

UTILIZING CORN BY PRODUCTS

Kearney Man Makes a Number of Successful Experiments.

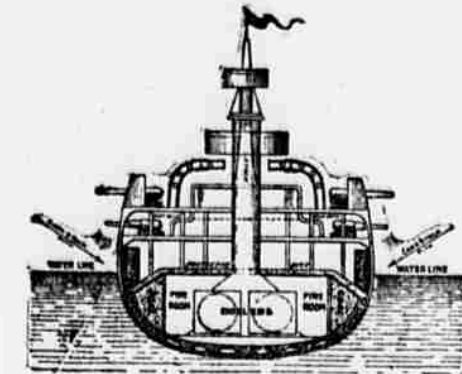
STALKS GIVE HIGH DEGREE OF NUTRITION

Farmers Everywhere Interested in the Solution of the All-important Problem of Extracting the Pith Cheaply.

KEARNEY, Neb., Aug. 7.—(Special.)—The problem of farm economy and the utilization of the farm products in one that is constantly receiving the closest study and investigation of practical and scientific agriculturists.

In a state in which stockraising and stockfeeding enter so largely into its wealth, it becomes a necessity to utilize everything that is raised on the farm in order to accomplish the best results and to secure the highest reward for time and money expended. With all the economy that is practiced it is a fact that thousands of tons of nutritious substances are annually permitted to waste, not only in the great corn-growing state of Nebraska (which amounts to over ten million tons of stover), but in all other states. This is particularly true in reference to the corn plant, and it is true because there is an element in the corn plant that is indigestible. The nutrition in the corn plant when the pith is eliminated is wonderfully large and is equivalent in weight and digestive properties to that of the very best hay on the market. The nutrition is largely nullified by the wonderful absorptive qualities of the pith, which is scientifically estimated will absorb eighteen to twenty-five times its weight of water.

This fact has been brought prominently to the attention of the public as one of the results of the recent Spanish-American war in the construction of battleships.



This illustration, representing a section of a battleship, shows the practical use of the cellulose packing made of cornstalk pith. It is placed immediately above the protective deck which brings this packing above and below the water line so that in case a shot pierces this part of the vessel the rush of water comes in contact with this packing of cornstalk pith and on account of its wonderful absorptive qualities the pith swells and immediately closes the opening.

The intent of this article is to show how the waste that is going on annually by not separating the pith from the cornstalk and feeding the clean stalks on the farm where grown, or selling it on the market, can be avoided. When it is understood that an acre of cornstalks has almost as large a percentage of food nutrient as an acre of the best timothy hay, some idea may be gained of the enormous loss suffered by the farmers of Nebraska on account of these stalks being wasted.

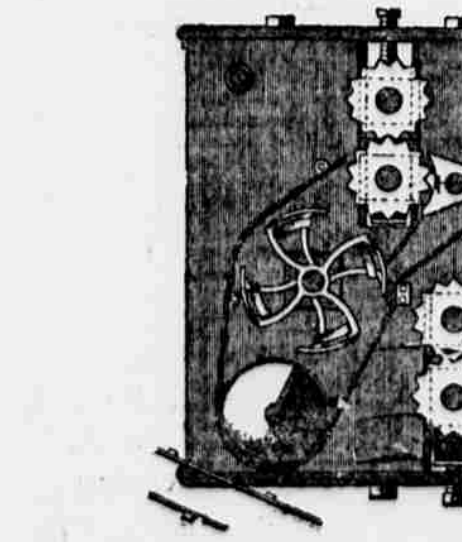
For years there has been a demand for a machine that would extract the pith from the corn stover and thus save its nutrient qualities; a machine that would be simple, easily operated by the farmer, not expensive and that would properly separate the pith from the sheaf of the stalk.

For some time Mr. George H. Sherwood of Kearney has been experimenting on a machine that will entirely separate the pith from the nutritious portion of the stalk and reduce the latter to a condition that makes it a valuable article of food for stock. He has finally perfected and patented a simple, inexpensive, practical machine for this purpose. Mr. Sherwood has been importuned at times by your correspondent to have the privilege of examining the workings of this machine so that the public might have the benefit of the information concerning it; but he did not wish to have any publicity given to it until he was absolutely sure that it was a success beyond question. There is no doubt but that his patent will result in adding untold wealth to the farmers of the corn-growing states.

Mr. Sherwood has been a resident of this city over twenty years, and has been one of its most active and influential business men. He has had a large number of farms under his control, and while studying how he could secure the greatest benefit to the owners he became convinced that there was nearly as much of the corn crop rendered unprofitable by the wasting of the cornstalks as the production of the corn itself amounted to; in other words, by pithing the corn stover and feeding it the earning of the corn land could be almost doubled.

The machine has been investigated by some of the most prominent agriculturists of the state and all unite in pronouncing it thoroughly practical.

In order to understand the plans and purposes of this new invention the following cut with explanation is given:



Stalks are fed in at A, but first. Stalks are flattened by rolls 1-2. As stalks are flattened the knife B engages so that the under half of the stalk is cut from pith and upper half of the stalks. The under half, being the cleaned por-

tion of stalks, passes to break-rolls 3-4, and passes to reducer, where it is ground.

The upper half, together with air pith, passes from knife B to rolls 5-6, where it engages with knife C, where the upper half of the stalk is cut from the pith. This cleaned portion of the stalk goes through break-rolls 7-8, and from there to grinding attachment.

The pith passes to cutter head 9 and cut any size and this cut pith is taken from side of machine by screw conveyor 10.

The grinding attachment is not shown by this cut.

All stalks, big, little, long, short, are brought to size, the pith being cut from each clean, leaving only that portion of stalks that contains the food nutrients. This portion is then reduced.

Machine requires three or four horsepower, one man and boy.

Capacity, five to eight tons per day of ten hours.

Size, thirty inches long; pithing surface, fourteen inches wide; twenty-five inches high.

Various methods have been devised for utilizing cornstalks, but they have only been partially successful because the one substance, pith, has not been eliminated, and because the separation of the pith from the sheaf of the stalk is the only way by which the latter can be made a safe and effectively useful article of food for stock.

The pith being such a great absorbent of liquid the same conditions are met with when an animal eats cornstalks as is illustrated in the case of absorbing the water by the piercing of a battleship. From the time it is taken into the mouth and the saliva begins to act in the process of converting the starch into sugar until it passes through the various stages of digestion the pith in the stalk absorbs the juices and renders them useless in the process of digestion.

All along the digestive tract of an animal these juices, that should be used to break down and liquefy the foods for final assimilation, are rendered comparatively useless by this indigestible ingredient, pith.

Mr. Sherwood has given years of study to every phase of this question and has consulted the very highest authorities in reference to the numerous practical questions involved and he has been rewarded by thus being able to place before the public an invention that will no doubt revolutionize the stock-feeding and stock-raising industry. It is not intended to revolutionize the methods of farming. The farmer will plant his corn, cultivate and harvest just the same as in the past, but instead of permitting the stover to go to waste he will be able to utilize it as a valuable hay crop.

A description of this invention without an illustration of the plan of digestion in the human body would be incomplete, hence the following is placed before the readers:

- 1. Mouth and tongue. The saliva of the mouth changes starch into sugar, dissolving it.
2. Esophagus.
3. Stomach.
4. Soft palate.
5. Pharynx.
6. Trachea.
7. Oesophagus.
8. Lungs.
9. Duodenum.
10. Partition of stomach—Food goes into the first stomach A, first and is mixed with the fluids there, water and saliva. It is made into a pulp and passes to the second stomach B, where it is chewed. In the fourth stomach (A3) gastric digestion takes place. The gastric juice acts on the albuminoids (protein) changing a part of it into soluble form.
11. Mass of intestines, both large and small—Only a very small part of the intestines are here shown. Action of the bile and pancreatic juice takes place, the former changing fats into soluble soaps, and the latter changing starch into sugar, and albuminoids into soluble compounds. Fermentations by which cellulose is digested, also occur in the intestines.
12. Urinary bladder.
13. Urethra.
14. Vagina.
15. Rectum (end of large intestine).
16. Return to Oesophagus.
17. Stomach A, anterior, posterior, superior, posterior inferior and middle pouch of organs respectively.
18. B, Bi, show the rectum and its outlet at 16.
19. The oesomum and abomassum, lying to the right, are not in view.

The harmful effects of pith begin in the mouth and continue throughout the digestive tract. The pith absorbs the digestive juices. It is probable that very few farmers have an idea of the value of this stover as an article of food for stock when the objectionable ingredient, pith or pulp, is taken out of it.

In 1897 there were 60,664,876 tons of hay produced in the United States, valued at \$401,380,728. During the same year the estimated amount of corn stover was nearly 80,000,000 tons, and if properly utilized would have yielded (at the minimum value of \$3 per ton) \$240,000,000.

Scientific investigation shows that the total digestible matter in fodder is 1,842 pounds per acre; while the digestible matter in two tons of clover hay is 1,836 pounds, and in two tons of timothy hay 1,892 pounds, but rarely ever is the average yield of clover or timothy hay two tons per acre.

These facts show that annually millions of dollars of good nutritious food is wasted in the United States, which should be a source of great profit to the farmers. By the extraction of the pith and the preparing of the food nutrient this great waste will be turned into a profit for the farmer. The pith as it comes out of the machine is clean and in a condition to be sold by the farmers for commercial and scientific uses.

By using the pith in stables, feeding yards, cattle pens, etc., all of the nitrogen, phosphoric acid and potash will be saved and the yards, etc., will be clean, dry and healthy. By putting this back on the fields all of the fertilizing elements are saved.

Alger Off on His Vacation.

DETROIT, Aug. 7.—General R. A. Alger, Mrs. Alger and their two sons, with some other relatives, left this afternoon for Grand

Mer. Quebec. The ex-secretary of war declined to make any statement regarding his secretarial duties or other political matters.

There have been no conferences between the general and Governor Pingree since the former's return to Michigan.

CONSIDER RATES ON GRAIN

Interstate Commerce Commission Meets in Chicago and Considers with Western Roads.

CHICAGO, Aug. 7.—The Interstate Commerce commission, which has recently been investigating charges of indiscriminate cutting of western grain rates, met here today in another conference with the executive officers of the western roads. W. J. Calhoun of Illinois, J. D. Yeomans of Iowa, C. A. Prouty of Vermont, Martin A. Knapp of New York and J. C. Clements of Georgia, members of the commission, were present.

Meetings have recently been held in Washington, St. Louis and Chicago, at which the whole question of grain transportation for domestic destinations and for the export trade was carefully considered, and today's meeting was to consider the report of the commission. Commissioner Calhoun said that he did not think the commission would agree on the report at this meeting, although all the evidence is now before it.

The commission will leave Chicago for Denver in time to attend the annual meeting of the National Association of Railway Commissioners, which will open there Thursday.

GENERAL PASSENGER AGENTS MEET.

Endeavor to Reach Settlement Regarding Admitting Certain Roads.

CHICAGO, Aug. 7.—The general passenger agents of the Chicago-St. Paul lines held a meeting here today, at which they endeavored to come to some settlement in regard to the admission of the Wisconsin Central, Great Western and Minneapolis & St. Louis railroads into the Western Passenger association. After the meeting the matter was about as near a settlement as it was several months ago. The Wisconsin Central gave notice that it had not yet decided whether or not it would enter the "fold" and the other two roads gave the members of the association to understand that so long as the Wisconsin Central had not definitely expressed itself regarding the matter they were not ready to decide one way or the other. The matter will be discussed by the executive committee of the western roads in this city tomorrow.

Missouri Pacific Follows Santa Fe.

NEW YORK, Aug. 7.—In the wholesale coal trade today it was announced that the Missouri Pacific Railway company, after October 1, would cease to mine its own coal

and would let the contract to the lowest bidder. This step has been in contemplation for some time. The Santa Fe railway has been following a similar policy for some time. Among other roads that are said to be likely to adopt the same policy are the Chicago Southern and Chicago, Burlington & Quincy.

To Discuss Stability of Rates.

CHICAGO, Aug. 7.—The western passenger agents will meet here tomorrow for the purpose of arranging for the restoration of rates on coal business to points in California. The rates have been far from secure for a long time and it seems to be the universal desire that they be strengthened.

Earnings of Great Western.

CHICAGO, Aug. 7.—The earnings of the Chicago Great Western railway for the fourth week of July, 1899, show an increase of \$9,572.

Railway Notes and Personal.

G. W. Holdrege, general manager of the Burlington, has returned from a visit to Denver.

Alex. Hamilton, city passenger and ticket agent of the Burlington at Atchison, was in Omaha Monday.

O. A. Andrews, rate clerk at Burlington headquarters, has returned from Denver, where he attended a meeting held for the purpose of revising transmissory rate sheets.

C. P. McDonald, the clever stenographer in the Union Pacific passenger department, who holds the state record for speed on the typewriter, is again at his desk after a pleasant visit in St. Louis.

Charles S. Young, of the advertising department of the Burlington and Stockton, has returned from a pleasant trip through the Yellowstone National park.

Mr. Young is again on duty at headquarters feeling greatly invigorated and refreshed after the outing. Harry Gibbs of Buffalo and Charles George of this city, who accompanied Messrs. Young and Heth, stopped at Sheridan.

The first of the First National Bank's 42 Dome lake about forty miles from Sheridan for the purpose of enjoying a fishing expedition.

Thomas S. Clark, for the past five years connected with the engineering department of the Union Pacific, has been appointed one of the assistant engineers of the Manhattan Elevated Railroad company of New York City. During his services with the Union Pacific Mr. Clark was located in Omaha for three or four years, but since the first of the year has been in New York.

Crux and a daughter in Boston, whom she was visiting. Another daughter is traveling in France.

Always have a bottle or two of Cook's Imperial Extra Dry Champagne in your ice chest.

Marriage Licenses.

The following marriage licenses were issued on Monday:

- Name and Residence. Age.
James Alvin, Omaha, 21.
Ora Cecil Goodheart, Omaha, 21.
Cora Elliott, Omaha, 21.
Ethel Patterson, Omaha, 19.
Frank B. Hooper, Lincoln, 21.
Nellie E. Morrow, Lincoln, 19.
Matthew Cusick, Omaha, 28.
Addie Van Ness, Omaha, 26.

Known in San Francisco.

SAN FRANCISCO, Aug. 7.—Mrs. Margaret Mower of this city, who was one of the victims of the recent fire at the Hotel Grand Me. yesterday, was the widow of Amos H. Mower, and a sister of Mr. S. Requa of Oakland. She was between 35 and 40 years of age. The dead were Mrs. Mower, her husband, Crux and a daughter in Boston, whom she was visiting. Another daughter is traveling in France.

COPPER IN THE BLACK HILLS

New Discoveries Being Made Every Day and Some Are Very Rich.

SOLID BLOCKS OF ORE ON THE SURFACE

Seems to Be Three Distinct Belts of Copper-Bearing Ore Running North and South Through the Hills.

DEADWOOD, S. D., Aug. 7.—(Special.)—There were never better prospects for the opening up of copper mines than at present in the hills. The recent prospecting and developing in the different mining districts of the entire Black Hills has shown the country to be full of copper. New discoveries are being made every week and some of them are really too rich to believe. It is common to hear talk of mountains of copper and it is nothing unusual, in fact, is common to find copper ore in considerable quantities that will average 25 per cent of that metal. Some districts report solid blocks of copper ore on the surface, which will eruptive force, that will average 10 per cent.

There seem to be three distinct belts of copper-bearing ore which run north and south nearly the entire length of the hills. The ore bodies are very wide and there is practically no question of their being vertical.

It is difficult to make some of the eastern copper men, especially from Michigan, believe that there are copper veins from two to three hundred feet in width extending for miles up and down the country, but such is the case. The copper is nearly always accompanied with gold-bearing ledges which run parallel and the average value of the gold is about \$10 per ton, some, though, being very rich. The future of the Black Hills, it is present, looking very bright. Great things are expected to develop within the next six months.

Custer county will soon have two or three producing mines. The Willow Creek Mining company, which is operating the Lizzie mine east of Custer, has succeeded in working her way to the bottom of the refractory ore which is apparently running parallel with a copper ledge. The ore has good values in gold, some estimates of the average having been placed at \$30 a ton. The company is expected to start work on the plant at the mine with which to treat the ore.

The Vigilante Mining company is opening up a fine property in the district eight miles southwest of Custer and it will be possible in a very short time to ship large quantities of ore.

One of the best prospects in the county is the Grand Junction mine, which is said to have a solid body of gold-bearing quartz over 120 feet wide which contains values in gold to the amount of \$100 a ton. The old Alexander stamp mill in the Four Mile district will soon be remodeled into a concentrating plant.

A good report comes from the Biemarck best concentrating plant at Keystone, which has been running for several days. The company is employing a large number of men and something over 100 tons of ore are being treated per day. The ore is sulphide, averaging about \$100 a ton in gold. The shaft is being sunk to run up to \$60 a ton. The process by which the ore is treated is entirely new to the Black Hills, but it is working successfully and it will be the means of doubling the output of bullion in the camp. John Smith of Milwaukee has put up the money for the development work of the company.

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The discovery of ore in the west drift of the underground workings of the Detroit and Deadwood Mining company in Two Bit is exciting considerable interest. Two Bit has been developed for over a year, ever since the Hardin mines, five in number, closed down. The Detroit and Deadwood Mining company has been the only one to continue work. Superintendent James Lawson, however, has counted about 200 feet west from the shaft, and it was just that distance that the first ore was found. The first assay made from the rock brought to Deadwood worth \$32 a ton of gold. This was from the outcrop in the ledge.

If the strike turns out as well as expected, Two Bit will be revived and the Hardin companies will undoubtedly commence operations again. If revived, it will camp can be great. The greatest thing that could happen to the Black Hills.

WILLOWS TO CHECK THE MISSOURI.

New Scheme to Prevent the River from Shifting Its Banks.

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Military Band to Tour South Dakota.

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Passes a Confederate \$20 Bill.

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and tendered a \$20 confederate bill to the girl in charge in payment for a lunch costing 30 cents. The girl did not question the fraud practiced upon her, and gave the swindler \$19.80 change in good money. A few days ago the man was seen on the streets of Watertown and recognized by Skinner, who demanded that the \$19.80 be refunded to him, threatening the swindler with arrest in the event that he refused to comply with the demand. Before an officer could be summoned the man made his escape. He was identified as a resident of Madison, Minn.

TO RAISE THE ASSESSMENTS

South Dakota State Board of Equalization and Assessment in Session at Pierre.

PIERRE, S. D., Aug. 7.—(Special Telegram.)—The State Board of Equalization and Assessment met today, with all members present, except State Superintendent Collins, who is in the Black Hills. The question of a general raise on all property was discussed, the attorney general advising the board that such a raise was within their power. Equalization of real property was begun and the probabilities are for a raise of about 25 per cent on this class of property, which will be an increase of about \$18,000,000 over last year on that class. The equalization will be done before corporate property is assessed and a basis secured.

The Board of Pardons this afternoon postponed action for one year on the Thompson pardon case from Custer county.

Rapid City Proud of Her Girls.

RAPID CITY, S. D., Aug. 7.—(Special.)—It is a question if there is another city of its size in the state that has such independent girls as Rapid City. They are capable of taking care of themselves. In the Klondike there are Miss Edith Howe, who is working some placer ground with good results, and Miss Franka Bloomman, who is reported as having discovered a very rich ledge of free milling gold ore which will net her over \$100,000. Dr. Frances Woods has just returned from Manila, where she did noble work as a Red Cross nurse. Miss Myrtle Grimshaw succeeded in working her way to the Boston conservatory of music, and Miss Lillian McDonald is now in Paris for a year. Miss Evelyn Reeves was on her way to Europe when she lost her life with the ill-fated steamer La Burgonne. Rapid City people feel proud of their girls.

Two Railroaders for Keystone.

DEADWOOD, S. D., Aug. 7.—(Special.)—It is a good thing that the Elkhorn Railway company will build into Keystone from Hermosa this winter. The determination of the Burlington to reach this camp has started the Elkhorn. There will be a few more miles of track to build from Hermosa than from Hill City, since the Burlington already has about 3,000 feet of track laid out to a tin mine. The Burlington company has been laying out considerable cash in the past few days in getting the right of way. This will give Keystone two roads, which will make it one of the best mining camps in the southern hills.

Arrivals at Hot Springs.

HOT SPRINGS, S. D., Aug. 7.—(Special.)—The following were arrivals at the hotels today: B. M. Willey and wife, Ed C. Drake, G. W. Tallifer and wife, Mr. and Mrs. F. D. Cowling, Mr. and Mrs. L. Drake, Mr. and Mrs. George F. Bidwell, Mr. and Mrs. F. H. Woods and two children, Mrs. Thomas Cochran.

YELLOWSTONE PARK SCENES

Four Omaha Boys Make the Trip on Wheels and Enjoy the Pleasure Immensely.

YELLOWSTONE PARK, Aug. 4.—To the Editor of The Bee: Uncle Sam, through his scouts and guides, has divided this park into three parts for the tourists who spend their summer outings in the vast playground which has been set aside for the pleasure and comfort of the people. According to the soldiers who patrol the roads of the park and the scouts who keep out all poachers, the tourists who drive through Yellowstone park in the great six-horse coaches of the Park Transportation company, and who stop at the park hotels at the rate of \$4 per diem are, beyond any question or doubt or without reference to previous conditions, the most comfortable and enjoyable of the tourists who enter within the limits of Uncle Sam's pleasure ground.

By all the blue-coated soldier boys so far met has the Omaha army of wheelmen been placed in the category of tramps. A glance at any one of the four youths, brown save where they're gray with dust, would be sufficient to sanction the use of the accurately descriptive title, tramps. Yet, so far as Stockton Heth, Charlie George, Harry Gibbs and the writer know, believe and affirm, there is no other way of going through Yellowstone park, if one wants to see to best advantage its numberless natural curiosities.

The equestrian mode of "doing the park" has many recommendations, but one may not be so fortunate as to secure a good riding horse. Either wheeling or riding is better for thorough sight-seeing than going through on one of the stages, where you sit in the dust when it's dry and are enclosed within opaque walls of canvas when it rains, and at all times are permitted to see only the natural wonders that lie along the route or are close to the hotels.

There is nothing experimental about going through the park on wheels. Hundreds of wheelmen and wheelwomen have done it without hardship or even discomfort. Over 300 wheels were ridden through the park in 1898, and the bicycling record of this year will show a large increase. Ours is the first tandem to make the trip through the wonderland during the current year and we are rather proud of securing the distinction of having ridden the only tandem through Yellowstone park in the season of 1899.

We have taken a little more than a week in the park proper, and that is about the right amount of time to view the rarely beautiful geysers, Yellowstone lake, the Grand canyon, Mammoth Hot Springs,

and tendered a \$20 confederate bill to the girl in charge in payment for a lunch costing 30 cents. The girl did not question the fraud practiced upon her, and gave the swindler \$19.80 change in good money. A few days ago the man was seen on the streets of Watertown and recognized by Skinner, who demanded that the \$19.80 be refunded to him, threatening the swindler with arrest in the event that he refused to comply with the demand. Before an officer could be summoned the man made his escape. He was identified as a resident of Madison, Minn.

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TO RAISE THE ASSESSMENTS

South Dakota State Board of Equalization and Assessment in Session at Pierre.

PIERRE, S. D., Aug. 7.—(Special Telegram.)—The State Board of Equalization and Assessment met today, with all members present, except State Superintendent Collins, who is in the Black Hills. The question of a general raise on all property was discussed, the attorney general advising the board that such a raise was within their power. Equalization of real property was begun and the probabilities are for a raise of about 25 per cent on this class of property, which will be an increase of about \$18,000,000 over last year on that class. The equalization will be done before corporate property is assessed and a basis secured.

The Board of Pardons this afternoon postponed action for one year on the Thompson pardon case from Custer county.

Rapid