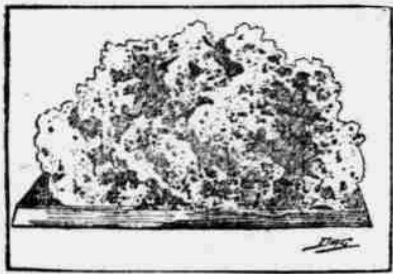


THE EXPERT BUTTERMAKER

One of the nice problems that confront the buttermaker is that of incorporating just the right amount of water in butter. It has been claimed that American butter is generally low in moisture content and that buttermakers might well put a little more water into their product. It appears that there has been a tendency in some quarters to do this. During the past year the internal revenue department has collected large fines in some of the great cities from the sellers of butter containing more than 16 per cent of moisture, the legal limit. To control the moisture content so that there shall be a desirable amount,



WHEN THE CHURN WAS STOPPED. [This butter contained 15.26 per cent moisture when completed.]

yet not too much, requires skill and experience on the part of the buttermaker. Butter with too much moisture is undoubtedly, as a general thing, made without intent rather than with, and the average butter maker or dealer has little idea what per cent of moisture the butter contains.

It is a statement of interest, therefore, that the department of agriculture has worked out during the past year a rapid and simple method (requiring apparatus costing a few dollars) for the free use of manufacturer and dealer to determine the water in butter. Full details of the apparatus and its use can be found in circular No. 10 of the bureau of animal industry.

Moisture in Butter.

One of the most thorough investigations into the moisture content of butter and methods of controlling it was made some years ago at the Iowa experiment station. As to causes of too much moisture it was found by Messrs. McKay and Larsen that when cream is thick and churned at a high temperature too much moisture is incorporated even though it is churned only a normal amount.

By churning at a high temperature and washing with cold water much moisture will be incorporated in the butter, provided it is not cooled to such an extent that the butter will become hard. The sudden chilling of the butter globules on the outside by washing with cold water seems to imprison and prevent the moisture from escaping during working.

By churning cold and washing with warm water the butter is also brought into a condition where it will absorb and hold moisture. Churning at high temperature and washing cold and churning at low temperature and washing warm are two conditions which must be guarded against.

Effect of Overchurning.

In regard to overchurning it is stated that by excessive churning in water the butter will absorb and hold as much as 46 per cent water. If the temperature is low, the incorporation of moisture by churning is retarded a great deal, while if the temperature is higher a comparatively small amount of churning will cause the butter to absorb moisture rapidly and to retain it better. In experiments in which the butter was churned for more than half an hour in the wash water the butter became very soft and began to stick on the inside of the churn. The more it is agitated in the presence of moisture the duller and lighter butter will be.

A Remedy Advised.

An excessive amount of churning was strongly condemned by these Iowa dairy authorities. In short, they say: Quality must receive first consideration. When butter has been overchurned a trifle, so it contains about 18 per cent moisture, it is difficult to remove the buttermilk from the quite large granules, and the danger of spoiling the butter on standing is introduced. In order to avoid this the churn can be stopped when the granules of butter are still small and then control the moisture content in the butter by churning a trifle in the wash water at the proper temperature.

The Cattle Market.

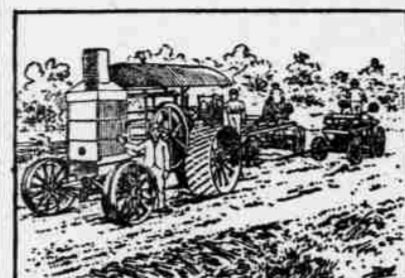
Several things have happened that could not be foreseen. The corn crop did not mature and had to be fed, the panic cut the consumption of beef squarely in two, and the price of hides took a grand tumble. Result, very bad cattle market, totally unlike what might have been anticipated early last fall. Then, however, we suggested that late winter markets would probably prove best because of the early clean-up of stock on account of high corn. And it seems that this is very likely to be true. Cattle have been selling entirely too low because people have sold them regardless of price or condition, and this sacrifice will be felt later on. There has been nothing to induce people to feed cattle, but much to discourage them, and if consumption of beef returns to its normal volume it is likely to do so at a time of smaller cattle supplies than we have had of late, remarks the National Stockman.

COST OF GOOD ROADS.

Points of Value From an Illinois Highway Commissioner.

George Stevens, a road commissioner of eleven years' experience in Illinois, is quoted as follows by Farm Progress as to the cost of making good roads at a small expense:

The grading can be done with a twenty horsepower traction engine at 40 cents per rod on an average. Four loads of rubble per rod and two loads of gravel make a good road. The average number of loads hauled near Rockford, Ill., per day would be about six. Of course this varies according to distance, but six is about the average. We have no stone crusher, something I very much regret. I have tried to get one for years, but the cost of same has prohibited it so far. We break our rubble by hand. The cost of this road is as follows: Four loads of stone or rubble, 40 cents;



IMPROVING ILLINOIS HIGHWAY.

two loads of gravel, 20 cents; hauling same, at 50 cents per rod, \$3; breaking stone per rod, 15 cents; work in quarry getting out stone, 40 cents; grading road, 40 cents; total, \$4.55 per rod, or \$1,456 per mile. This makes a good road at all times of the year. Of course more money would make a still better road, but the major part of our stone roads are made still cheaper than this, being made of three loads of rubble per rod and about one and one-half loads of gravel at a cost per mile of \$1,120. There is not one farmer that kicks on account of the cost of these roads. The kick is on the other side or because we do not have more of them.

The north part of our township (south of Rockford) is very sandy, and I doubt if the road drag would do any good there. Here the soil is different, and the drag works all right. I am not saying anything against the use of the road drag, as I think it a fine thing, but where stone and gravel are plentiful I say use them and make a hard road that will be good at all times of the year.

LESSONS ON ROAD BUILDING.

Campaign of Education Begins in Louisiana.

At a meeting of the parish superintendents of education held about a year ago at Baton Rouge, La., the sentiment was in favor of consolidating several of the small rural schools into one large one.

A meeting of the superintendents was held Dec. 14, 1907, at which the subject of road improvement was earnestly discussed. The result of the discussion was the adoption of the following resolution, says the Good Roads Magazine:

"Recognizing the improvement of our schools depends upon the building and maintenance of good roads and further recognizing that it is the function of the public school to promote the social well being of its people, it is the sense of this conference that those who are directly responsible for the management of our schools should give more serious attention to the problem of road building, and in accordance with this belief we recommend that the subject receive more prominent consideration in our institutes, Teachers' association and School Improvement association, that our schools regularly offer to their students carefully arranged series of lessons on the subject and that superintendents and teachers definitely undertake to create among the people a livelier appreciation of the importance of better highways and disseminate a better understanding of the improved methods of road construction."

Value of Good Roads.

Governor Warfield of Maryland has during his administration stood firmly for road improvement and is one of the most ardent advocates of adopting measures to carry on the work in his state. The governor recently said:

"Good roads cost money, but they are far less expensive to the public than bad roads. The roads which the state geological survey commission are constructing cost no more than similar roads north and south and will prove a permanent investment for the people of the state. It is far more economical in the long run to build highways that require but a small amount of maintenance than to construct cheap temporary structures that will constantly require repair, to say nothing of the comfort and pleasure to be derived from smooth, dry roads."

Prizes For Road Building.

A prize of \$500 was awarded last November by the board of directors of the Ontario Motor league to the township of Etobicoke, Ont., for improvements on a mile of road extending west from the Humber river to Minto creek, says the Good Roads Magazine. A second prize of \$100 was also awarded to the township of Markham for the improvement of a mile of road running from the village of Markham. Additional prizes of \$50 and \$25 were also awarded to the superintendents in charge of the work on these roads. The awards were made on the recommendation of A. W. Campbell, commissioner of public works and chairman of the committee of judges.

SHELL ROAD WORK.

Maryland Engineer Tells How to Build One and What It Costs.

W. W. Crosby, chief engineer of the highway division of the Maryland geological survey, writes as follows to the editor of the Good Roads Magazine concerning the cost of shell road work in Maryland: We occasionally build roads out of oyster shells where the soil is very sandy and the traffic comparatively light, as frequently occurs on the Eastern Shore of Maryland. Formerly oyster shells were very generally used, but recently the increased price of them has brought crushed stone into competition.

The old method of building a shell road was, as you probably know, simply to dump the shells on an unprepared roadbed and allow the traffic to pack them down, which it did in the course of varying periods. With the increased cost of shells and the demand for better and more permanent results we have developed a more economical use of the material and at the same time secure quicker and far more satisfactory results. We shape the road exactly as we would do for a stone surface and then apply the oyster shells in two layers, rolling each thoroughly and binding the top one with sand and water. The Bayside road in Talbot county was built two years ago under this method. The Brookview-Rhodesdale road was built last winter. Below is a statement of the cost of the latter road. The road is about a mile long, and there were about 5,500 square yards of macadam laid:

Forty-one thousand one hundred bushels of oyster shells were used at a cost of.....	\$1,783.00
Freight on same.....	854.00
Unloading shells and wharfage charges.....	97.00
Forty-eight feet of 24 inch terra cotta pipe.....	47.04
Freight on same.....	3.00
Seventy-two feet of 14 inch cast iron pipe.....	114.95
Freight on same.....	12.95
Sixty-nine bricks.....	17.25
Twenty-three bags of cement.....	89.00
Rent of roller.....	181.00
Freight on same.....	44.00
Repairs of roller.....	11.95
Coal, oil, etc.....	15.55
Labor on road, including teams.....	1,083.88
Total cost of road.....	\$4,315.57

Prices for labor and teams were as follows:

Foreman.....	30
Labor.....	124
Single teams with boy driver.....	15
Double teams with drivers.....	25

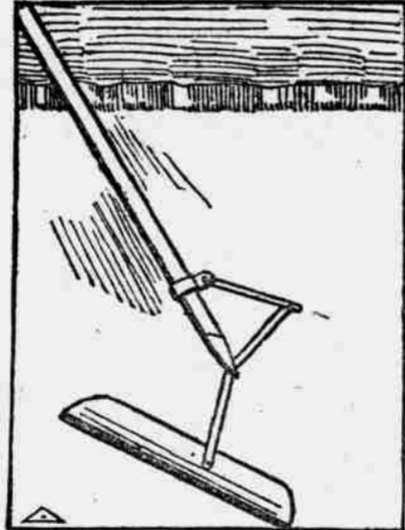
Our preliminary estimate of the total cost of this road was \$4,277, but this rise in the price of shells after the work was started accounts for excess of the cost.

DITCH CLEANING SHOVEL.

Iowa Man's Improved Implement Good For Road Work.

Ditches along the roadsides should be kept clean and free from dead leaves, mud and refuse of all kinds that may collect there. Otherwise the water that runs off the roadbed will stay in the ditches and gradually undermine the foundation of the road and cause much trouble.

To prevent this an Iowa man has designed and patented a shovel that will



USEFUL DITCH CLEANER.

be found exceedingly convenient for cleaning ditches, says the Washington Star. Cleaning a ditch with an ordinary shovel entails almost as much work as rolling a peanut with a toothpick.

In this ditch cleaning shovel the shovel proper is rounded to correspond with the contour of the ditch, providing a convenient means of reaching dirt in the lower recesses of the ditch. The shovel is supported from the handle by an adjustable angle lever, it being possible to tilt the blade of the shovel at any desired angle.

Rural Delivery and Good Roads.

The annual report of the fourth assistant postmaster general states that at the close of the fiscal year there were 37,728 rural free delivery routes served by 37,582 carriers. During the year 2,312 new routes were established and 350 discontinued, leaving a net increase in operation of 1,962. The report pays considerable attention to the subject of road improvement. It is stated that, while ideal roads are not asked for, they still need to be properly drained and free from ruts and washouts. Adequate highway laws properly enforced are suggested.

Wide Tire Law Note.

The good roads committee of the board of supervisors of Niagara county, N. Y., has reported in favor of the proposed wide tire law, which provides that after June 1, 1909, all wagons carrying 1,500 pounds or more shall be equipped with tires at least three inches in width. The penalty for violation of the law will be from \$5 to \$25 for each offense.

WHEAT BRAN.

Practical Advice on Cheapening the Ration For the Cow.

One of the best known milling by-products and one which has long been recognized as a valuable feeding stuff is wheat bran. Of this material J. B. Lindsey of the Massachusetts experiment station says:

Until comparatively recent times wheat bran and cornmeal have formed the two staple concentrated feeds for dairy stock, and in spite of the large variety of concentrates now in the market the former still continues to be used by the majority of dairymen in eastern states. The reasons for this are not difficult to find. A good quality of bran is uniformly palatable; it can be fed in considerable quantities without producing any ill effects; it acts as a slight laxative; it furnishes more digestible protein than corn, and it serves as a very satisfactory diluter or distributor of the heavy concentrates, such as the glutens, cottonseed meal and flour middlings.

Home Grown Corn a Substitute. Lindsey believes, however, that the nutritive material contained in bran may be purchased more cheaply in other concentrated feeds and that New England farmers especially often use more bran than economy warrants. As a practical result from experiments to find cheaper rations for milk cows than those containing large amounts of bran, Professor Lindsey suggests:

Farmers who keep comparatively small herds and who personally look after the feeding may reduce the quantity of purchased grain to three or four pounds daily per head and substitute home grown corn in place of wheat bran. Five to seven pounds of grain daily is the usual allowance for cows producing about ten quarts of milk of average quality. This grain mixture may consist of one and one-half pounds of cottonseed meal, two pounds of flour middlings and two and one-half to three pounds of corn or corn and cob meal daily or one and one-half pounds of cottonseed meal, two pounds of oat middlings or rye feed and two and one-half to three pounds of cornmeal. Malt sprouts may be substituted for the wheat, oat or rye middlings. The several grains after being mixed should be distributed through the silage or cut hay with the aid of a fork.

According to the Farmer.

The foregoing method of feeding will enable the farmer to get along with a minimum cash outlay for grain (4½ cents daily), and at the same time he will be supplying a well balanced ration, rich in elements of fertility. The method will be more particularly suited to farmers not having easy transportation facilities and who sell their dairy products to the creamery.

Farmers and dairymen who cannot closely supervise the feeding and who desire to feed more than five to seven pounds of grain daily will probably find it advisable to use one-third to one-half wheat bran in compounding the grain mixture. Distillers' grains and malt sprouts have also been shown to be quite satisfactory distributors of the heavy concentrates.

Feeding For Milk.

We consider silage the most economical of all food stuffs as well as the least trouble to feed. Bran we find the most expensive, but this far along anything to take the place of bran seems to be in the experimental stage in Indiana, and we find that to dispense with it even when the cows are on pasture generally results in a loss of butter of more value than the cost of the bran.

We began on Jan. 4 last to keep account by weight of all the feed our ten cows ate in seven days, with these results: The average daily ration, fed in two feeds, was forty pounds of silage, five pounds of bran, five pounds of clover hay and six pounds of corn stover or all the stover they would eat up clean. The bran was fed according to quantity of milk, six pounds being the most fed to any one cow. The cost of one week's feed for all was: Silage, \$3.50; bran, \$2.85; clover hay, \$1.47; stover, 42 cents; total, \$8.24.—An Indiana Dairywoman.

Beef Production.

The following points conducive to highest profit in producing beef were stated some time ago by an authority on this matter in Alabama. They probably still hold good and have value for cattle growers in other southern states as well:

First.—The use of thoroughbred bulls of the beef breeds and as soon as practicable of dams having some beef blood.
Second.—Abundance of good pasture.
Third.—Economical production on the farm of cowpeas, sorghum and other hay and other foods needed in wintering cattle.
Fourth.—Intrusting the care of cattle to men who have studied the business both of crop production and of feeding.
Fifth.—Increased attention to marketing, including the raising of such numbers of heaves and of such quality as will be worth shipping in carload lots to the best markets north or south.

Southern Hay Growing.

In sections where Johnson grass is well established a very good system of hay growing is to sow vetch or crimson clover, or both, with a small amount of oats as a winter crop, on Johnson grass land. Where the land is plowed early in the fall and put in good condition for the winter hay crop two or three good crops of Johnson grass can be cut the next summer. This system will then give a crop of winter hay and two or three cuttings of Johnson grass hay every year.—H. Benton.

NEW POSTAL LAW.

The United States Postal Department has made few regulations in regard to carrying second class mail matter (such as newspapers, magazines, periodicals, etc.) the same going into effect January 1, 1908, and allowing publishers to April 1, 1908, to prepare their subscription lists in accordance with the new order of things. The effect of the change practically compels the establishment of new relations between the publisher and subscribers of county papers.

The department ruling requires that subscriptions entitled to the second class postage rate shall not be delinquent longer than the following periods of time:

Dailies within three months.
Tri-weeklies within six months.
Semi-weeklies within nine months.
Weeklies within one year

The mails are not forbidden to subscribers who are in arrears longer than the time provided in the new ruling, but these subscribers are placed in a separate classification, requiring a higher rate of postage, the rate being so high that publishers could not afford to send papers at the price of subscription.

The reason given by the government for making this order is that second class mail matter is being carried through the mails at a rate of postage thereon which is less than the cost of carriage.

The GAZETTE has heretofore been liberal in giving to its subscribers time to pay for their subscriptions, by paying \$200 per year for those past due and \$1.50 per annum when the same was paid in advance. Having made the difference in the past due and advance rate has resulted in giving the GAZETTE a larger portion of paid up subscribers. This rule must now be changed according to Uncle Sam's order, as the newspaper has no voice in the matter. The GAZETTE invites its patrons to settle their dues soon.

SHORTHORN SPLENDOR.

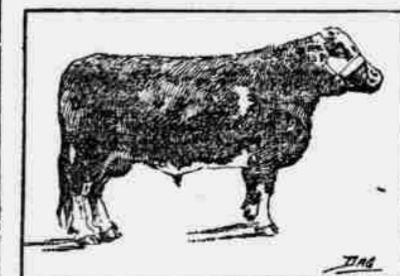
Breeders Round Out a Great Year on Both Sides of the Atlantic.

A progressive policy is being pursued by the American Shorthorn Breeders' association to procure the extension of the market for our Shorthorn cattle. Last fall, it will be remembered, the officers of the society undertook a personally conducted exportation of bulls and heifers into Mexico, and while the financial results showed little or no gain, a fine lot of cattle were sold to influential breeders, whose example in purchasing will doubtless be followed by others.

During the trip it was borne in on the officials that if the Fort should be followed up intelligently many more Shorthorns could be sold south of the Rio Grande, and to that end arrangements have been completed for the proper representation of the trade. L. Villareal Madero, San Antonio, Tex., has been appointed agent of the association and has been conducting negotiations with the Mexican officials.

It is made plain that the officials of the American Shorthorn association made a most excellent move when they invaded Mexico with a lot of Shorthorn cattle. They have secured the active co-operation of the Mexican department of agriculture and also of the various state departments, which must in time succeed in opening up a fruitful demand for our cattle. It is work of this kind that counts.

At Smithfield. Shorthorn breeders have rounded out a great year on both sides of the Atlantic. A calf of that breed was champion at the International, and now the returns from Smithfield bring news of a sweeping victory for the "red, white and roan." Peter Dunn's steer Gentleman John.



GENTLEMAN JOHN. [Grand champion Shorthorn steer at the Smithfield show.]

man John was grand champion of the show, Sir Oswald Mosley's big red and white steer was adjudged the best steer in the show, and King Edward's white steer was made the champion under two years of age.

An award practically without parallel gave the purple ribbon to Gentleman John. He was only second in his class and reserve for the steer championship, but in the final roundup he was made the grand champion, with Earl Rosebery's Angus heifer Eloquence of Dalmeny reserve. The latter heifer was the champion female and also won the King's Challenge cup for the best animal bred by the exhibitor. It thus appears that all the most important championships were won by pure bred cattle.—Breeder's Gazette, Chicago.

Retain Competent Road Officials.

It is asserted that one of the principal causes for the poor construction of roads is that the tenure of office of highway commissioners is uncertain and that in most cases the office goes to the candidate who can secure the most votes. Politics, as we have often said, should in nowise be a factor when it comes to building roads or paving streets, says the Good Roads Magazine. Improved road building is a new art, and a competent road builder, like a poet, is born, not made, and where his worth has been proved he should be kept in the office as long as he is efficient and keeps up with the march of progress in his line of work. So long as the office of highway commissioner is elective the voters of a township should see that the best man is put in the office and then re-elected. Much has lately been said in regard to making the office of highway commissioner appointive and strictly under civil service rules. Much can be said in favor of this plan, but until laws are changed competent officials should be retained.

Reward For Macadam Road.

Marquette county, Mich., will receive \$3,815 from the state as a reward for the construction of a macadam road this year between Negawnee and Marquette.

A California County's Good Work.

Los Angeles county, Cal., is reported, appropriated for road improvements last year the sum of \$371,398.83, thus leading all the other counties of the state.

Farmers.

Read the "Weekly Oregonian" of Portland and the "Corvallis Gazette" for the general news of the world, also for information about how to obtain the best results in cultivating the soil, stock raising, fruit raising, etc.
You can secure both of these excellent papers for one year by paying to the Corvallis Gazette the sum of two dollars and fifty cents in advance. Permit the money by postoffice order or bank draft and these most valuable papers will be promptly mailed to you. 8317

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