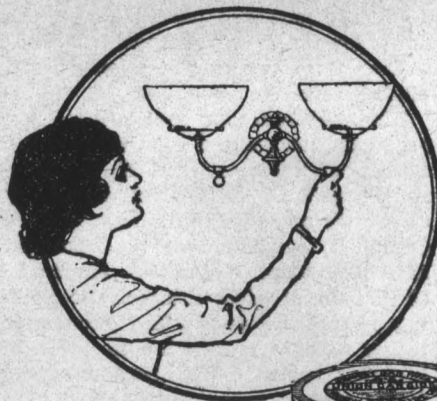
Here are some potato combinations that will please a hungry supper crowd.

Potato Pie.—To one quart of hot boiled potatoes add enough hot milk to moisten. Season with butter and salt. Mash in kettle in which they were boiled and beat with a fork until light. Stir in half a cup of minced ham. Have ready four hard boiled eggs and half a cup of stock or gravy. Arrange potatoes and sliced eggs in dish in alternate layers with potatoes forming top and bottom layers. Moisten with gravy. Brush over the top with milk or egg and brown in hot oven.

Potato Turnovers.—Boil and put through the ricer enough potatoes to measure a pint. Add one well beaten egg, one tablespoon of flour and season with salt. Turn on floured board, roll out and cut in circles size of a saucer. Place on each a large spoonful of dry hash seasoned with onions and parsley chopped fine. This hash should be dry or bound together with thickening. Double over and pinch together like a turnover. Place on a greased baking sheet and brown in hot oven. Serve with a thickened sauce made from the gravy in which the meat was cooked or with a tomato sauce.

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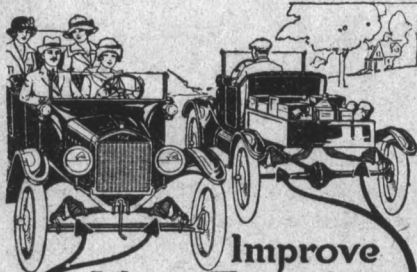
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Marketing Dairy Products

IS there any more absorbing topic for dairymen these days than marketing? Wherever there are two or three dairymen gathered, the chances are that they are talking some phase of the subject. Even at the great National Dairy Show, where the most famous dairy cows of the entire world are gathered for a fight to the finish for the greatest ringside honors of the year, many dairymen were found talking prices.

The conference on marketing dairy products was started off with a short address of welcome by H. E. Van Norman, president of the National Dairy Show. In response to his talk, Milo D. Campbell, president of the National Milk Producers' Federation, emphasized that the greatest object in the meeting should be to outline economies rather than to meet with the ideas of boosting prices. Organization among farmers has come to stay he said, but we do not want to create class feeling and promote discontent because of giving too much emphasis to farmers' needs without attention to the needs of the consumers.

Discussing the economic factors that effect butter production, Geo. E. Haskell, of the Beatrice Creamery Company, said that one of the main reasons why the producer is not getting more for his butter-fat is that much of it is delivered to the creamery in poor condition. Lack of cooling cream and milk on the farm, and carelessness in cleaning utensils are the two main reasons for this. He also favored the centralizer type of creamery over the small concern under local management because the large concern can build up a volume of business that warrants the hiring of experts to make and market the product. Local pride is the thing that stands in the way of this. A creamery, he thinks, ought to have a volume of business amounting to 5,000,000 pounds of butter annually, for profit, but many small creameries run on a volume of 100,000 pounds.

In the afternoon Charles A. Lyman general organizer of the National Agricultural Organization Society at Madison, Wis., emphasized the importance of cooperation in the improvement of farm products. It also is the great means of broadening and enlarging the farmer's outlook on the whole world. It means more than dollars and cents; it means better farms and better homes.

George Cayer, general inspector of the Department of Agriculture, Montreal, Canada, told of the cooperative work of the cheese-makers of Quebec. Their success has been based upon grading products and then selling them according to quality. They maintain three grades of cheese. When they first started operation in 1910 they had thirty cheese factories and only ten per cent of the cheese would grade No. 1. In 1916 there were 500 factories selling cooperatively through the association, and ninety per cent of the cheese was of good quality. The total business this year will amount to five million dollars at the present rate. In closing his address Mr. Cayer emphasized again that grading and selling on a quality basis were the two things that had brought success.

Henry Krumley, of Wisconsin, talked of the activities of cheese producers in Cheboygan county. In 1912 some of the dairymen got tired of seeing the price of cheese cut to ten or twelve cents by cheese brokers and sending it up 100 per cent or more during the winter season when very little cheese was coming onto the market. So they established the Cheboygan County Cheese Producers' Association. The first nine months of this year they handled 7,500,000 pounds of cheese, at an average expense of one-fourth of a cent per pound for marketing and storing. They have eliminated eighty per

cent of the difference between summer and winter cheese prices.

Market news service is a new line of work that is being taken up by the Bureau of Markets for the purpose of informing dairymen about the general market conditions, giving the producer the same information that enables the large operator in dairy products to handle his stocks at a profit. Reports of production, supplies on hand, market conditions, prices, etc., are some of the things that will be covered in the information that will be sent out by the bureau, according to R. C. Potts, who discussed this subject. In order for dairymen to benefit by this information it is necessary for them to have an organization through which the news service can be distributed to the producers.

COUNTY AGENT NEEDS ORGANIZED BACKING.

That the active cooperation, advice, and assistance of farmers themselves is necessary to the success of county agent work is one of the most important lessons impressed upon officials of the United States Department of Agriculture after six years of experience with this work in the northern and western states. The best means of securing this local support has proved to be the establishment of a county organization usually known as a farm bureau.

To enable the county agent and local farmers to organize and conduct a farm bureau most effectively, the department has just published detailed suggestions as to methods of procedure in a guide known as "Handbook on Farm Bureau Organization for County Agricultural Agents." The plan represents the fruit of experience in this field thus far, it is said. It can be adapted readily to the varying conditions of different counties. It may be established in counties having inefficient organizations, in counties contemplating the employment of an agent and in places where the agent is now unsupported by a local county organization.

The chief functions of a farm bureau, as outlined in the handbook are:

1. To coordinate the efforts of existing local agricultural forces, either organized or unorganized, and to organize new lines of effort. It does not supplant any existing organizations or compete with them, but establishes a clearing house through which all may increase their efficiency without in any way surrendering their individuality.
2. To bring to the agent the counsel and cooperation of the best farmers in the county in planning and executing an agricultural improvement program.
3. To furnish the necessary local machinery for easily and quickly reaching every community in the county with information of value to that community or to the county as a whole.
4. To encourage self-help through developing and exercising leadership in the rural affairs of each community.
5. To reveal to all the people of the county the agricultural possibilities of the county and how they may be realized.

WHY ORGANIZE?

All men grow in vision and capacity to accomplish worth-while things under the stimulus of close association and interchange of ideas with their fellow men. The farmer is no exception to this rule. So in those communities where farm folks are organized, or where they associate closely and sympathetically, we find the best roads, superior schools, active rural churches, more young people on the farm, less tenantry and a more wholesome rural life in its every detail.

From an economic standpoint the im-

portance of organization among farm people lies in the fact that it tends to bring all the agricultural practices of a community up to the standard of the best practices of the individual. It has a leveling influence, but fortunately, the leveling is accomplished never by reducing the proficiency of the best farmers, but always by raising the standard of the less efficient. Organization is a mighty factor in bringing about maximum efficiency. It makes for the permanency of our American agriculture.

The ends of democracy are just a little better served when the people of the rural communities are able to make their influence felt in deciding the great public questions of the day. In a republic where fifty per cent of the population is rural, the farmer is entitled to considerable say in matters of state and national concern. Through organization he will make himself heard and the nation will be better for it.

Briefly, organization increases the efficiency of farmers in farm practice. It establishes social, educational, and religious standards which will make the country a more desirable place in which to live. It secures proper recognition in municipal, state and national affairs affecting the interest of farmers. It establishes relations with the business world which will enable farmers to market their products so as to secure maximum rates for their time, labor and investment. There can be no legitimate reasons or arguments against organizations that have these purposes in view.

Mo. College of Ag. A. J. MEYER.

THE CEREAL HARVEST OF 1917.

Speaking generally, it may now be affirmed that the grain crops are harvested in all the important producing countries of the northern hemisphere, and the time has arrived for summing up the various official estimates of yield so far furnished by the governments, in order to ascertain whether the harvests of this year have been good, average, or poor, dealing with each product separately.

This is done by the Bulletin of Agricultural and Commercial Statistics published by the International Institute of Agriculture of Rome. The September number furnishes a definite reply to the query, as regards all the cereals both for food and fodder, and we proceed to summarize the international tables therein.

For wheat, the Institute has ascertained the yield of the following countries:

Spain, France, Scotland, Ireland, Switzerland, Canada, United States, British India, Japan, Algeria. These countries have produced in the aggregate 453,268 thousand quintals, while in 1916 the total was no more than 438,705.

The crop of 1917 therefore represents 103.3 per cent of that of 1916 but, if compared with the average of the five years, 1911 to 1915, we find the yield of the present year to be only 88.6 per cent of this average. It is therefore the case that the crop of 1917 is decidedly better than that of 1916, but this fact does not cancel its appreciable inferiority to an average yield.

With respect to rye, the total yield of Spain, Ireland, Switzerland, Canada, and the United States is 22,848 thousands of quintals, or 110.7 and 126.8 per cent of the yield of 1916 and of the average, respectively. The position with regard to this cereal is quite satisfactory but the area cultivated is relatively a small one. The facts as to oats are very favorable, the yield in 1917 being estimated at 289,644 thousands of quintals as an aggregate for Spain, Switzerland, Canada and the United States. The respective percentages are 119.9 per cent and 118.1 per cent.

The maize crop also affords a paral-

1st, Spain, Switzerland and the United States yielding 831,626 thousands of quintals, or 125.3 per cent and 117.7 per cent, as compared respectively with the crops of 1916 and 1911 to 1915.

The plentiful maize harvest of 1917 is all the more important, since this grain is cultivated so widely and at present fulfils a considerable role in the provision of human food. As to barley, the total yield of the following countries, Spain, Scotland, Ireland, Switzerland, Canada, United States, Japan, Algeria, is 101,086 thousands of quintals, representing respective percentages of 102.4 and 98.4 per cent. The position of this cereal is therefore an average one.

FRUITS AND VEGETABLES MARKETS.

In the following comments, jobbing prices and shipments are given for the United States for the period October 23-30 inclusive.

Potato Market Continues Unsettled.

Complaints of car shortage persist from practically all producing sections and this fact, together with the poor weather, has prevented loading and caused comparatively light movement. Storage houses are reported filled. A heavy freeze in Michigan has limited the offerings from that state and many northern potatoes are showing effects of field frost. Shipments all season have been very light from the Aroostook county region, due in part to a short crop, Maine having shipped to date only about forty per cent of the amount shipped last year up to this time. F. o. b. prices at Presque Isle on Green Mountains, bulk eleven pecks declined to \$3.50 to 3.75 during the last of the week. Round whites are quoted f. o. b. Coldwater, Michigan, at \$1.25 to \$1.35 with a moderate demand. Michigan stock, bulk per cwt., ranged from \$2.10 to \$2.30. F. o. b. prices in Wisconsin held up fairly well, although the demand was limited. The demand at Minnesota shipping points was very irregular with few sales toward the last of the week on account of the weather. Red River Ohio went at \$1.05 to \$1.15. A very acute car shortage in the Greeley section of Colorado together with reported damage by frost has helped to make the f. o. b. demand exceedingly limited. Jobbing prices remained fairly firm. Maine stock sold from \$4.75 to \$5.50 per 180-lb. bulk, and from \$3.40 to \$3.60 per 120-lb. sack. New Jersey Giants jobbed from \$3.50 to \$4 per 150-lb. sack, running up to \$4.50 on some of the southern markets. White varieties from Wisconsin jobbed from \$1.45 to \$1.65 bulk per bushel, while Minnesotas went from \$1.35 to \$1.70 in sacks.

Onion Market Dull.

The onion market has been dull and inactive during the past week, Connecticut Valley Yellow Globes declining in a jobbing way to \$3.25 to \$3.50 with top prices \$3.75. Some stock sold as low as \$2.50 to \$3 last of week, f. o. b. demand Connecticut Valley onions exceedingly limited. Few sales reported. Massachusetts shipments held up fairly well; 1,369 cars have been moved to date from Connecticut Valley, compared with 1,562 cars same time last year. F. o. b. demand for New York stock continues good; 100-lb. sacks of Yellow Globes sold usual terms, \$3.25 to \$3.65; California Australian Browns, jobbed at \$3.25 to \$4.25, falling away slightly toward last of week. F. o. b. demand for Ohio stock is very light. Yellow Globes, Ohio, jobbing at \$3.50 to \$3.75 per 100-lb. sack.

Apple Market Advances Slightly.

Apple prices showed a tendency to advance during the past week with good demand and a fair market for good stock. Good barreled stock is jobbing from \$4.50 to \$6.50. Western boxed Jonathans moved freely on eastern markets. Fancy stock at \$1.75 to \$2.50; extra fancy at \$3 to \$3.25. Shipments from Washington over a thousand cars, prices advancing, demand

active. Extra fancy Jonathans quoted at \$1.30 to \$1.40 f. o. b. Spokane. Recent frost in Colorado and car shortage has sent down f. o. b. market in that state. Bens moving at \$1.15 to \$1.25.

Grape Shipments Fall Off.

Grape shipments this past week fell off about 700 cars compared with previous week. Demand was only moderate. Heavy frost in Michigan damaged the crop. It is reported that practically all grapes unpicked will have to be sold for wine stock. Rains prevented picking in New York; 4-qt. baskets of Concord quoted at 20c f. o. b. Westfield, N. Y.; Michigans 19 to 24c, 6-qt. Climax baskets, mostly 25 to 28c.

Other Fruits and Vegetables.

Cabbage.—Shipments held up well in spite of the lack of cars, New York, exclusive of Long Island, rolling 496 cars, compared with 462 last year. F. o. b. prices, Rochester, N. Y., declined last of week to \$30 to \$32 bulk per ton, cash track. New York Domestic jobbed \$35 to \$45 per ton. Danish stock slightly higher. Reports of frost damage in Colorado with slow demand at shipping points. This stock is jobbing at \$1.15 to \$2.75. Wisconsin Domestic jobbing \$35 to \$45 bulk per ton. Celery.—Market remains firm. New York and Michigan continue heaviest shippers.

TWO ENEMIES OF THE COOPERATIVE ASSOCIATION.

Two tendencies may be charged with the defeat of scores of worthy agricultural movements. The indifference of many and the over-zealousness of a few have wrought havoc in and out of the ranks of those who would sacrifice for the public good.

Indifference is a barrier that confounds and discourages the best of leaders. Matters that appeal to the thoughtful person as just, or necessary, are received by a very large class with a feeling of impunity. What can they do, or why should they move? are patent responses to the call for cooperation. This apathy is almost certain to cool the ardor of the most enthusiastic leader.

Then, when a movement has gone so far as to bring men together for a purpose the over-zealous man becomes a danger. He urges the adoption of an impossible program and as a consequence the movement fails.

Fortunately there is a common remedy for both of these troubles. It is information and more information. With detailed knowledge about an industry, or a business, or a method, men are sure to be more sensible to any movement that purports to aid that industry, business or method. And such knowledge, too, prevents men from becoming dangerous extremists.

It would, therefore, follow that the wise plan for new cooperative associations, and old ones as well, is to give much attention to the distribution of facts. Definite knowledge of the association, its members, their work and interests, and the conditions surrounding those interests, will do more toward dispelling indifference and curbing the extremist than twice the effort spent in any other direction.

A committee consisting of the most intelligent and persistent workers of the organization, should be selected at the first sessions for the purpose of gathering facts upon which the work of the association may be erected. Then proper publicity will awaken the stay-at-homes and the way will become clear for the accomplishment of permanent good.

Some of the cattlemen in Mackenzie county, North Dakota, have been purchasing cottonseed cake for winter stock feeding, it is stated. Should the industry prove large enough to furnish sufficient feed for their cattle, farmers will make silage of their beet tops. Cattle production in that district is on the increase.

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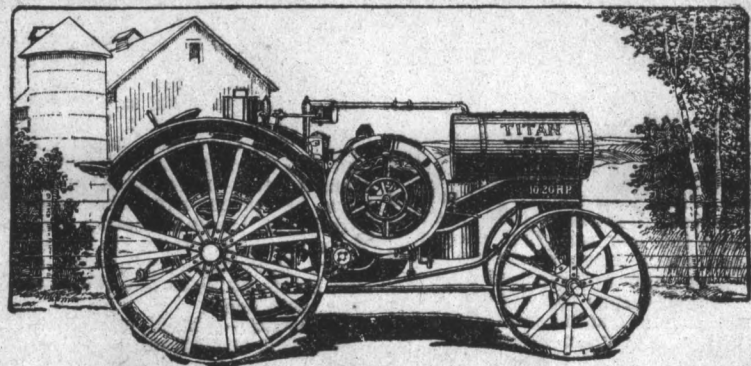
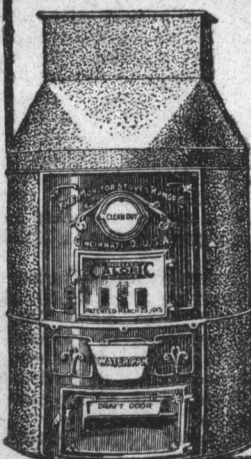
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Markets.

GRAINS AND SEEDS

November 6, 1917.

WHEAT.—No changes of importance have occurred in the wheat trade. Some improvement has been made in deliveries from farms, and at present the mills are able to run steadily so far as winter wheat is concerned. Spring wheat being harvested so much later will not be upon the market in quantities until a few weeks to come. The demand for flour is active, as the manufacturers of baked goods are anxious to secure ample supplies so that in the event of a shortage later on they will be able to meet the demands of their customers. A year ago No. 2 red wheat sold on the local market at \$1.83½ per bushel. Present prices are: Cash No. 2 red \$2.17; No. 2 mixed at \$2.15; No. 2 white \$2.15.

CORN.—The official announcement by the Food Administration that \$15.50 will be fixed as the minimum price for hogs served as a bullish factor in the corn market, inasmuch as hogs at that price can be fed corn costing as much as \$1.29 per bushel, which is considerably above the December price for the new crop. As a result of this, many farmers will retain much corn upon their farms that otherwise would have gone to the market. There is too little cash corn to care for current needs. The new crop is being marketed in the southwestern states. A year ago No. 3 corn was quoted at \$1.08 per bushel in Detroit. Last week's Detroit quotations were:

	No. 3 Mixed.	No. 3 Yellow.
Wednesday	2.19	2.20
Thursday	2.19	2.20
Friday	2.19	2.20
Saturday	2.19	2.20
Monday	2.19	2.20

Chicago.—December corn \$1.17¼ per bushel; May \$1.12¼.

OATS.—Market firm. Oats are wanted in this country and abroad and the offerings at local elevators and primary markets have not been of the usual volume for this season. A year ago standard oats were quoted at 55c per bushel. Last week's Detroit quotations were:

	No. 3 Standard. White.
Wednesday	62½
Thursday	62½
Friday	62½
Saturday	62½
Monday	62½

Chicago.—December oats 58½c per bushel; May 59½c.

RYE.—Quotations lower with the demand easy. Cash No. 2 rye \$1.76 per bushel.

BEANS.—Prices have gradually worked lower to accommodate local quotations with the price set by the government on bean supplies for army purposes. The farmers are not selling their surplus, believing that present prices are too low and that they will be placed on a more equitable basis when federal agents have had opportunity to examine into the conditions of production. The Detroit quotations for immediate and prompt shipment is \$8. At Greenville elevators are offering \$7.75. At Chicago a very small trade exists, with Michigan hand-picked pea beans quoted at \$8.75@9; red kidneys \$8.50@8.60.

SEEDS.—Firm and higher. Prime red clover, cash and March at \$15.50; alsike \$13.50; tomothy \$3.75.

FLOUR AND FEEDS

FLOUR.—Jobbing lots in one-eighth paper sacks are selling on the Detroit market per 196 lbs., as follows: Best patent \$11.50; seconds \$11.40; straight \$11.10; spring patent \$12.10; rye flour \$11.20 per bbl.

FEED.—In 100-lb. sacks jobbing lots are: Bran \$36; standard middlings \$39; fine middlings \$42; cracked corn \$34; coarse corn meal \$77; corn and oat chop \$60 per ton.

HAY.—In carlots at Detroit: No. 1 timothy \$22.50@23; standard timothy \$21.50@23; No. 2 timothy \$20.50@21; light mixed \$21.50@22; No. 1 clover \$16.50@17.

Pittsburg.—No. 1 timothy \$27.50@28 per ton; No. 2 timothy \$25.50@26.50; No. 1 light mixed \$26@27; No. 1 clover mixed \$26@27; No. 1 clover \$26.50@27.

STRAW.—In carlots on the track at Detroit: Rye straw \$9.50@10; wheat and oat straw \$8.50@9.

DAIRY PRODUCTS

BUTTER.—Butter is in good demand and consumption is taking receipts and preventing accumulation. Fresh cream-

ery firsts 41@41½c; fresh creamery extras \$42@42½c.

Elgin.—The butter board here has been discontinued upon the request of the U. S. Food Administration. Those concerns and parties who have heretofore used Elgin prices will likely base their transactions upon Chicago prices.

Chicago.—Fancy creamery butter is firm, other grades rule easy, and trade is generally slow. Creamery extras are quoted at 43c; extra firsts 42@42½c; packing stock 34@34½c.

POULTRY PRODUCTS

POULTRY.—(Live).—Poultry quiet and in sufficient supply. Best spring chickens 20@21c; hens 16@21c; ducks 24@25c; geese 20@21c; turkeys 27@28c. Dressed poultry 1@2c higher than live.

Chicago.—Trade generally is good, all kinds selling well, except poor thin fowls. Fowls sell at \$14½@15c; spg. chickens 16c; ducks \$16@17; geese 18c; turkeys, good 20c.

EGGS.—Fresh eggs are firm and go into consumption as soon as they arrive. Fresh firsts were quoted at 40@44c per dozen.

Chicago.—Market higher and strictly new-laid are in good demand. Fresh Michigan firsts sell for 38½@39½c; ordinary firsts 36½@37c; miscellaneous lots, cases included 36½@39c.

FRUITS—VEGETABLES

POTATOES.—Markets.—There were 65 cars of potatoes on the Detroit market on Monday morning. Round whites sacked sold at \$1.36@1.44 per bushel. Some bulk in poor condition at \$1.28 per bushel. Cleveland buyers are taking Michigan round white potatoes at \$1.65@1.75 per bushel, sacked. Philadelphia is paying \$1.40@1.50 for round whites in bulk. The same variety, sacked, is bringing \$1.65@1.70 in Buffalo; \$1.45@1.50 per bushel bulk in Cincinnati. The New York market is gaining strength and is paying for the Michigan round whites \$3.50@3.75 per 11-peck sacks. The market is fair in Chicago, with Michigan selling at \$1.85@2 per cwt. in bulk.

Shipping Point Information.—On Saturday farmers received \$1.35@1.40 at country loading points in New York state; \$1.65@1.75 per cwt. in Wisconsin; \$1.15@1.20 f. o. b. cars in Minnesota; \$3.25 per 11-peck sack in bulk at side track in Maine, and \$1.85@1.90 per cwt. in Colorado.

ONIONS.—At Detroit yellow globes sold Monday at \$3.50@3.75 in 100-lb. sacks. The Cleveland market is paying \$3.75, the Buffalo market \$3.25@3.50, the New York market \$3.25@3.75, Pittsburgh \$3@3.25, Chicago in 70-lb. sacks at \$1.75@2.

APPLES.—There were 56 cars on Detroit tracks Monday morning. Demand and movement good and market firm. Baldwins sold at \$5@5.25; Jonathans \$6.25 for firsts; York Imperials \$5.25. The Cleveland market is steady and the Chicago market firm. In Cincinnati the movement is somewhat slow, but prices are being maintained. Pittsburgh trade is steady and in New York prices are from steady to higher. There Baldwins are quoted at \$4@5. Ben Davis \$3.25@3.75; Winesap \$6@7; McIntosh \$6@7.

GRAPES.—There was a good demand and movement at Detroit Monday with prices firm. Michigan Concord in 4-qt. baskets selling at 21c; do. labeled, 22c. In New York City Climax 8-lb. baskets are quoted at 20c; Jumbo 20-lb. baskets at 66c. At Cleveland Concord in Jumbo baskets \$60 per ton. At Cincinnati the same are selling at \$65 per ton or in 4-qt. baskets unlabeled 20@20½c, labeled 21c. At Chicago do. unlabeled 16@20c; labeled 21@22c.

DETROIT CITY MARKET

There was a good market Tuesday morning with prices steady to higher. Potatoes were generally selling at \$1.50 per bushel; cabbage \$1@1.40; parsnips \$1.50; onions \$2@2.25; apples \$1@2.75; cauliflower \$1.75; turnips 95c@1; carrots 65c; pork 23c per lb; eggs 65@70c per dozen. Hay is coming in slowly with the demand somewhat improved.

GRAND RAPIDS

Shipments of potatoes from Michigan up to November 2 had reached 1,932 cars, with larger shipments going to Detroit, Pittsburg, Toledo, Cleveland and Buffalo, according to reports received by the United States Bureau of Markets, Grand Rapids. Shortage of cars is acute and affects prices. The general range of prices to growers at country loading points in different sections for Round Whites, bulk per 100 lbs., is as follows: Petoskey \$1.50@

Traverse City, mostly \$1.65; Cadillac \$1.50 to \$1.65; Reed City \$1.65; Hart mostly \$1.75; Greenville \$1.65 to \$1.75; Grand Rapids \$1.65; Burr Oak \$1.75. Movement of potatoes very light during past week on account of the bad weather. Reports to the bureau on beans are that recent rains and frosts have caused heavy damage to the crop, with only 15 per cent of the crop under cover. Growers are being offered \$8.50@8.75 per bu., hand-picked basis.

LIVE STOCK

BUFFALO.

November 5, 1917.

Receipts here today as follows: Cattle 5600 head; hogs 9600; sheep 7000; calves 900.

With 5600 head of cattle here today the trade was slow on shipping cattle, but a good demand for the cows, especially the cutters and canners which sold 10@25c higher, except the common kinds which were very slow. Good stockers were scarce and sold strong. There was a good demand from the outside for bulls and all grades sold steady. Look for a fair run of cattle next Monday and about a steady trade.

We had a very light run of hogs today owing to a number of trains being late, and it looks like half of the receipts would arrive too late for Monday's market. The opening trade was rather slow with sales generally 10@15c lower, bulk selling around \$17.50@17.60, with a few selected up to \$17.75; pigs and lights \$16@16.25; roughs at \$15.50@16; stags \$13.50@14. Our late trade was extremely dull and bids after the early session were strong quarter lower than opening, with prospects very unfavorable for the next few days.

With a moderate run of lambs today our market opened up slow and prices steady with the close of last week. About three loads unsold and we look for steady to possibly shade higher prices last of the week.

Lambs \$16.35@16.50; cull to common \$12@16; yearlings \$12.50@14; wethers \$11.50@11.75; ewes \$11@11.25; bucks \$7@9; best calves \$14.75@15; common and light \$11@14; heavy \$10@13; grassers \$6@7.

CHICAGO.

November 5, 1917.

Cattle. Hogs. Sheep. Receipts today..37,000 39,000 25,000 Same day 1916..19,876 43,026 35,964 Last week.....88,802 105,973 85,227 Same wk 1916..68,661 238,264 110,993

This week opens with another liberal cattle supply, and while fat lots are bringing steady prices, others average at least 10@15c or more lower. Hogs are about 15c lower, with the best selling at \$17.35. Hogs marketed last week averaged 207 lbs. Lambs are 25c or more lower, fat killers selling at \$16.25@16.50.

Cattle have been in sprgrisingly good general demand recently, and the liberal supplies have sold much better than might have been expected. On Monday last week there was a run of nearly 37,000 cattle, including only about 4,000 northern rangers, yet the average decline in prices for the day was only 10@15c, with no weakening in fat beeves. On Wednesday, with receipts aggregating 21,658 head of cattle, prices were 10@25c higher on an average, range cattle included, but a lower market was experienced later in the week. The receipts continue to be very unevenly divided, with too large offerings on some days and small ones on others, but this has been the rule for many years. The great bulk of the native steers received found buyers at a range of \$8.50@13.50, with a very fair representation of fat cattle selling on Wednesday at \$14@17, while a sale was made of 34 head of fancy 1373-lb. steers at \$17.50. Steers of a choice grade brought \$16 and upward, with sales of a class grading as good at \$14 and over, while medium grade steers brought \$12 and over. Ordinary steers of light weight sold at \$9 and over, and there were scattering small sales of little steers on the canning order down to \$6.50@7.50, a few lots selling early in the week down to \$5.75@6.25. Yearlings that were graded as pretty good to prime were quotable at \$14@17.15, with the choicer offerings pretty much nominal in the absence of receipts. Yearlings sold down to \$10@12 for the cheaper kinds, while butcher stock had a good outlet at advanced prices, cows going for \$6.70@11.50, the top price being paid 10 prime cows which tipped the scales at 1237 lbs. Heifers brought \$5.75@13, cutters \$6@6.65, canners \$5.25@5.95 and bulls \$6@10.25. Calves sold at the best time of the week at \$4.75@15, while the northern range cattle had a good sale at \$5.40@14.50. Stockers and feeders were extremely active at \$6.50@12. Late in the week native steers sold largely 25c higher than a week ago, but cows and heifers closed largely 25@50c lower. Stockers and feeders sold off sharply.

Hogs have been doing very much better for their owners for a week past, materially reduced receipts bringing about brisk competition between buyers and resulting in far higher prices. Stockmen were much surprised by the upward whirl of values, the rise amounting to as much as 25@50c in a single day. In the absence of enough good hogs to go around, killers took hold of the other kinds more freely, and the range of prices was the narrowest seen in several weeks, there being a particularly good demand for the light weight butcher hogs. Hogs recently marketed averaged in weight only 208 lbs., comparing with 212 lbs. a week earlier and with 238 lbs. in the middle of September. The average weight a year ago was 208 lbs., 194 lbs. two years ago and 228 lbs. three years ago. Things look highly promising for owners of hogs, the federal food administration bureau having announced that it has no intention to fix prices at which farmers shall sell their live stock. Provisions have had a big boom in prices, pork for January delivery moving up in a single day from \$41.20 a barrel to \$42.70 on the publication of the official report which showed that on the first day of November Chicago warehouses held only 62,362,592 lbs. of provisions, comparing with 93,305,932 lbs. a month earlier and 81,503,145 lbs. a year ago. After prime hogs sold up to \$17.70 the market weakened, with sales on Saturday at \$16.20@17.55, the top a week earlier having been \$16.65. Pigs closed at \$11@16.

Lambs, yearlings and sheep continued in large demand for still another week, with a particularly good call for range feeding lambs, as well as good buying of live muttons. It was the prevailing opinion that it was good business policy to buy four to five-year-old breeding ewes at \$11.50@13 per 100 lbs., these being of the kind that will raise lambs such as have been selling recently at top quotations. Some country buyers were picking up "come back" lambs which had been out for a short feed, with the view of carrying them for the February and March markets. Receipts of lambs and sheep last week were much smaller than a week earlier or a year ago, and sheep and yearlings of the better class advanced in prices moderately, but killing lambs sold a little lower, while feeding lambs had a fall of 50@75c, and breeding ewes declined even more. The average quality of the killing and feeding lambs was much poorer than heretofore. Prices closed as follows: Lambs \$12.50@16.85; feeding lambs \$14@16.50; yearlings \$11.75@14.50; wethers \$11@13; ewes \$6@11.25; breeding ewes \$11.50@15.50; bucks \$7@9.

Horses were marketed last week more liberally than of late, but much less so than at corresponding dates in recent years. With an improved general demand from local buyers and shippers, prices were maintained, the best call centering in horses for the American and British armies. Little chunks were wanted for southern shipment, and horses were in demand for the lumber camps, this demand centering in heavy drafters. Horses were quotable at \$60@140 for poor to good farm chunks, \$185@265 for drafters and \$150@225 for loggers.

Auction Sale

NOV 22, 1917.

Decided to quit farming, will sell at auction, my pure bred black Percheron Stallions and mares. They are all right and sound in every respect, and mares in foal. I live 1½ miles north and 1½ miles east of Mulliken Michigan on the P. M. R. R.

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THIS IS THE FIRST EDITION.

The first edition is sent to those who have not expressed a desire for the latest markets. The late market edition will be sent on request at any time.

DETROIT LIVE STOCK MARKET.

Thursday's Market.

November 1, 1917.

Cattle.

Receipts 2539. Canners 25c higher; all others strong at last week's prices. Best heavy steers \$10@10.50; best handy weight butcher steers \$9@9.25; mixed steers and heifers \$7@8; handy light butchers \$6.50@7; light butchers \$5.75@6.25; best cows \$7.50@8; butcher cows \$6@6.50; common cows \$5.80@6; canners \$4.75@5.75; best heavy bulls \$7@7.50; bologna bulls \$6@7; stock bulls \$5.50@6; feeders \$7.50@8.25; stockers \$6.50@7.50; milkers and sprigners \$5@12.5.

Bishop, B. & H. sold Parker, W. & Co. 63 canners av 863 at \$5.50, 10 do av 950 at \$5.50, 23 butchers av 647 at \$6.50, 3 do av 740 at \$5.50, 19 do av 684 at \$6.35, 4 do av 625 at \$6.25, 14 do av 800 at \$7.25; to Sullivan P. Co. 4 do av 712 at \$6.25; to Mich. B. Co. 26 steers av 700 at \$6.75, 26 do av 722 at \$6.75, 4 canners av 890 at \$5.50, 1 do wgh 1200 at \$5.50, 5 hutchers av 830 at \$6.75, 7 do av 1030 at \$6.25; to Garber 38 do av 530 at \$6.25; to Converse & B., 2 oxen av 1580 at \$8.50, 14 steers av 838 at \$7.50; to Goodgold 22 do av 717 at \$6.60; to Ratner 8 do av 790 at \$7; to Parker, W. & Co. 6 do av 950 at \$7.50, 5 do av 680 at \$6.50, 4 do av 750 at \$7.50, 5 do av 900 at \$7.50, 6 canners av 541 at \$5.75, 3 heifers av 583 at \$6.25, 2 do av 720 at \$6.50; to Hirschleiman 22 steers av 800 at \$7; to Mich. B. Co. 4 do av 1007 at \$8, 14 do av 620 at \$6, 3 do av 973 at \$8.15, 2 do av 760 at \$7.50; to Hammond, S. & Co. 6 canners av 943 at \$5.50, 4 do av 975 at \$5.50; to Heyman 5 butchers av 640 at \$6, 1 cow wgh 1080 at \$6.25, 3 heifers av 733 at \$6.50; to Sullivan P. Co. 4 steers av 887 at \$8.15, 2 do av 1250 at \$7.15; to Funkburney 6 do av 721 at \$7.50; to Mason B. Co. 2 steers av 1020 at \$8, 2 do av 910 at \$7.50.

McMullen, K. & J. sold Kamman B. Co. 19 steers av 856 at \$8.25; to Applebaum 12 do av 586 at \$6.25; to Converse & B. 4 cows av 950 at \$5.35, 6 do av 1041 at \$6.25; to Sullivan P. Co. 1 canner wgh 1020 at \$5.25; to White 2 do av 965 at \$5.75, 5 do av 680 at \$5.25, 2 do av 825 at \$5, 7 do av 921 at \$5.25; to Sullivan P. Co. 18 butchers av 800 at \$6.75; to Golden 7 do av 736 at \$6.75; to Sullivan P. Co. 3 heifers av 390 at \$7, 4 do av 722 at \$6.50, 16 butchers av 872 at \$7.15; to Golden 4 do av 750 at \$7; to Ratner 6 do av 543 at \$6; to Domback 7 do av 444 at \$5.75; to Streville 7 stockers av 636 at \$7.50; to Bray 1 canner wgh 700 at \$5.40, 9 do av 740 at \$5.60, 1 do wgh 730 at \$5.50; to Heyman 3 heifers av 612 at \$6.10; to Brown 16 butchers av 652 at \$6.75, 22 do av 627 at \$7, 6 do av 600 at \$6.50; to Goose 3 do av 550 at \$6, 5 do av 778 at \$6.90, 20 do av 535 at \$6; to Hirschleiman 8 steers av 831 at \$8.10; to Rattkowsky 6 do av 683 at \$6.75; to Rice 14 feeders av 807 at \$8.25; to Finkbeiner 26 butchers av 600 at \$7.25; to Goose 6 do av 640 at \$7.

Veal Calves.

Receipts 869. Market dull to 50c lower; heavy and common hard to sell. Best \$14; others \$7@12.

Sandel, S., B. & G. sold Thompson 3 av 170 at \$12, 1 wgh 130 at \$14, 2 av 130 at \$12, 4 av 175 at \$14.50, 2 av 235 at \$8, 3 av 130 at \$14, 5 av 115 at \$10, 3 av 175 at \$14.50, 2 av 145 at \$13; to Youngs 20 av 300 at \$7.50; to Rattkowsky 3 av 150 at \$14, 2 av 110 at \$10; to Nagle P. Co. 17 av 150 at \$14; to Mich. B. Co. 2 av 150 at \$14, 10 av 169 at \$14.

Erwin, S. & J. sold Sullivan P. Co. 8 av 145 at \$13.50; to Rattkowsky 2 av 160 at \$14; to Mich. B. Co. 20 av 150 at \$14; to Nagle P. Co. 2 av 225 at \$9, 2 av 140 at \$14; to Thompson 25 av 150 at \$14, 2 av 125 at \$10; to Goodgold 20 av 135 at \$13.50; to Burnstine 4 av 155 at \$14.

Sheep and Lambs.

Receipts 4354. Market steady. Best lambs \$16@16.25; fair lambs \$15@15.50; light to common lambs \$13.50@14.50; fair to good sheep \$10@11; culls and common \$6.50@8.

Sandel, S., B. & G. sold Nagle P. Co. 5 sheep av 110 at \$10, 5 do av 115 at \$7.50, 45 lambs av 70 at \$15.75, 13 do av 75 at \$15.25; to Thompson 8 do av 75 at \$15; to Parker, W. & Co. 47 do av 80 at \$16, 35 do av 83 at \$16; to Nagle P. Co. 5 sheep av 110 at \$9, 12 do av 105 at \$8.50, 8 do av 90 at \$8.50, 9 do av 108 at \$8.25, 33 lambs av 55 at \$14.50, 178 do av 73 at \$15.50; to Thompson 48 do av 65 at \$16.10; to Nagle P. Co. 36 do av 70 at \$15.50, 13 sheep av 105 at \$9.

Hogs.

Receipts 5662. Market 25@30c higher than on Wednesday; mixed grades \$16.25@16.75; a few at \$17; pigs \$15.

Veterinary.

CONDUCTED BY W. C. FAIR, V. S.

Swollen Neck.—I have a cow that freshened the first of March, with swollen neck and brisket; besides, her appetite is not good and bowels are constive. T. W., Pontiac, Mich.—Give her 1 lb. of epsom salt in three pints of tepid water as a drench, one dose only. Also give her 1 oz. of tincture gentian 1 oz. tincture cinchona in a pint or two of water as a drench or in feed or drinking water three times a day. The food supply should be of a loosening character.

Bursal Swelling.—I have a colt fifteen months old that has a windpliff on hock joint and would like to know how to remove this bunch. A. B., Hillman, Mich.—Clip off hair and apply equal parts of tincture iodine and spirits of camphor to bunch three times a week, or else apply one part powdered cantharides and eight parts fresh lard every ten days.

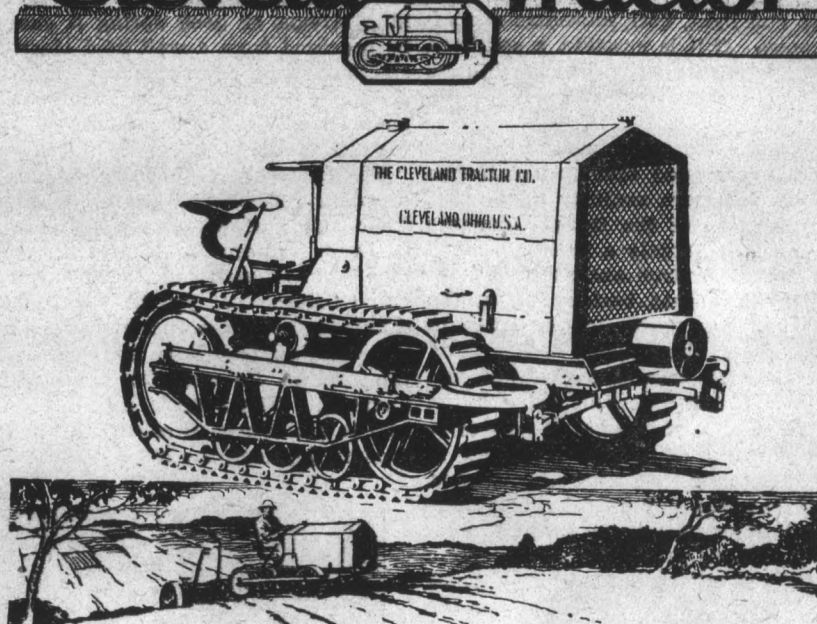
Ravenous Eater.—I have a seven-year-old gelding who, for the past six months, has appeared hungry. I feed him two and a half to three quarts of oats three times a day and plenty of clover, timothy and June grass hay. I have always thought he was fed plenty of feed as the other horses on same amount are in good condition. He is poor and is always calling for food. H. R., Bedford, Mich.—Perhaps his grinder teeth require floating and if you do this, work yourself file off outside cutting edges of upper grinder teeth and inside of lower molars. Kindly understand that it is a mistake to file away too much of the tooth and narrow grinding surface. Mix together one part of powdered sulphate iron, one part ground nux vomica, one part of ground fenugreek, one part salt and four raprts ground gentian and give him a tablespoonful at a dose in feed three times a day. Feed one part corn, one part wheat bran and three parts oats, and you should satisfy his appetite. Perhaps he is a horse that requires plenty of food to keep him in a fleshy condition.

Mechanical Pneumonia.—I had a young cow three years old which went to pasture in the morning apparently in good health, in the evening she was sick. I gave her one pound of epsom salts which did not open bowels, then I gave her half a pound more, and sometime later I gave her a quart of raw linseed oil which caused her to cough. But I thought nothing of it. The cow did not seem to suffer much or grow much worse, but she refused to eat or drink. I called our local Vet. who gave her a dose of medicine and anemas. But the cow died four hours later. The Vet. told me if she died, it was on account of the oil going down windpipe into lungs, but I am inclined to believe that he was mistaken. After death I opened her but found little trace of disease in any of her vital organs. What do you believe caused her death? H. L., Applegate, Mich.—Your cow died either as the result of mechanical pneumonia or impaction of the stomach or bowels. Had you opened up windpipe, bronchi and lungs, you would have been able to tell whether the oil killed her or not.

Sore Eyelid.—I have a five-year-old cow which has a very bad sore on her upper eyelid. Whatever this sore is, it is gradually growing worse. I have dried her and our local Vet. says that the sore on the eyelid will not in any way affect the carcass for food. What is your opinion and what shall I apply while fattening her? E. E. K., Farwell, Mich.—Apply boric acid once or twice a day and occasionally paint sore with tincture iodine, but do not allow any of it to drip into eye. I know of no reason why her flesh will not be fit for food, as her ailment is doubtless local and not constitutional.

Thin Healthy Horse—Weak Bull.—Have a five-year-old horse that has good courage, seems to be in perfect health, but fails to lay on besh. He is fed twelve quarts of oats daily and has roughage of timothy hay. I also have a bull sixteen months old that runs with my cows, but is awfully slow in serving a cow. He does not show any symptoms of sickness and feeds well. B. C., Lakeview, Mich.—It is the nature of certain horses to not lay on much flesh and doubtless your horse is one of that kind. Feed some corn, oil meal and well cured clover or alfalfa. A well horse should not be given any drugs. Stable your young bull, but let him have some exercise, increase his grain ration and allow him to serve cow only once. Doubtless he is suffering from excessive service, which is always injurious to a young bull.

Cleveland Tractor



Prepare Now for Bigger Crops Next Spring

Forget the old routine. Adopt improved methods. That's the only way to solve your labor problems and boost production in 1918.

Munition plants and factories in general are working at top speed. They have steadily drained farm labor from the fields. Now the draft has taken many more men.

You must cut down on labor requirements. That is exactly what the Cleveland Tractor, the country over, is helping wide-awake farmers to do.

This wonderful little machine will do your work better, faster, and at much less cost than you can possibly do it with horses and men.

Hauling two 14-inch bottoms, it plows $3\frac{1}{2}$ miles an hour—8 to 10 acres a day. That is more than you can do with three good 3-horse teams and 3 farm hands. And at this high speed the Cleveland Tractor turns over the prettiest job of plowing you ever saw.

Figure up the saving—not only in labor—but in time and good, hard cash.

In addition, the Cleveland enables you to plow when you need it and where you need it. Because it *crawls on its own tracks*, it can go over almost any soil at any time. That is something you can't do with horses and men. Think of the extra yield that means.

Moreover, the Cleveland does not pack your seedbed. It is light—only 2750 pounds—and has 600 square inches of continuous traction surface. No other tractor built exerts so small a pressure.

The Cleveland gives you 20 h. p. at the pulley and 12 h. p. at the bar—economical, dependable power to do your hauling and stationary engine work.

Rollin H. White builds the Cleveland Tractor with all the scrupulous care he put into the manufacture of motor trucks. He uses only the best materials—only the finest motor truck parts and gears. He has protected all gears with dirtproof, dustproof casings.

He has so designed the Cleveland Tractor that it steers by the power of its engine. Just a light turn of the wheel and the motor does the rest. Anyone can drive it. It will actually turn in a 12-foot circle—less than it takes to turn a team.

These are real advantages—too big and too important to be overlooked. There are others just as big. Combined, they make the Cleveland the biggest labor-saving, time-saving, money-making implement introduced into modern farming.

Prepare now for bigger, better crops next spring. Decide now to make the Cleveland earn money for you, as it is doing for hundreds of others:

We are so crowded with orders that we cannot promise delivery of new orders before January 1st. So it is necessary that you order now for delivery early in 1918.

Write to us today for full particulars and name of the nearest Cleveland dealer. Use the coupon or address Dept. AD.

CLEVELAND TRACTOR COMPANY
Cleveland, Ohio, U.S.A.

Name _____
City _____
County _____ State _____

Please send me full information about the Cleveland Tractor.

HAY Ship To The Old Reliable House
Daniel McCaffrey's Sons,
623-625 Wabash Bldg., Pittsburgh Pa.

POTATOES--APPLES--ONIONS
WANTED

CHAS. W. RUDD & SON, Detroit, Mich.

EGGS: We are paying good premiums for new-laid Eggs, either Whites or Browns. Write us for particulars. AMERICAN BUTTER & CHEESE COMPANY, Detroit, Mich.

HORSES

Eleven (11) Head of Registered Percherons For Sale.

Stallions, brood mares, colts and fillies. A fine lot, big boned, clean limbed, strait gaited, drafty show-horse type.

I will sell cheap for cash or will give time to reliable parties

Dr. C.L. Barber, Lansing, Mich.

REGISTERED PERCHERON
Mares and Stallions priced to sell. Inspection invited. L. C. HUNT, EATON RAPIDS, MICH.

LOESER BROS.

Belgian and Percheron Stallions for sale that will pass the Michigan Stallion Inspection. Have a few mares of both breeds. Shorthorn Cattle, we offer a choice lot of bulls and females. Write us.

LIGONIER INDIANA.

PERCHERON DISPERSAL

The entire herd of the late A. A. Palmer will be closed out; 25 pure bred percheron mares \$200 to \$400 except two; also young stallions

PALMER BROS., Belding Mich.

Have Rented my farm will close out my Percheron horses cheap. Stallions and mares. E. J. ALDRICH, Tekonsha, Mich.

SHETLAND PONIES

200 head to select from. Special prices on colts for August and September. Write Dept. E. The SHADYSIDE Farms, North Benton, Ohio.

Percherons, Holsteins, Angus, Shropshires, Durocs
DORR D. BUELL, Elmira, Michigan.

BREEDING REGISTERED DAIRY CATTLE.

(Continued from first page).

north and south. This provides sunshine and light, both mornings and afternoons. If it is possible, a southern slope which will permit the sunshine to fall on the barn and yards is preferable.

Concrete floors are sanitary. Cork bricks make good standing platforms and are far more sanitary than wood. The selection of the tie-ups, mangers and stalls is largely a matter of individual choice. Iron and steel is more sanitary than wood, besides it gives the light an opportunity to penetrate to the center of the stable.

The silo has won the rightful esteem of successful breeders of dairy cattle. It furnishes exactly what is needed to maintain the dairy cow's system in perfect normal condition in winter. Succulent feed is craved by every animal at all seasons of the year. Tender and nutritious pasture grasses make a ration perfectly suited to dairy animals and hard to imitate. The longer the pasture season the more the cattle thrive. The dreaded gap between fall and spring pasturing or during periods of severe drouth is spanned by the silo.

It is always better to have two silos; one for winter and one for summer. In building a silo it is important that it be in a convenient place for feeding and made of substantial material. If the owner of the farm has plenty of money and wishes to build a silo that will last for a lifetime, concrete or hollow tile are the best materials, but for the average breeder or farmer the stave silo is well suited. It costs less to build and will give good results for a number of years. For a dairy of thirty cows one silo thirty feet and sixteen feet in diameter for winter feeding will meet every requirement. On many dairy farms the silo has nearly doubled the stock-carrying capacity of the farm and reduced the feed bills for purchased grains one-third.

Convenient and efficient systems of watering the cattle, either in the stables or yards save much unpleasant labor and help to keep the cows up to maximum production. Individual watering basins by the side of each cow are a good thing, but they should not be used as an excuse for keeping the cows inside all the time, as they need daily exercise in the yard. It is better to water the cows in the barn in the winter and turn them out for daily exercise. When a cow is kept in a warm barn for twenty-four hours and then turned into the yard to drink from the watering trough, her system requiring a good deal of water, she is apt to drink so much cold water that it will cause a chill that will prove injurious in its effects.

With green forage in the pastures in summer time and roots and silage in winter, the consumption of water is relatively small as compared with a diet of dry feed. It is somewhat anomalous that city boards of health take a deep interest in the water supply for human consumption, and breweries and distilleries have the water used as nearly chemically pure as it is possible to obtain it, and practically no attention is paid to the character of the water consumption of dairy cows. It is too often the case that cows are confined in yards or pastures with access to no water except such as stands in stagnant pools and perhaps covered with green slime and which intense thirst compels the cows to drink. Such water cannot help but be productive of injurious bacteria. Too often the well from which the cows are supplied in winter time is located at the lowest portion of the yard and being perhaps for weeks at a time of a dark coffee color, and yet the cows are forced to drink this water and are expected to produce a profitable flow of milk and bring healthy calves. No dairy farmer

is justified in investing in registered cattle until he has provided for an adequate supply of pure, fresh water in his barns and yards. If the water in the pasture cannot be procured from a running stream or good spring it should be procured from a well kept clean at all times and not subject to surface drainage, and water for winter use should be kept free from foreign matter and taints of all sorts.

The man courts failure who attempts breeding pure-bred cattle and growing their supply of feed on a poorly drained farm. He only multiplies his troubles by undertaking to enrich low, wet land before he provides adequate drainage, for the more manure and humus-forming materials he adds to it the greater its capacity for holding moisture. These facts will dawn on him in his efforts to provide a regular food supply for his cattle. Unless the

is difficult to tell just how many lines of laterals will be needed to make it safe for all crops. It is always safer to have the tile a little larger than needed, especially if the system is to be extended to adjoining land. Other things being equal, it is best to drain the land near the buildings first, because crops grown near the barns, especially silage and green soiling crops, will prove more profitable than similar crops grown on fields further from the barn. The other land can have attention later when the products of the land nearer the buildings can be used in building it up.

MASS MEETING OF THE DAIRY INDUSTRY.

President M. A. Munn, of the American Jersey Cattle Club, presided at a mass meeting that was held in Memor-

fairly well if the United States can increase exports by 200,000,000 bushels, and Canada by 125,000,000 bushels. The supply of cattle, sheep and hogs has also been greatly reduced, and not only during the war, but for years thereafter, the United States and other countries outside of Europe will be called upon to help restore the stocks of all kinds of domestic animals. The increase in exports of food stuffs since the war began has been enormous. For instance, for the three years immediately preceding the war the average exports of cheese were 4,500,000 lbs; last year they were 66,000,000. In the same three years the average exports of butter were almost 5,000,000 pounds; last year they were 26,000,000. He declared that there must be greater economy in the handling of farm products from the farm to the consumer. In fruits and vegetables, eggs and poultry, the losses run into the millions annually. The food administration is particularly interested in the prevention of waste. He declared that under the present abnormal conditions it would be possible to do more in two years to perfect organizations of producers and to install economical methods, than could possibly be done in twenty-five years of normal times. He said that the organization of which he is manager moves crops from farm to consumer for an average cost of two per cent of the ultimate cost, whereas the general average for farm produce runs from five to twenty per cent. The organization has also cooperated in buying with a resultant saving of hundreds of thousands of dollars each year. He advocated heartily the national advertising campaign that has been undertaken by the National Dairy Council and declared that one of the most valuable results of cooperation is the awakening of the members to a degree of public and business consciousness that could not be aroused by any other force. He made extensive comments on the new food law and declared that the act was largely based on the desire to encourage the producer and to prevent the mishandling of products after they are in secondary hands. For the most efficient enforcement of the act the public must give voluntary support to it in every possible way.

FALL AND WINTER RATIONS.

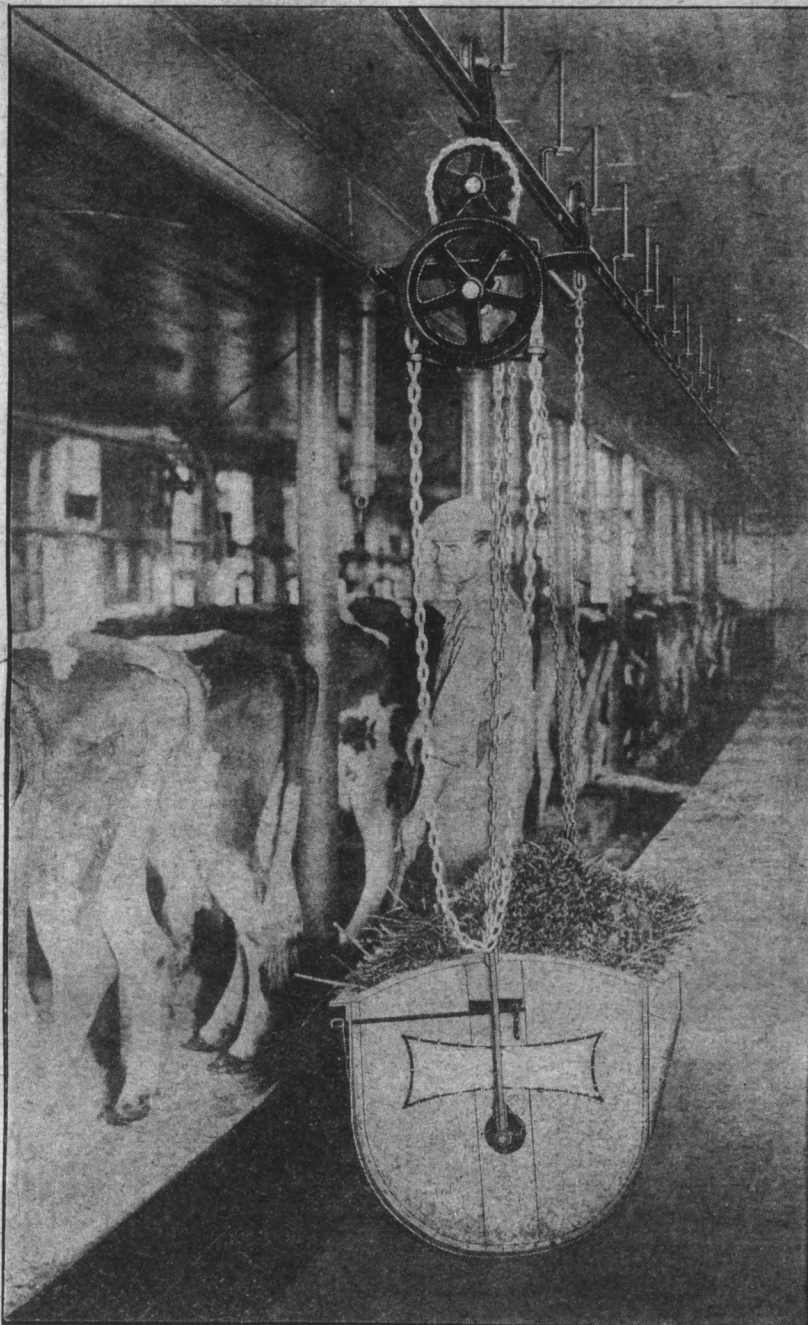
Kindly give me some much needed information. Pasture is almost gone, no corn, but plenty of oats, clover and timothy hay, mixed, and silage, but cannot open silo before December 1, or will be short in spring. Can get cottonseed meal, brewers' dried grain, bran, oil meal and commercial feeds at favorable retail prices. What shall I feed to grade Jerseys before I start on silage, and what on winter ration with silage?

R. G.

In a case such as is here presented, it would be better to begin feeding the silage at once, making it a smaller factor in the ration throughout the winter than would be done if the silo were not opened until December 1. This will avoid a shrinkage in the milk flow which would result from putting the cattle on dry feed direct from pasture, and which would be difficult to regain when succulent feed was again provided upon opening the silo later in the season.

With plenty of oats available, a combination of cottonseed meal and ground oats—say, one-fourth cottonseed meal and three-fourths ground oats—would make an excellent combination to feed with silage. If it is desired to limit the cottonseed meal to not more than two pounds per day, which is desirable, commercial dairy feeds could be added to make up the balance of the grain requirements.

It most certainly will not pay, however, to delay opening the silo and thus deprive the cows of a succulent ration at this season of the year, thus reducing their production to some extent throughout the winter.



Many Dairymen Are Finding it Economical to Install Labor-Saving Devices.

land is drained he is entirely at the mercy of the elements. If there is any investment that will pay in getting a farm in shape to produce profitable crops of feed and at the same time afford satisfactory surroundings for improved cattle it surely is tile drainage. It is always at work, and if properly done requires no repairs or extra expense to keep it at work.

As a preliminary work it is well to walk over the land when it is very wet; if the water stands on it one can better learn where the tile lines should be located. When it is plowed one should note where land is slowest to dry out, and particularly, locate the spots or area where the clover plants are lifted the first winter by frost action. These spots should have first attention in locating the lines of tile, and the tiles should be of sufficient size to care for the water from a much greater area. In draining clay land it

ial Hall, at the National Dairy Show, Monday morning. He commented on the great importance of the dairy cow as a food producer and maintainer of fertility and quoted a declaration that the American nation would be obliterated in three years if the dairy industry were to be suddenly ended. He then introduced G. Harold Powell, Manager of the California Fruit Growers' Association, who is now working with the food administrator at Washington. He represented Mr. Hoover who was not able to come.

Mr. Powell discussed some of the general features of the food situation, declaring that a shortage existed in nearly all of the fundamental necessities. The area of production for the Teutonic powers is constantly contracting, while the allied production of wheat is 525,000,000 bushels below normal. This deficiency must be largely met by America. This can be done

NATIONAL HOLSTEIN SALE.

Holstein history was made at Columbus, Ohio, October 26-27, in the National Dairyman's Sale, when 134 head were sold for a total of \$85,285, which means an average of \$636.45, these figures not including \$3,000 paid for a bull calf which was donated to the Red Cross. Only four other Holstein sales have ever been held which equalled this average, namely the Dollar Sale, Stevens Brothers' Sale, the Detroit Sale and the Worcester Sale. In this sale there were no \$10,000 to \$50,000 animals to help swell the total, the highest price being \$7,100 for the 44-pound cow, Pauline De Kol Ophelia, followed by \$6,000 for a 35-pound son of Rag Apple Korndyke 8th and \$4,000 for a 30-pound cow bred to Rag Apple Korndyke 8th. Outside of these three animals, nothing in the sale crossed the \$3,000 mark, although altogether thirty-one animals in the sale sold for \$1,000 or over. Although the weather was disagreeable both days of the sale, the cattle and sale ring were all in the same building so that little inconvenience was experienced. The attendance was large and covered almost the entire United States, with representatives from California and the northwest, Oklahoma and Arizona on the south, New York and New England on the east and Minnesota and Michigan from the north. Pennsylvania buyers proved the most liberal in their purchases, one concern taking twenty head at \$29,065. Mr. Bell appreciates the importance of starting with the best and that is the kind he is buying as a foundation for the herd he is establishing. The highest record cow ever offered for sale, Pauline De Kol Ophelia, 44.51 pounds, was taken at \$7,100 by F. R. Babcock, of Pittsburg, Pa. When the price of this cow stood at \$4,400, John Arfmann and A. W. Green each offered free services to their herd sires, King Segis Pontiac Alcartra and King Champion Rag Apple respectively, F. C. Niemann, of Pine Grove Farms, offered a free service to the only son of the 50-pound cow, provided she sold for \$1,000 or over. She had been bred to Ormsby Jane King, the oldest son of Ormsby Jane Segis Aaggie, which makes a world's record average for the calf she is carrying 45.42 pounds butter, 858.5 pounds milk in seven days, and the services mentioned referred to the following year after dropping the calf she is now carrying. Mr. Pelletier then offered \$5,000 for her next calf either sex, at six weeks old, and this stimulated the bidding, precipitating a brisk contest between Mr. McAdams and A. W. Green, Green finally dropping out at \$6,100. At this point, George Abbott, the owner of the cow, made an offer of \$12,000 for a bull calf from her by King Korndyke Sadie Vale or Rag Apple Korndyke 8th. Mr. McAdam then publicly offered a free service to King Korndyke Sadie Vale for a second service, and later Mr. Niemann duplicated the offer to Rag Apple Korndyke 8th for the benefit of the purchaser, Mr. Babcock, if he should care to avail himself of it. The bidding then continued, John Arfmann making a bid of \$7,000 and finally Mr. Babcock raised him \$100, at which price she was struck down to him. When asked if he accepted Mr. Pelletier's offer of \$5,000 for the next calf, he replied: "Somebody will have to pay more money for it. I am just going to give you a little run for your money." The nine-months-old son of the 44-pound cow was taken at \$2,600 by H. F. Homann, Wauseon, Ohio, a young man who has been breeding pure-bred Holsteins for only two years, but who has a full realization of the value of an outstanding herd sire. This bull was a bargain at the price, as the only bull ever offered for sale from a higher record dam was taken for \$53,200. F. H. Metcalf, of Holyoke, Mass., added three 30-pound cows to his herd, making his total to

date nine in the 30-pound list. His new addition comprised the 36-pound cow, Junior De ol Dot, the 32-pound cow, Lady Nelie Colantha and the 31-pound cow, Johanna Fayne Mooie Homestead.

MEAT ANIMALS GAIN IN PRICE AT THE FARM.

The prices received by producers for cattle, sheep and hogs, September 15, and chickens, October 1, have gained 52.7 per cent in the general average from 1916 to 1917, according to the latest report of the United States Department of Agriculture. The advance for beef cattle per 100 pounds, live weight, was from \$6.55 to \$8.40, or 28 per cent; for veal calves per 100 pounds, from \$8.77 to \$11.08, or 26 per cent; sheep per 100 pounds, from \$6.25 to \$10.05, or 61 per cent; lambs per 100 pounds, from \$8.22 to \$13.06, or 59 per cent; hogs per 100 pounds, from \$9.22 to \$15.69, or 70 per cent; chickens from 14.3 to 18.1 cents per pound, or 27 per cent. Sheep, lambs and hogs have far exceeded beef cattle, veal calves, and chickens in upward price movement at the point of production.

The highest price at the farm per 100 pounds, live weight, reached during the year under review, was \$8.70 for beef cattle in May, \$11.08 for veal calves in last September, \$10.15 for sheep in May, \$13.06 for lambs in last September, \$15.69 for hogs in last September, and 18.1 cents per pound for chickens October 1 of this year. The latest farm price reported is the highest one of the year for veal calves, lambs, hogs, and chickens; the May price was the highest for beef cattle and sheep.

CHAMPIONSHIPS AT NATIONAL DAIRY SHOW.

The following are the championship awards for the different breeds of dairy cattle, made at the recent National Dairy Show at Columbus, Ohio:

Jerseys.

Senior champion bull, two years old, —M. D. Munn, St. Paul, Minn., on Gamboge's Vellum Majesty; grand champion bull, do.; senior champion cow, two years old, 1st, L. V. Walkley, Southington, Conn., on Oxford Majesty's Gipsy; junior champion cow, under two years, Ed. C. Lasater, Falfurrias, Texas, on Great Scot's Brightness; grand champion cow, Oxford Majesty's Gipsy.

Holsteins.

Senior champion bull, two years old, Iowa Farms, Davenport, Iowa, on Oak DeKol Ollie Homestead; junior champion bull, under two years old, Carnation Stock Farms, Seattle, Washington, on Matador Segis Walker 6th; senior champion cow, two years old, R. E. Haeger, Algonquin, Ill., on Minerva Beets; junior champion cow, under two years, R. E. Haeger, on Calamo Nancy Spofford; grand champion bull, Oak DeKol Ollie Homestead; grand champion cow, Minerva Beets.

Ayrshires.

Senior champion bull, two years old, Wendover Farm, Bernardville, N. J., on Imp. Howie's Mint Master; junior champion bull, under two years, Adam Seitz, Waukesha, Wis., on Cavalier's Lord Stuart; senior champion cow, two years old, Straithglass Farm, Port Chester, N. Y., on Shewalton Main's Queen Imp.; junior champion cow, under two years, Adam Seitz, on Cavalier's Kinford Dorothy; grand champion bull, Cavalier's Lord Stuart; grand champion cow, Shewalton's Main's Queen Imp.

Guernsey's.

Senior champion bull, two years old, D. D. Tenney, Crystal Bay, Minn., on Ladysmith's Cherub; junior champion bull, under two years, W. H. Dupee, Santee, Cal., on Hopeful of Edgemoor; senior champion cow, two years old, W. W. Marsh, Waterloo, Iowa, on Imp. Princess Bergere; junior champion cow, under two years, W. W. Marsh, on Imp. Rose Des Houard's of the Prairie; grand champion bull, Ladysmith's Cherub; grand champion cow, W. W. Marsh, on Imp. Princess Bergere.

Brown Swiss.

Senior champion bull, two years old, 1st, L. S. Marshall & Sons, Leslie, Mich., on Stasis Boy of Sedgley; junior champion bull, under two years, 1st, Hull Bros., Painesville, Ohio, on Vogel's College Boy; grand champion bull, 1st, L. S. Marshall & Sons, on Stasis Boy of Sedgley.



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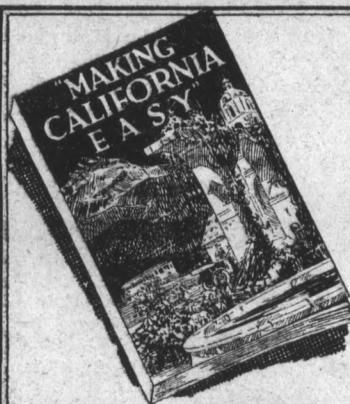
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We have the following birds to offer for immediate sale: Pullets, about ready to lay: 24 White Plymouth Rocks, 5 Single Comb Rhode Island Reds, Yearling Hens: 33 Single Comb Rhode Island Reds, 20 Barred Plymouth Rocks (November delivery.) A few Cockerels and Cocks of nearly all breeds. A "bargain" closing out sale of 11 White Leghorn Cockerels. Here are a few definite offers that interested poultrymen can well afford to accept.

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BREEDING COCKERELS

Trap-nested, bred-to-lay stock. S. C. White Leghorns, \$2 each. Barred Rocks and S. C. Reds, \$3 each. **SUNNYBROOK POULTRY FARM, Hillsdale, Mich.**

John's big beautiful hen-hatched Barred Rocks, good layers, Pens (5 birds) \$12 to \$20, \$3 to \$10 each, sold on approval. Circulars, photos. John Northon, Clare, Mich.

Barred Rocks Cockerels for sale from strain with records to 290 eggs a year, \$2 to \$5 each. Circular free. **FRED ASTLING, Constantine, Mich.**

Barred Rock Cockerels bred from Great Layers few hens yet. **W. C. COFFMAN, R. 3 Benton Harbor, Mich.**



Ferris White Leghorns

A real heavy laying strain, trap-nested 17 years, records from 200 to 264 eggs. Get our special summer prices on yearling hens, breeding males, eggs for hatching, 8-week-old pullets and day old chicks. We ship C. O. D. and guarantee results. Catalog gives prices, describes stock, tells all about our farm and methods; results you can get by breeding this strain. Send for your copy now—it is free. **GEORGE B. FERRIS 934 Union, Grand Rapids, Mich.**

Fowlers Buff Rocks Cockerels Pullets from two dollars up according to quality. **R. B. FOWLER, Hartford, Mich.**

Buff Leghorns special sale on Breeding Cockerels, from a great laying strain. **Dr. William A. Smith, Petersburg, Mich.**

Laybill S. C. W. Leghorns Large, great layers. Pure white. Bargains in choice breeding hens now. **Everfresh Egg Farm, Ionia, Mich.**

Pine Crest S. C. White Orpingtons, special sale cocks and hens, also young cockerels. **MRS. WILLIS HOUGH, PINE CREST FARM, Royal Oak, Mich.**

RHODE ISLAND REDS and PLYMOUTH ROCKS Males 5 to 12 lbs. according to age \$2 to \$5; P. R. hen weight 5 to 10 lbs., eggs 15 for \$1.00; 100, \$5; 120, \$6.00. Mammoth Bronze Tom Turkeys, 8 to 38 lbs. according to age \$5 to \$25, 10 eggs \$3. **J. Morris & J. Barsan, Vassar, Mich., Successors to A. E. Cramton.**

R. L. Red Summer Sale Rose Comb cocks and hens. Single Comb hens and pullets. All at bargain prices. Cockerels after September 15th. **INTERLAKES FARM, Box 39, Lawrence, Mich.**

S. C. W. Leghorn hens for breeding \$1.50 each. Cockerels from trap nested stock we have them priced \$3 to \$5 each. **O. S. Sturtevant & Sons, Ypsilanti, Mich.**

R. C. Br. Leghorn Cockerels, Pekin W. China Geese, Order early, the supply is limited. **MRS. CLAUDIA BETTS, Hillsdale, Michigan**

R. C. Br. Leghorn cockerels two best prize winners \$1.50 and up, a square deal, orders promptly filled. **E. Himebaugh, Coldwater, Mich.**

SILVER Golden and White Wyandottes. Choice breeding stock of sale after Oct. 1st, a few bargains in yearling hens. **O. W. Browning, R. 2, Portland Mich.**

S. C. W. Leghorns. April Hatched. Standard Bred each. **White Line Poultry Farm, Hillsdale, Mich.**

FOR SALE S. C. W. Leghorn cockerels for breeding purposes. Hatched the first of June from Pedigreed stock. Price \$1 each. **C. O. WHISTLER, Brown, City, Mich.**

Silver Laced Wyandottes. Pure bred cockerels for sale, \$1.50 each. Healthy birds, hatched in May. Order now. **Mrs. Jacob Sneyrey, R. 1 Carson City, Mich.**

WHITE Wyandottes. I have a fine lot of April and May hatching cockerels for \$3.00 and \$5.00 each. **DAVID RAY, 709 Norris St., Ypsilanti, Michigan.**

Thoroughbred Mammoth Bronze turkeys, a fine pair, good breeders, order now and be ready for spring. **Evergreen Dairy Farm, Mrs. E. L. Pardy, R. 2 Harbor Beach, Mich.**

Guineas In Demand

GUINEA fowls, which have suffered unpopularity with farmers because of pronounced propensities for noise making during the sleeping hours of humans, are likely to rise above this objection in view of a steadily increasing demand for their delicious flesh. With eastern markets offering seventy-five cents to \$1.50 a pair for these fowls, guinea raising now is a profitable side line on eastern farms, and may offer opportunities to the commercial poultryman in a few cases. In Farmers' Bulletin 858, "The Guinea Fowl," is discussed from the starting of a flock to marketing the produce, which is largely the meat.

A Game Bird Substitute.

The increasing demand for guineas, the specialist says, comes from hotels and restaurants in the large cities, which are always eager to buy prime young stock. These they particularly like to use as a delicacy in banquets and club dinners, guineas being a good substitute for game birds, such as grouse, partridge, quail, and pheasant. The present supply comes largely from small farm flocks of ten to twenty-five fowls. Such flocks require little care and expense to raise; consequently the marketing price is largely profit.

And as for that undesirable cry of the guinea, the department specialist admits that this is a rather objectionable habit, but declares that it might often be listed as an asset. It gives warning of marauders in the poultry yard and also, backed by a pugnacious disposition, constitutes an effective show of fight against hawks and other enemies. In fact, some farmers raise a few guineas with their turkeys and allow them to roost together so that a warning will be given if any theft is attempted during the night.

Prices Good.

Guinea raisers who are near the large eastern markets or who have developed a trade among private customers are now receiving prices that make this industry very profitable. One poultryman near a New England summer resort has raised as many as four hundred guineas in one season, selling them in August when they weighed about one pound each at \$1.25 a pair. Wholesale prices in New York usually range from seventy-five cents to \$1.00

a pair for dressed spring guineas that weigh two pounds to the pair, and from \$1.25 to \$1.50 a pair for those weighing three to four pounds to the pair. Old guineas are not wanted and seldom bring more than fifty or sixty cents a pair.

Popular Varieties.

Of the three varieties of guinea fowl—Pearl, White and Lavender—Pearl is by far the most popular. It has a purplish gray plumage regularly dotted or "pearled" with white and is so handsome that frequently the feathers are used for ornamental purposes. Breeding stock of the various varieties usually sells for \$2.00 to \$3.50 a pair, or from \$3.00 to \$5.00 a trio. Eggs from pure-bred birds for hatching can be obtained for seventy-five cents to \$1.00 for fifteen. During the last few years a limited market for guinea eggs has developed among commercial hatcheries which have an outlet for a few day-old guinea chicks along with their ordinary chicks, ducklings, goslings, and turkey poults. While guineas can be kept in the best condition upon free range, they can be confined if necessary and satisfactory results obtained.

The Marketing Season.

The marketing season for guinea fowl is during the latter part of the summer and throughout the fall. At this time the demand in the city markets is for young birds weighing from one to two pounds each. At about two and a half months of age guineas weigh from one to one and a half pounds. As the season advances the demand is for heavier birds.

The usual practice in marketing the game birds is to place them on the market unplucked, and in most markets guineas are sold in this way. They are more attractive with the feathers on and sell more readily. When dressed the small size and dark color of the guinea are likely to prejudice the prospective customer, who may be unfamiliar with the bird's excellent eating qualities. For hotel and restaurant trade, however, guineas should be dressed in the same way as common fowl. Before shipping any birds to a market, it is advisable to inquire of the dealer to whom they are to be shipped

whether the feathers should be removed.

If the guineas are to be marketed with the feathers on, all that should be done is to bleed them by severing the vein in the roof of the mouth, allowing them to hang head downward until bleeding is complete. If the feathers are to be removed, this should be done by dry picking. The vein in the roof of the mouth is severed first to insure thorough bleeding, and the knife then thrust through the groove in the roof of the mouth into the brain. When the brain is pierced the feathers are loosened by a convulsive movement of the muscles and can be removed easily.

FATTENING CHICKENS.

The Pennsylvania Experiment Station recently conducted some tests on the fattening of cockerels for market. Two types of breeding and care were represented by the fowls selected, viz.: ordinary farm-raised and closely managed, egg-laying types. Various rations and methods of confinement were compared. The number of fowls forming the group representing a particular method was ten in each case.

The results showed that farm-raised poultry of the Plymouth Rock and Rhode Island Red breeds may be fattened in crates or pens at a cost for food of ten to twelve cents per pound of gain. No difference appeared in the gains from crate and pen-fed fowls, but with fowls of these kinds close confinement resulted in greater economy per pound of gain. Thin fowls made the cheapest gains. Fine-ground grain and rations rich in protein gave the better results. Milk was superior to meat scrap as a source of protein.

In the case of the more active, egg-laying breed, represented by Leghorn cockerels, fattening was profitable with fowls weighing up to two and a half pounds, but not beyond that limit, at present food and poultry values. The costs of gain with this breed ranged from 3.25 to twelve cents per pound. With the lighter birds, regular growing rations were superior to special fattening mixtures, and close confinement was not as advantageous as conditions permitting some exercise.

HEN MUST HAVE "ELBOW ROOM."

The man who is thinking about putting up a new poultry house should make ready now for the job, a bulletin from the poultry department of the Michigan Agricultural College declares. The statement is added that at least four square feet of space should be allowed for every hen.

"If you are planning upon putting up a poultry house, build now," the M. A. C. poultrymen say. "By so doing the house itself will be well seasoned and the ground below the floor thoroughly dried out before winter sets in."

"The house should be large enough to allow four square feet of space for each hen. That is, a coop for one hundred birds should be twenty feet by twenty feet in size, 18x24, 16x25, or 14x30. A house less than fourteen feet wide or deep should never be built."

"A shed roof can be built for the house fourteen feet wide, but the others should have a short or broken roof, while the 20x20 structure may be built with a gabled roof. If a shed roof is used build the house four and one-half feet high at the rear and eight feet in front. If a square house is built allow the ridge pole to be seven feet from the floor with a front four and one-half feet high and the rear five feet high."

"The next question is whether to build an open-front house or not. Experience at the college has taught that hens lay better, are less susceptible to disease, and are more contented in an open-front building than in any other house."

"A blue print of such a house will be sent without charge to any person in the state, upon application."

The Secret of Egg Production

TO get the maximum number of eggs the hens are capable of laying, not only requires good judgment, but careful observation of the results of feeding. The flock must be studied and the feeds varied. Variety in the laying rations will invariably bring out better results than any single ration fed constantly. Even a hen that is not laying requires a certain amount of food to maintain her physical condition properly. The laying hen must have this much and more too, if she is to produce an abundance of eggs. Her appetite should be keen and eating encouraged. Rations that whet her appetite induce her to get into the scratching litter earlier in the morning and rustle for feed until late in the evening with the result that she consumes an increased quantity of feed which she utilizes in the production of eggs. This can best be accomplished by giving her such a mixture of feeds as will keep her digestive tract in good order and appeal to her appetite.

The element of green feed in the hen's ration should never be left out. This can be provided in numerous ways. Roots, ensilage, sprouted oats, cabbage, vegetable scraps, alfalfa and clover leaves all supply a valuable element that aids efficient digestion. Some whole grain should be fed in the litter, as well as ground grain in the mash. Each supply needed food nutrients re-

quired in the production of eggs. Unlimited quantities of sour milk should always be available for the poultry, but if sour milk is not to be had, then commercial beef scrap may be substituted. However, just because the hens have access to sour milk, is no good reason for depriving them of adequate fresh water drinking facilities. Her drinking trough should be kept clean, and in freezing winter weather the chill should be taken off the water. Icy water furnished laying hens in the winter time not only chills their bodies and wastes their energy in providing sufficient body warmth to overcome such loss, but discourages the consumption of adequate quantities of water to supply the body needs. The supply of grit and oyster shell should always be kept replenished.

Efficient feeding not only means ample feeding, but the supplying of the various nutritive elements in the ration to bring out the maximum egg producing results. To skimp in the rations, brings a loss in the production of eggs. The laying hen must not only have the nutritive elements required to keep her body in first-class physical trim, but she requires a competent surplus for the purpose of producing eggs. Good feeding, keen observation and the exercise of competent judgment solves the egg-laying problem and unlocks the secret of success. **P. H. E**

(Continued from page 436).

gated north of the Ohio river. The harness horse classes each evening were reminders of heavy harness classes at Madison Square Garden in New York City.

The draft horses were present in abundant numbers, the Percherons dominating the other breeds. Tuesday, October 23, was designated as Percheron Day. The show opened early in the morning with seventeen entries forward in the aged stallion class. At the top stood a Crouch entry, the dark grey Plato, trim and dressy about his head and neck, short of back, strongly coupled, and with real draft horse ability on the move. Lanquier, a Bell Bros. entry, and champion at the Ohio State Fair this year, stood in second position. The gray Jehovah, reserve champion at the Ohio State Fair this fall, was third. Fourth in position went to Nectar an entry from Woodside Farms.

Seven entries answered the call in the three and two-year-old classes. In the two-year class interest centered in the battle between the colts Walbank and Brilliant. It will be remembered that Walbank topped the Eastern Percheron Futurity in 1916. He lacks the freshness of his yearling form, however, and he was placed in second position. The winning colt Brilliant, was shown by Adams, Potter & Whipple.

In the aged mare class, first went to Alice, an entry from Woodside Farms. This mare was second in her class at the International Live Stock Exposition in 1916. Janet, a Crouch entry, stood in second place, with Alicia, another Woodside Farm entry, in third position. The latter was first in her class at the International last year.

The three-year-old mare class was of especial interest because it brought forth the mare Pet, not only first in her class but later made grand champion mare. In winning this honor Pet humbled Lady Radisnoir, winner of the two-year-old mare class and also winner of the Eastern Percheron Futurity last year.

The stallion champion honor went to Plato the Crouch entry, with Brilliant, the Adams, Potter & Whille entry in reserve position. The Percheron awards were made by Prof. F. R. Marshall.

The Belgians.

There were nine entries in the aged Belgian class. In this class the real battle occurred between Felix-du-Geron, a Bell Bros. entry, and Bomiott-de-emal, a Crouch entry. The Crouch horse boasted greater thickness and depth and was a little more drafty in appearance, but the Bell Bros. colt with his clean, hard bone and joints, nicely stationed legs and his length and true-ness of stride, could not be denied. He not only topped his class but tramped right on through to the championship.

The three-year-old class of mares brought forth the keenest competition in the mare classes. In this class, Fayette Rose, a hitherto unbeaten entry from the stable of Roy Hagler, gave way to Marquii, a Crouch entry. The mare championship went to Queen, an entry in the aged mare class from the Crouch stable. Prof. C. F. Curtiss made the awards.

The Clydesdales.

The Clydesdales boasted the fewest entries among the draft classes. There were but two stables that came—Painter Bros., from Indiana, and J. Leitch & Son, from Illinois. They divided the honors, each of them romping away with a championship. Mikado, a one-time champion stallion at the International, appeared in his ten-year form and manifested his old-time dash and freshness to entitle him to a place at the top of his class and to send him to the championship. The mare championship went to Lady Evergreen, an entry from Painter Bros.' barn. Dean C. F. Curtiss also tied the ribbons for the Clydesdales.

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Now is when your stock need special attention because the change from pasture to dry feed is one of the most critical periods of the whole year.

You can lose more pounds of summer gain through November neglect than you can get back all winter. Keep up the good condition—keep up the summer thrift—keep out the worms.

Dr. Hess Stock Tonic

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Keep the animals' systems right and you need have little fear of disease. Stock Tonic tones the stomach and the digestive organs, gives better action to the bowels, improves the blood, purges of worms, and gives real life and vigor. The *Nux Vomica* in it aids digestion. *Quassia* is a true tonic and a worm expeller. The *Sulphate of Iron* is a blood builder and worm expeller. There is *Epsom Salts* for a laxative, and *Nitrate of Potash* to act on the kidneys.

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A small quantity, applied when calves are young, will prevent growth of horns—no need to dehorn later. A 50c tube—sent postpaid—is enough for 50 calves.

FLEMING BROS., Chemists
252 Union Street, Chicago, Illinois

Big Boned Poland China boars shipped C.O.D. call or write for photo, weights, pedigree and price. E. K. Leonard, R. 3, St. Louis, Mich.

WALLNUT Alley—Big Type P. C. Boars ready to go. Gilts will be bred for Apr. farrow to a great boar from Iowa. Let me tell you about them, or come and see for yourself. A. D. GREGORY, Ionia, Mich.

LARGE STRAIN P. C. nothing for sale until after Nov. 1st. H. O. SWARTZ, Schoolcraft, Mich.

Big type P. C. Boars and Gilts of Peter Mouw breeding. He sold 104 head Sept. 21 for \$32.035 average \$308 per head. C. E. Garnant, Eaton Rapids, Mich.

Registered Hampshires, spring boars and gilts. JOHN W. SNYDER, R. 4, St. Johns, Mich.

FINE Cherry Red Tamworths: two sows of April farrow. Also pigs of October farrow, both sexes. WM. G. SARGENT, Bravo, Mich.

SHEEP

IT PAYS TO BUY PURE BRED SHEEP OF PARSONS "The Sheepman of the East." I sell and ship everywhere and pay express charges. Write for club offer and price list. Oxford, Shropshires and Polled-Delaines. PARSONS, GrandLedge, Mich. R. 9.

Shropshire Ram Lambs and one three year old flock header for sale. ARMSTRONG BROS., R. 3, Fowlerville, Mich.

Reg. Shropshire Rams For Sale
Prices reasonable.
Harry Potter & Son, Davison, Mich.

SHROPSHIRE AND HAMPSHIRE RAM LAMBS

Husky ones with quality, price \$35. Shipped C. O. D. **Kope Kon Farms,** Sheep at Lupton address Coldwater, Mich.

Shropshires a few choice Ram lambs: one three yrs. old, 10 ewes. DAN BOOHER, R. 4, Ewart, Mich.

I offer for remainder of season a limited number of **Strong rigorous Registered Shropshire Ram Lambs** good size well covered and ready for service. C. LEMEN, Dexter, Mich.

500 BREEDING EWES

For Sale 1 to 4 years old in lots to suit purchaser \$13 to \$16 per head. Also Thoroughbred Shropshire rams. A. B. CHAPMAN, So. Rockwood, Mich.

Registered Spanish Merino Black Top Rams for sale, 1 and 2 yrs. old. RALPH N. HAYNER, Webberville, Mich.

MERINOS & Delaines, having quality, size, oily fleeces, long staple, heavy shearers. Rams for sale, delivered, S.H. Sanders, R. 2, Ashtabula, Ohio.

Registered Oxford Down Ram lambs for sale. OLMSTED and J. SPAANS, Muir, Mich.

Registered Oxford Ram and Ram lambs. Also Berkshire hogs. CHASE STOCK FARM, R. 1, Marietta, Mich.

LINCOLNS—One two-year-old and six yearling rams for sale, also ram lambs. BPH KNIGHT & SONS, Gagetown, Mich.

RAMS: Rambouillets and Hampshire for sale. A. A. WOOD & SON, Saline, Mich.

Several hundred Western ewes, healthy and in good flesh. Pure bred rams of different breeds. BARNARD SHEEP RANCH, R. 5, Clare, Mich.

Additional Stock Ads. on Page 425

Michigan Live Stock Insurance Company

Home Office: Graebner Bldg., Saginaw, W. S., Michigan
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This Company is backed by more than 500 of the best live stock farmers of the state, and we have more than \$100,000 deposited with the State Treasurer as a guarantee of the Company's responsibility. We insure all live stock—horses, cattle, sheep and hogs against death from any cause. We issue individual and blanket policies covering any and all conditions—herd policies, feeding policies, shipping policies, 30 day foaling policies, etc. We want a local agent to represent us in every community in Michigan. We want every farmer in the State of Michigan to insure his live stock with us. We will give you a square deal. Write for information.

Colon C. Lillie, Pres. and Supt. of Agts.
Harmon J. Wells, Secty. and Gen. Mgr.

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CATTLE.

Aberdeen-Angus

Herd established in 1900, Trojan-Fricas and Black birds only. Bulls in service; Black Brandon 20892, Enoch Woodcote 19132. Also breeders of Percheron and Saddle Horses.

WOODCOTE STOCK FARM, Ionia, Mich.

ANGUS CLOVERLY STOCK RANCH. Bulls, Cows and Heifers for sale. GEO. HATHAWAY & SON, Ovid, Mich.

ABERDEEN-ANGUS Seven bull calves for sale. T. E. CRUCHSHANK, R. 2, Ewart, Mich.

M. S. D. AYRSHIRES

We have for sale a choice lot of young stock from A. R. dams. Also a few mature cows. Write for particulars.

W. L. HOFFMAN, Steward,
School for the Deaf, Flint, Michigan

Registered Guernseys

Stock always for sale. May Rose Strain—Herd Tuberculin tested annually. Never had a reactor—no abortion. J. M. WILLIAMS, North Adams, Mich.

GUERNSEYS, must reduce herd, so offer a few choice females of Glenwood breeding also bulls, all stock of A. R. breeding, herd tuberculin tested. Do not write about females but come at once as they are priced to sell. T. V. HICKS, Battle Creek, Michigan.

GUERNSEYS—REGISTERED BULL CALVES Containing blood of world champions. HICKS' GUERNSEY FARM, Saginaw, W. S., Mich.

Guernseys—For Sale, four young registered cows. Tuberculin tested. Geo. N. Crawford, Holton, Mich.

Guernseys Registered and Grade cows, bulls, yearlings, heifer calves; will sell 20. Some with records; choice of 45; must reduce herd; tuberculin tested. Avondale Stock Farm, Wayne, Mich.

R. E. Guernsey bull 2 years old, prize winner, a few cows, also bull calves, May Rose breeding. JOHN EBELLS, R. 2, Holland, Michigan.

FOR SALE 8 grade Guernsey heifers. 1 to 2½ yrs. Some fresh \$40 to \$75. GEO. F. HEATH, Lawrence, Mich.

Cluny Stock Farm

100 Registered Holsteins 100

For Sale—Nicely marked 7 mos. old bull. Sire, Dutchland Colantha Winana Lad No. 114067, Grand Champion Bull at Michigan State Fair 1917. Dam a 19.2 lb. fr. 2 yr. old. She produced in first four milking periods 50,634.6 lb. milk (private record), average 37.8 lb. a day. Dam's dam, a 20.8 lb. cow, produced in first eight milking periods 92,417 lb. milk. If you are looking for producing qualities, send for pedigree and price on this one.

R. Bruce McPherson, Howell, Mich.

REG. HOLSTEINS: Herd headed by Albina Bonte Butter Boy No. 93124. Dam's record at 6 yrs. butter 25.58 lbs. milk 619.4. Yearly record at 2½ yrs. butter 802 lbs. milk 1822 lbs. W. B. READER, Howell, Mich.

For Sale A Yearling Heifer, pure bred Holstein, Sire, Colantha Johanna Cream-elle Lad, Dam, Elizabeth Segis Lyons. If you want something good, write, Geo. D. Clarke, Vassar, Mich.

Registered Holstein Friesian Heifers, 3 to 6 mos. old. Some from 30 lb. sires. Priced to sell. Fred J. Lange, Sebawaing, Mich.

I Always Have Holsteins To Sell

If wanting Registered cattle write me your wants before placing your order elsewhere.

L. E. CONNELL, Fayette, Ohio

Buy Your Bulls From Parham's Pedigree Stock Farm Choice Registered Holstein calves from A. R. O. cows. RAY B. PARHAM, Bronson, Michigan.

3 Holstein Heifers 30.21 lbs. sire. Their dam's dam A. R. O. sister to dam of 35 lb. cow, bred to 30 lb. 4 yr. old. Terms if wanted. M. L. McLAULIN, Redford, Michigan.

HOLSTEIN BULL CALF. Fine individual, four months old, pure bred, farmers prices. A. R. GRAHAM, Flint, Mich.

On Our Easy Payment Plan we will ship you any registered Holstein Bull calf in our stables. Prices from \$50 up. Ypsilanti Farms, Ypsilanti, Michigan.

"TOP-NOTCH" HOLSTEINS

"Milk production is an inherited ability. Good cows must be bred to good pure-bred bulls if progress in dairying is to be made." Extract U. S. Dept. of Agric. Bulletin.

Here is a young bull with inherited ability, and rare individual merit. He was born Dec. 24, 1915.
Butter 7 Days 33.82
Butter 30 Days 130.73
Milk 30 Days 2815.70
Butter 1 Year 338.41
Milk 1 Year 18675.80
His Sire's Sire's three nearest Dams average Butter 7 Days 30.87. (Including a junior three and senior four yr. old.)
His Dam's Record { Butter 7 Days 21.24
3 Yrs. 4 Days { Milk 7 Days 452.8
Dams' Dam { Butter 7 Days 29.40
Almost 30 lbs. {
About ¾ white. Price low for this quality.

McPherson Farms Co., Howell, Mich.

HOLSTEIN FEMALES

Fifteen head of cows, heifers and calves for sale. Some have A. R. O. Records above 21 lbs. butter in 7 days, and all will average by their 6 to 7 nearest tested dams over 22 lbs. butter in 7 days. Grand daughters of King of the Pontiac and King Segis.

Extraordinary fine breeding at less than auction prices. All bred to calve before March.

BIGELOW'S HOLSTEIN FARMS, BREEDSVILLE, MICH.

OAK LEAF FARM

Herd Sire
Ypsilanti Sir Pietertje De Kol
Registered Holstein cows & bull calves fine individuals cows safe in calf satisfaction guaranteed. E. H. Gearhart & Son, Marcellus, Mich., R. No. 4.

WINWOOD HERD REGISTERED HOLSTEINS

Holton, Mich.

Reference: Old State Bank, Fremont, Mich.
Flint Maplecrest Boy sire in service
His sire is Maplecrest Kordyke Bengerveld, his 3 Nearest Dams each over 30 lbs. of butter in 7 days. His dam and grand dam both made over 1232 lbs. of butter in 1 year. It is the yearly cow we are looking for to deliver the goods. Flint Maplecrest Boy's Dam is Gluck Vasser Bell, 30.57 lbs. of butter in 7 days and 120 lbs. in 30 days. Her butter fat test is 5.27. This looks about right to the man who goes to the creamery. We have Bull Calves from 2 weeks to 8 months old for sale at dairy farmers' prices all out of A. R. O. Heifers. Write and tell us the kind of a bull you want.

John H. Winn. (Inc.), Holton, Mich.

The Difference between
Pure Bred HOLSTEIN and COWS
is the difference between
Profit and Loss
all cows throughout the U. S. average 3000 quarts of milk a year.

All registered Holsteins average 7000 quarts. Get our free books.
THE HOLSTEIN-FRIESIAN ASSOCIATION OF AMERICA, Box 164, Brattleboro, Vt.

REG. Holstein Bull Calf. The last one until winter. A good one with A. R. O. backing. Write for pedigree and price. Elmer E. Smith, Redford, Mich.

FOR SALE One registered Holstein bull calf. Sire's twenty nearest dams have 7. da. records av. 25.58 lb. butter. Dam to be tested. A finely marked, growthy individual. Long View Farm, R. 3, Box 10 A, Rochester, Mich.

FOR SALE, Reg. Holstein bull calf born Sept. 15. Half white in show form. College Sire, A. R. O. dam price low. C. L. HULETT & SON, Okemos, Mich.

2 CHOICE Holstein bulls—nearly old enough for service. No. 1 born January 24, 1917, sire's dam, grand-dam and great grand-dam's semi-official records average 842 lbs. butter. Dam of calf 18 lbs. butter 7 days senior 2yr. old, average percent fat 4.3. No. 2 Sired by 23 lb. bull and out of a 14 lb. Junior 2yr. old. C. L. BRODY, Owner, Port Huron, Mich. Chas. Peters, Herdsman, Three Rivers, Mich.

Butter Fat Counts

Holstein Bull Calves from a 30 lb. 6.53 % Sire. Dam are grand daughters of the King of the Pontiacs. Their dams grand daughters of Sadie Vale Concordia the first 30 lb. cow. Edwin S. Lewis, Marshall, Mich.

FOR SALE A Holstein bull calf. Four nearest Dams average 22.7 lbs. of butter seven days. Grand son of Maplecrest Kordyke Bengerveld who is as good as the best in Mich. Well marked and cheap at \$35. Write for pedigree. W. C. HENDEE & SON, Pinckney, Mich.

Reg. Holstein Bull Calves Pontiac Kordyke and Bengerveld DeKol Breeding at Farmers Prices. John A. Rinke, Warren, Mich.

Jersey Bulls for Sale from high-producing dams, with testing Asso. records, also on semi-official test. C. B. Wanner, R. 6, Allegan, Mich.

Hillside Farm Jerseys. For sale ten months old bull backed on both sides by R. O. dams with high official records. C. O. DEAKE, Ypsilanti, Michigan

Grange.

THE GRANGE AND THE FARMER.

(Concluded from last week.)

But often it is just as necessary to be on the watch for legislation that we do not want, as to champion measures whose passage would result to our advantage. For example—for years progressive stock men and dairymen have been anxious to control tuberculosis more fully in the state. The way is plain. If the disease can be discovered early in its existence in an animal, there is small chance of communicating it to any of the rest of the herd. The only way to discover it at this time is through the tuberculin test. Graduates of our M. A. C., and boys who have taken the two-year short course, are perfectly competent to make this test. As a matter of fact, they have done so for some time with advantageous results. But the legislature of 1915 passed a law making it unlawful for any but a graduate veterinarian to practice veterinary science. Therefore no graduate of our M. A. C. nor anyone else, save a graduated veterinarian can test cattle for tuberculosis.

The object in this law is self evident. Where were our farmers and dairymen when this law was passed? When the farmers of North Dakota went to the legislature of that state asking for certain reforms, they were told to "go home and slop the hogs." The writer likes a good hog as well as anybody in Dakota. He believes in and tries to practice up-to-date methods of feeding, but we farmers must get our hogs slopped in time to attend to matters of legislation that affect our business, or suffer at the hands of those who would profit through our inattention to public questions.

This law should be repealed. We have no quarrel with the veterinarian profession. We need a veterinarian now and then, and when we need him we are glad to treat him like a gentleman, and pay him promptly for his services, but when his class, through the oversight of farmers and dairymen generally are able to put across a piece of legislation purely for the purpose of forcing people to employ them, they need to be shown where they "are at," and farmers need to take the lesson to heart and be more active in public matters.

I have pointed out several lines of activity in which the granges of the state might engage to their good and to that of the public generally. Let no one think, however, that I do not appreciate the wonderful work which the order has accomplished. This work is showing more and more along all lines. Broader and clearer visions of it are appearing year by year to its leaders. New men and women, with new thoughts are entering the order constantly and not one of the old guard who is still with us has stopped thinking or working for the good of the order.

There is everything to encourage us. Michigan cannot get along without the Grange, we shall not try. But Patrons, may we not see in our wonderful growth, and our splendid accomplishments in the past, and in the light of ever increasing opportunities for service a new call to duty, and seeing, may we not rise and go out to still greater deeds of public service?

W. F. TAYLOR.

COMING EVENTS.

Charlotte Grange is preparing for an Agricultural Pageant to be presented at the Thomas Opera House, Charlotte, Mich., on Friday evening, November 16. There are fifty characters in the cast, who are training under the direction of Miss Mary Derby, of Lansing. The play represents the past, present and future of agricultural progress and the characters, costumed in accordance with the age they represent, will illustrate many historical events, beginning with the time Marquette and Joliet first traded with the Indians.

Farmers' Clubs

QUARTER CENTURY ANNIVERSARY.

The coming annual meeting of the Michigan State Association of Farmers' Clubs will mark the passage of twenty-five years since the inception of the organization. Every local Club in the state should send delegates to take part in the deliberations of this meeting, which will be one of special significance on this account. An excellent program has been prepared for the occasion, as follows:

Program.

Tuesday, December 4, 10:00 A. M.

Registration.
Presenting credentials.
Payment of dues.
Appointment of committees.
Presentation of resolutions.

General Session, 1:00 P. M.

Hon. C. B. Scully, Chairman, Almont.
Invocation, Rev. M. L. Fox, Lansing.
Solo, Melvin Hart, Howell. Accompanist, Miss Bernice Hart.
Report of associational secretary, Mrs. J. S. Brown, Howell.
"Organization for Financial Advancement," Hon. A. B. Cook, Owosso.
"Conserving the Country's Greatest Asset," Walter B. Dickinson, New York City.

Reading, Mrs. Claude A. Burkhart, Howell.
Solo, Melvin Hart, Howell. Accompanist, Miss Bernice Hart.

Tuesday Evening.

Banquet Anniversary Program.
Music, M. A. C. Girls' Glee Club.
President's address, Hon. C. B. Scully, Almont.

At the Round Table.
"Twenty-five Years of Progress in Michigan Agriculture," J. L. Snyder, President Emeritus, M. A. C., East Lansing.

Reading, Mrs. Claude A. Burkhart, Howell.
Solo, Melvin Hart, Howell. Accompanist, Miss Bernice Hart.

"What Twenty-five Years of Effort has Brought to M. A. C.," President F. S. Kedzie, M. A. C., East Lansing.
Music, M. A. C. Girls' Club.
"Preparedness," Secretary Ralph Duff, Executive Office, Lansing.

Wednesday, December 5, 9:00 A. M.

Club conference of delegates, directed by C. F. Hainline, Alma.
Solo, Mrs. Alice Crafts Storrs, Grass Lake, Accompanist, Miss Ethel Cowden.

"Agricultural Organization," Hon. J. N. McBride, East Lansing.

Treasurer's report.

1:00 O'clock P. M.

Solo, Mrs. Alice Crafts Storrs, Grass Lake, Accompanist, Miss Ethel Cowden.

Reports of committees on temperance, Honorary Members, Club Extension, Credentials, National Affairs, State Affairs, Legislative.

Solo, Mrs. Alice Crafts Storrs, Grass Lake, Accompanist, Miss Ethel Cowden.

Address, "Michigan Farmer's Part in this War," Michigan's Fuel Dictator, W. K. Prudden, Lansing.

Reading, "America," Mrs. Claude A. Burkhart, Howell.

Address, "The War for Peace," Dr. Caroline Bartlett Crane, State Chairman Women's Committee Council of National Defense, Kalamazoo.

Solo, Mrs. Alice Crafts Storrs, Grass Lake, Accompanist, Miss Ethel Cowden.

"Conservation of Food," Dean White, M. A. C., East Lansing.

7:00 O'clock P. M.

Music, M. A. C. Men's Glee Club.
Address, "Why we Are at War with Germany," Prof. C. H. Vantine, U. of M., Ann Arbor.

Reading, Mrs. Claude A. Burkhart, Howell.
Address, Governor Albert E. Sleeper, Lansing.

Music, M. A. C. Men's Glee Club.

ATTENTION CLUB SECRETARIES!

The associational secretary requests that secretaries of all local Farmers' Clubs fill out and return the report blanks which have been sent out for the gathering of Club statistics not later than November 15. Such cooperation will greatly facilitate the work incident to preparation for the annual meeting. Please mail the completed reports to Mrs. J. S. Brown, Howell, Mich., at the earliest possible date.

Washtenaw County Holstein-Friesian Cattle Breeders' Club Sale Ypsilanti, Michigan

(At Ypsilanti Farms, 1½ Miles West of City on Electric Line)

Wednesday, November 14, at 10 A. M.

The sale will comprise over 50 head from the herds of the members of this Breeders' Club. Over half of the offerings are cows fresh or bred to high-class sires to freshen through this fall and winter.

FIFTEEN GRANDDAUGHTERS AND SIX GREAT GRANDDAUGHTERS OF KING OF THE PONTIACS AND PONTIAC KORNDYKE are among the attractive offerings.

KING PONTIAC JEWEL KORNDYKE No. 94184 will be offered, simply because the herd which he has headed for four years finds it necessary to avoid inbreeding to dispose of him. He is a son of the KING OF THE PONTIACS, the greatest living dairy sire with more 30-pound daughters, more 40-pound daughters, and more ARO daughters than any other living sire. His dam is a daughter of De Kol 2d's Butter Boy 3d, and his granddam a daughter of Pontiac Korndyke. He has 10 A. R. O daughters to his credit and many more com-

ing on to test. This is an unusual opportunity for one or more breeders to procure a tested sire, gentle and all right in every way and right in his prime.

Other sires represented in the offerings in this sale are King Lunde Pontiac Korndyke 15th, No. 142487, out of a son of King of the Pontiacs and a daughter of Pontiac Korndyke; Mercena De Nijlander No. 149013, out of a son of Pontiac De Nijlander (35 lbs.); Sire Mina Korndyke No. 129169; King Hartog Elzever No. 70642; Vale Piebe Paul De Kol No. 44073; Ordello Lyons 2d's Count No. 35419; Woodcrest De Kol Lad No. 45103; Elzever King of Butter Kings No. 71595.

GET YOUR CATALOG AND COME TO THIS SALE. There will be attractive offerings for the discriminating breeder able to pay any price, for him who desires to get started in pure-bred cattle at a moderate price, and for him who has grade cattle and recognizes the profit in using a pure-bred sire.

**Address WILLIAM B. HATCH, Secretary,
Ypsilanti, Michigan**

Jerseys and Duroc Jerseys

The most important thing in buying a Jersey bull is to get one backed up by generations of high producers. Brookwater offers to sell a few choice bull calves of this kind. Our herd of Durocs has won more prizes at the State Fairs this year than any other.

Boar Pigs and Yearlings For Sale.

H. W. MUMFORD,
OWNER

BROOKWATER FARM

O. F. FOSTER,
MANAGER

Ann Arbor, Mich. R. 7.

"BULLY" BARGAINS at Long Beach Farm, Augusta, Mich.

Choice Holstein bulls, \$80 up, 4 to 14 mo. old, from A. R. O. daughters from noted families; Our Senior Herd Sire Long Beach Dekol Korndyke has 5 30 lb. Sisters, is a son of Friend Hengerveld Dekol Butter Boy, and 1200 lb. daughter of Pontiac Aggie Korndyke, she has 13 30 lb. sisters. Our Junior Herd Sire is as good. Our illustrated booklet tells all.

Little Farmstead Jersey Cattle. Bull calves from R. L. of M. Cows, also heifer calves and several bred heifers for sale. Colon C. Little, Coopersville, Mich.

For Sale Two registered Jerseys bull calves, Splendid individuals. Good pedigrees. Priced to sell. Long Veiv Farm, R. 3, Box 10A, Rochester, Mich.

FOR sale 2 yr. old bull out of a R. of M. dam record 5195 lb. butter in one yr. sire Majesty's Wonder a R. of M. sire with 10 daughters in the R. of M. Write FRED A. BRENNAN Sec., St. Clair Co. Jersey Cattle Club, Capac, Mich.

FOR Sale Maple Lane R. of M. Jersey Herd R. of M. cows and their daughters all records 500 and 600 lbs. For sale bulls and bull calves out of these cows. IRVIN FOX, Allegan, Mich.

The Wildwood Jersey Farm offers for sale choice young bulls from R. of M. dams, good enough to head any herd. We invite inspection. ALVIN BALDEN, Capac, Mich.

FOR SALE Registered Jersey bulls, ready for service. SMITH and PARKER, R. 4, Howell, Mich.

For Sale A pure bred Jersey bull calf dropped Sept. 23d, a splendid Jersey. Price \$40 registered and transferred. Also pure bred Hampshire pigs for breeding \$15 ten weeks old. L. H. CHEESEMAN, Waterford, Mich.

Shorthorn Cattle of both Sex for Sale W. W. KNAPP, Howell, Michigan.

FOR Sale Reg. Short Horn Bulls by Maxwalton Monarch 2nd, a son of Avondale, from 1 to 12 mos. old. John Schmidt, Reed City, R. No. 5, Michigan.

BIDWELL SHORTHORNS For Beef and Milk.

5 Bulls ready for service, 15 months to 2 years, for sale; also good Scotch-topped cows and heifers. Modern, sanitary equipment. One hour from Toledo, Ohio. N. Y. C. R. Visitors Welcome. Write us.

BIDWELL STOCK FARM Box B, Tecumseh, Michigan.

Shorthorns—Dairy or beef bred. Breeding stock all ages for sale at farmers prices. C. W. Crum, Secy. Cent. Mich. Shorthorn Breeders' Assn., McBride, Mich.

SHORTHORNS Maple Ridge Herd, Established 1867. No stock for sale. J. E. Tanswell, Mason, Michigan.

Shorthorns for sale, 5 bulls Scotch top 10 to 14 mos., 3 roan, 1 white, 1 red, price \$150, to \$250. Leon of Maxwalton Sultan, 19 mos. \$550. C. Carlson, Leroy, Mich.

Bates Short-horns the original milk strain young bulls 8 mos. old for sale. Price \$150 to \$200. J. B. HUMMEL, Mason, Mich.

Shorthorns Bulls 9 mos. to 12 mos. old from good milking cows. Prices reasonable. COLLAR BROS., R. 2, Conklin, Mich.

Registered Shorthorn Bulls 12 to 16 mos. Shropshire sheep. W. J. Leasiter, Belding, Mich.

Milking Shorthorns—Bull calf 5 mos., by a Grand-son of General Clay, dam by a son of General Clay, \$150. A few females. S. E. BOOTH, Morrice, Mich.

Registered Shorthorn calves sired by Diamond King 2nd. 41045, both sexes \$150. Twenty cows \$250 each. WM. J. BELL, Rose City, Mich.

For Sale Shorthorns Bulls 6 mo. to 2 years old from good milking cows. R. R. Clyde Station, H. J. DeGarmo, R. 6, Milford, Mich.

HEREFORDS
ALLEN BROS.
PAW PAW, MICH.

Meadow Brook Herfords
Two 2 yr. old bulls, 3 yearlings and 15 calves for sale. EARL C. MCCARTY, Bad Axe, Mich.

Shorthorns both sexes, herd catalogue mailed free. CHARLES R. HORRIG, Hart, Mich.

SHORTHORNS, Butterfly Sultan, half brother to International Sr. Champion, in service. For good bulls, cows, and heifers. W. B. McQuillan, Howell, Mich.

Cattle For Sale
Load feeders and two loads yearling steers. Also can show you any number 1, 2 and 3 year old from 600 to 1200 lbs. Isaac Shantum, Fairfield, Iowa, R-8.

HOGS.
SWIGARTDALE
BERKSHIRES

We are offering a few very desirable gilts and boar pigs. All will be of good size for breeding and service by December 1st. Though we have not pushed them they have made about 1 lb. per day for their age.

We do not claim to have the cheapest in price but we do claim to have the best in quality and type.

SWIGARTDALE FARM
PETERSBURG, MICHIGAN

Duroc-Jerseys One Yearling Cherry King Boar, Gilts bred for fall farrow. J. H. BANGHART, East Lansing, Mich.

Duroc Sows and gilts bred to Eureka Cherry King and Crimson Critic son of Critic Model 1916 champion Iowa Fair. W. C. Taylor, Milan, Mich.

Pinehurst offers: Registered Spring Boars, tried brood sows, One Great Herd Boar. Write you want. Orlo L. Dobson, Quincy, Mich.

40--SHORTHORNS--40 7--Percheron Mares--7 1--Yearling Belgian Stallion--1

To Be Sold at
The Fairfield Stock Farm, Elsie, Mich.
Monday, November 19th, 1917

This lot of Shorthorns made up of 32 females and 8 young bulls, are the kind that will attract farmers and breeders. The females are of the good milking kind with beef qualities as well.

This lot of cattle are practically all bred by H. B. Peters, using as sires such bulls as Lavender Lad by Imp. Lord Banff, Whitehall Master by Whitehall Sultan, Dalmerly King and Fandango by Avondale, and such families as Village Maids, Merry Maids, Mayflower, Victoria, Dewdrops, Chloris and Rosebud and others.

In the offering are 12 cows, with calves or heavy with calf, 12 yearling open heifers, 8 two-year olds, bred, and 8 young bulls of herd heading quality. Be on hand sale day and see this good lot of cattle and horses. Write for a catalog.

Auctioneers: Carey M. Jones and others.

**H. B. PETERS, Prop.,
Carland, Mich. R.R. Station, Elsie**

DUROC BOARS AND SOWS

The biggest, longest, growthiest and best bred of Spring boars. 3 last fall boars by Panama Special 6383. This fall's boars \$20, pair, not akin \$40. NEWTON BARNHART, St. Johns, Mich.

Duroc Spring Gilts and fall boar pigs of the finest breeding. E. E. CALKINS, Longacres, R. 6, Ann Arbor, Mich.

Durocs A few good males sired by Joe Orion 2nd Dam by Orion Ch. King Jr. A. FLEMING, Lake, Mich.

Duroc Jersey Spring gilts and fall pigs either sex. E. D. HEYDENBERG, Wayland, Mich.

DUROCS of good quality and breeding, yearling and spring pigs of April farrow, priced cheap for quick sale. H. G. KEESLER, Cassopolis, Mich.

DUROC BOARS If in need of a big growthy spring boar at a reasonable price. Write at once. RUSH BROS., Romeo, Mich.

DUROCS for sale, 1 fall boar, 7 Spring boars, good breeding. Write for description and prices. J. D. CRANE & SON, Plainwell, Mich.

Duroc Jersey: Extra good spring pigs for sale. CAREY U. EDMONDS, Hastings, Mich.

Duroc Jerseys—boars of the large heavy boned type, Prize winning stock, prices reasonable, type and breeding considered, also gilts bred to Junior Champion boar for spring farrow. F. J. Drott, R. 1, Monroe, Mich.

Pleasant View Durocs, boars and gilts of April and July farrow sired by Principal XIV 81408 ready to ship. Inspection invited. W. C. Burlingame & Son, Marshall, Mich.

DUROCS Orion Chief Perfection No. 68945, and Jennings Pilot Wonder No. 73373. Two outstanding boars of big type and excellent quality. All selected large type smooth sows, Thrifty, smooth, large boned spring gilts from these herd boars and choice sows at very reasonable prices. The Jennings Farms, Bailey, Mich.

Big Type O. I. C's.
Stock of all ages for sale. We showed at four state fairs and won more champions and Grand Champions than all the other breeders together double, we were Premier Breeder and Exhibitor at every fair we showed. We breed the best. We sell the best. We guarantee them to be the best. Write your wants. Get our Catalogue. We ship on approval.

CRANDELL and SON, Cass City, Mich.



I HAVE started thousands of breeders on the road to success. I can help you. I want to place one hog from my great herd in every community where I am not already represented by these fine early developers—ready for market at six months old. Write for my plan—More Money from Hogs. G. S. BENJAMIN, R. F. D. 10, Portland, Michigan

CHESTER Whites and O. I. C. for sale. Big type Spring Boars and gilts from prize winning stock for fifteen years. Also some fall pigs. A. B. Combs & Son, R. 2, Allen, Michigan.

Chesters Bred Gilts all sold. Special prices on March boars, also 6 months Holstein Bull. F. W. ALEXANDER, Vassar, Mich.

BOARS
Big growthy fellows. The kind that please. I ship C. O. D. and pay express. J. CARL JEWETT, Mason, Mich.

O. I. C. An extra fine lot of last spring pigs, either sex and age, from good, growthy stock. Farm ½ mile west of depot. Otto B. Schulze, Nashville, Mich.

O. I. C. & CHESTER WHITE SWINE.
Strictly big type with quality. Have a choice lot of boars fit for early fall service. These boars will be sold worth the money. Also have some fine gilts. I will ship C. O. D. NEWMAN'S STOCK FARM, R. 1, Marlette, Mich.

O. I. C. Choice Spring boars and gilts out of prize winning stock. A 1 stock guaranteed. The long bodied and Big Boned type. Write for photo and low prices. A. V. HATT, Grass Lake, Mich.

O. I. C. Boars, long bodied, with quality, for fall service. A few registered, extra fine, Shropshire ewe lambs. G. P. Andrews, Dansville, Mich.

O. I. C's: A few prize winning gilts at Michigan State Fair; also Aug. Sept. pigs of the best blood lines. Clover Leaf Stock Farm, Monroe, Mich.

O. I. C. Am offering some good boars of May farrow and fall pigs either sex. C. J. THOMPSON, Rockford, Mich.

Big Type Poland China. Apr. boars, sire and dams from 1000-lb. stock; can be returned if not satisfactory. R. W. MILLS, Saline, Mich.

Big Type Poland Chinas.
We are offering a few Spring Boars by that Great Thon and Found Grand Champion Boar, HILLCREST WONDER. From sows by our Great Herd sire, HILLCREST DEFENDER, some of them great head leaders. We have five gilts by HILLCREST COMMANDER, July 13th farrow, that will make crackerjack brood sows at \$25 each, for quick sale. HILLCREST FARM, Kalamazoo, Michigan.

BOARS--SOWS
Big type big bone. For the next 30 days we will sell Big type Poland Chinas at bargain prices. April boar weighing 300 lb. Open gilts. Summer and fall pigs everything goes. Get busy. J. C. BUTLER, Portland, Michigan, Bell Phone.

LARGE Type P. C. Largest in Mich. Spring Boars ready to ship. The kind that make good. Come and see the real big type kind. Expenses paid if not as represented. Free delivery from Parma. W. E. LIVINGSTON, Parma, Mich.

Big Type Poland Chinas: April and May pigs, healthy and growthy. Prices right. L. W. BARNES & SON, Byron, Mich.

LARGE Type P. C. Some growthy spring Boars and Gilts ready to ship, come and see them. Free delivery from Augusta. W. J. Hagelshaw, Augusta, Mich.

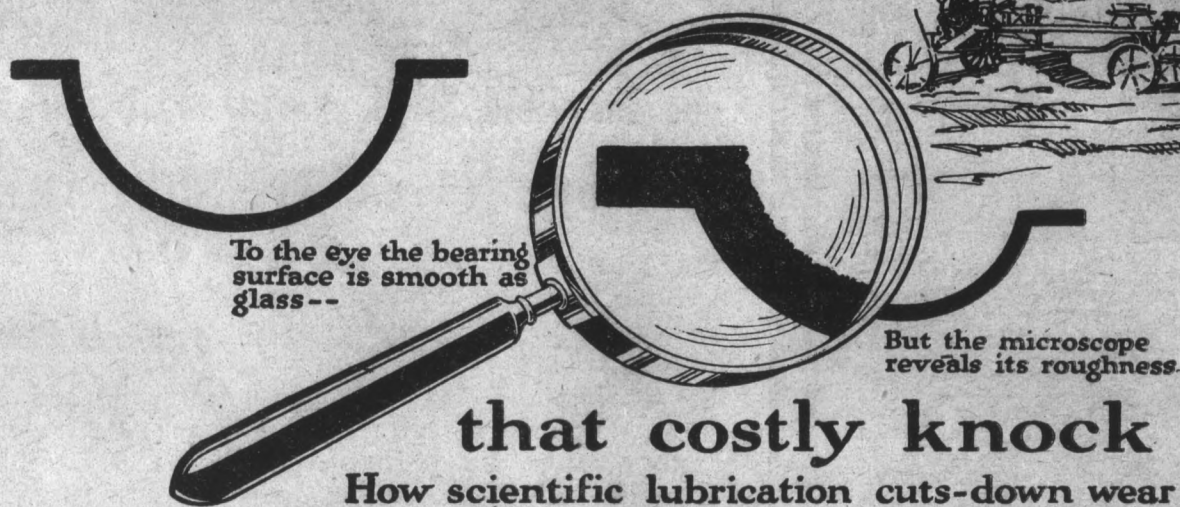
Poland Chinas large and medium type. Prices low for quality of stock. P. D. Long, R. 8, Grand Rapids, Mich.

Big Type Poland China now ready to ship, buy G. W. HOLTON, KALAMAZOO, MICHIGAN.

LARGE Type P. C. Some good spring boars up to 270 lbs. Will also price gilts, open or bred. Fall pigs ready to ship. Wm. J. Clarke, R. 7, Mason, Mich.

Additional Stock Ads. on Page 457

POSTPONED INDEFINITELY



If you ever get a chance to see the surface of a tractor bearing under the microscope, by all means do so.

Under the microscope a bearing surface looks like a plowed field. You see a succession of peaks and furrows.

Now imagine your tractor working. What happens?

Surfaces are in motion. Unless protected by a correct film of lubricating oil these microscopic peaks of metal meet and rub. The engine power overcomes this resistance, but tiny particles of metal grind off.

By degrees the snug fit becomes a loose fit. Then comes a "knock." You tighten up the bearings. But the wear keeps up. Again comes the "knock." Finally the bearings must be renewed.

Your tractor is idle. It will cost you \$30 to \$50 for new bearings plus the cost of installing them. And in addition you will be losing money through work tied up while your tractor is idle.

The bearing requirements constitute one of the factors which the Vacuum

Oil Company's engineers consider in determining the correct grade of Gargoyle Mobiloils for each make and model of tractor. Gargoyle Mobiloils used as specified effectively cushion the bearing surfaces and meet the most severe demands of service and heat.

With Gargoyle Mobiloils you postpone indefinitely, expensive "knocks."

Begin now to protect your bearings. Experience has proved the Chart of Recommendations (shown below) a scientific guide to correct tractor lubrication.

Note down the grade of Gargoyle Mobiloils specified for *your* tractor. This oil in use will yield these economies:

- (1) Lowered fuel consumption
- (2) Lowered oil consumption
- (3) Lessened engine wear
- (4) Increased power

Gargoyle Mobiloils are put up in 1- and 5-gallon sealed cans, in sealed 15- 30- and 55-gallon steel drums, and in wood half-barrels and barrels.

In buying Gargoyle Mobiloils from your dealer, it is safest to purchase in original packages. Look for the red Gargoyle on the container. For information kindly address inquiry to our nearest office.

Write for Correct Lubrication booklet containing complete Chart and other valuable data.

GARGOYLE Mobiloils *A grade for each type of motor*

CORRECT TRACTOR LUBRICATION

Explanation: — The four grades of Gargoyle Mobiloils for tractor lubrication, purified to remove free carbon, are:

Gargoyle Mobiloil "A"

Gargoyle Mobiloil "B"

Gargoyle Mobiloil "BB"

Gargoyle Mobiloil "Arctic"

In the Chart below, the letter opposite the tractor indicates the grade of Gargoyle Mobiloils that should be used. For example, "A" means Gargoyle Mobiloil "A", "Arc" means Gargoyle Mobiloil "Arctic", etc.

MODELS OF TRACTORS	1917		1916		1915	
	Summer	Winter	Summer	Winter	Summer	Winter
Albaugh-Dover (Square Turn).....	BB	A	BB	A		
Allis-Chalmers.....	BB	A	A	A	A	A
All Work.....	B	A	B	A	A	A
Andrews.....	B	B	A	A		
Aultman-Taylor.....	B	A	A	A	A	A
(18-36).....	BB	A	B	A		
Avery.....	B	A	B	A	B	A
(5-10 HP).....	A	A	A	Arc		
(Louisville).....	BB	A	BB	A	BB	A
Bates Steel Mule.....	B	A				
Best.....	B	A	B	A	B	A
(8-16).....	A	A	A	A		
Big Bull.....	B	A	B	A	A	A
Big Four.....	A	A	A	Arc	A	Arc
Bower City.....	B	A	B	A		
Buckeye (Ohio).....	BB	A	B	A	B	A
(Indiana).....	BB	A	BB	A		
(Giant Baby) (Indiana).....	B	A	B	A		
Case.....	B	A	B	A	B	A
(9-18).....	A	A				
(10-20).....	A	A	A	A		
(12-25).....	BB	A	B	A	B	A
(20-40).....	BB	A	B	A	B	A
Chase.....	BB	A	B	A	A	A
Common Sense.....	BB	A	A	A	A	A
C. O. D.....	BB	A	A	Arc	A	Arc
Corn Belt.....	BB	A	B	A	B	A
Creeping Grip.....	BB	A	B	A	B	A
Emerson-Brantingham.....	A	A	A	Arc	A	Arc
Farm Horse.....	B	A	B	A		

MODELS OF TRACTORS	1917		1916		1915	
	Summer	Winter	Summer	Winter	Summer	Winter
Flour City.....	B	A	A	Arc	A	Arc
(Heavy Duty).....			B	B	B	A
Ford (Minneapolis).....	BB	A	B	A		
Gas Pull.....	B	A	B	A	B	A
Grain Belt.....	BB	A				
Gray.....	BB	A	B	A	A	A
Happy Farmer.....	B	A	B	A		
(Model B).....	B	A				
Hart Parr.....	B	A	B	A	B	A
Heider.....	BB	A	B	A	A	A
Herbert.....	BB	A				
Holt Caterpillar.....	B	A	B	A	A	A
(Model 45).....	BB	A	BB	A		
(Model 18).....	BB	A	B	A	B	A
Huber.....	BB	A	B	A	B	A
Hume.....	BB	A	B	A	A	A
Imperial Forty.....	B	A	B	A	B	A
Ingeco.....	A	A	A	A		
Joliet.....			A	A	A	A
K. C. Prairie Dog.....	BB	A	B	A	A	A
Kinkad.....	BB	A	B	A	A	A
Lion.....	BB	A	B	A	A	A
Little Chief.....	BB	A	BB	A	A	A
Little Giant.....	BB	A	A	A	A	A
Maytag.....	BB	A	BB	A		
Minneapolis.....	B	A	B	A	B	A
Mogul.....	BB	A	BB	A		
(8-16).....	A	A	A	A		
Moline Universal.....	BB	A	BB	A		
Nichols & Shepard.....	BB	A	A	Arc	A	Arc

MODELS OF TRACTORS	1917		1916		1915	
	Summer	Winter	Summer	Winter	Summer	Winter
Nilson.....	BB	A	B	A	A	A
Oil Pull.....	BB	A	B	A	A	A
Parrett.....	BB	A	A	A	A	A
Peoria.....	BB	A	A	A	A	A
Pioneer.....	B	A	B	A	B	A
Plow Boy.....	BB	A	BB	A		
Plow Man.....	BB	A	BB	A		
Pontiac.....	B	A				
Reeves "40".....	B	A	A	A	A	A
Rumely.....	BB	A	A	A	A	A
(8-16).....	BB	A	BB	A	BB	A
Russell.....	B	A	A	Arc	A	Arc
(Little Four).....	BB	A	A			
Sandusky.....	BB	A	A	A	A	A
Sexton.....	BB	A	A	A		
Simplex.....	B	A	A	Arc	A	Arc
Standard.....	BB	A	BB	A		
Steel Mule.....			B	A	A	A
Strait.....	BB	A	B	A	A	A
Sweeney Iron Horse.....	BB	A	BB	A	A	A
Titan.....	BB	A	BB	A		
Tom Thumb (4 cyl).....	BB	A	A	A		
Twin City.....	B	A	B	A	A	A
(Model 15).....			A	A	A	A
Wallis (Cub).....	B	BB	A	Arc	A	Arc
Waterloo Boy.....	A	A	B	A	B	A
Wichita.....	BB	A				
Wisconsin.....	BB	A				
Yuba.....	BB	A	A	A	A	A

VACUUM OIL COMPANY, Rochester, N. Y., U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world

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