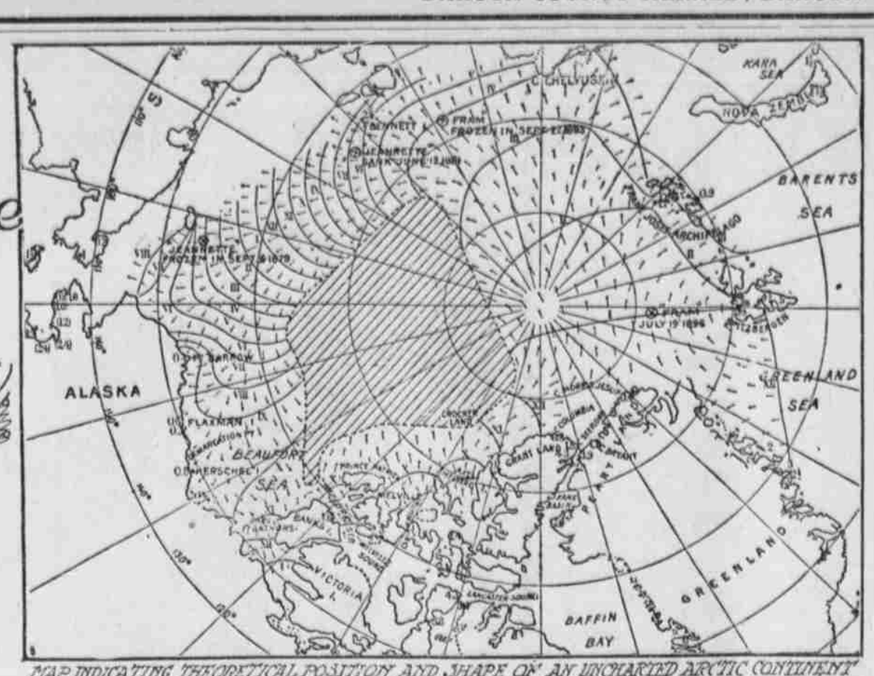
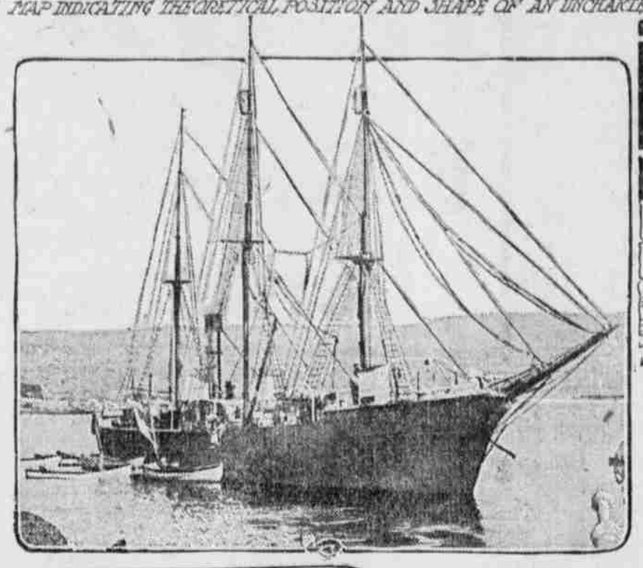
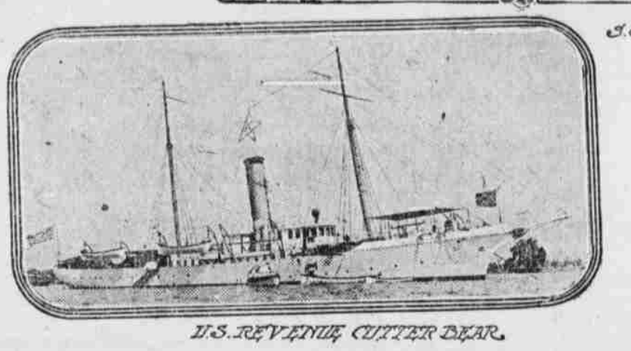
RESCUE SHIP of the ARCTIC



MAP INDICATING THE CRITICAL POSITION AND SHAPE OF AN UNCHARTED ARCTIC CONTINENT



U.S. KARLUK



U.S. REVENUE CUTTER BEAR

HISTORY again repeats itself. Seventeen years ago, in November, 1897, the United States revenue cutter Bear was dispatched northward to rescue the crews of eight whaling vessels ice-bound in the Arctic ocean somewhere in the neighborhood of Point Barrow, Alaska. Now the same ship is off once more for that frigid region, but this time to effect the relief of that part of the crew of the ill-fated Karluk now marooned upon Wrangel island, to the northwest of Bering strait.

As will be recalled, the Karluk set out to explore the Arctic region north of Beaufort sea and if possible to examine more closely Crocker land, which was sighted by Peary on the 24th of June, 1906, from a distant point. The discovery of Crocker land gave tangible support to the old contention that the polar region was not a great ice-covered sea, but instead that a vast continent existed there beneath its eternal cloak of snow and ice. Stefansson was one of those who believed in the existence of an Arctic continent in that wide untraversed realm, and his aim was to trace a part at least of its boundaries.

To the casual observer the untimely ending of his expedition might seem to have thwarted his purpose and to have rendered useless the venturing of the Karluk, but the loss of that craft in itself has, paradoxically, added cumulative evidence of the existence of the shores that Stefansson and his followers did not see. To make this clear it is necessary to explain how the searching mind of the scientist has already determined the probable existence of an uncharted Arctic continent or a vast archipelago of large islands covering a total area of quite 500,000 square miles—an area more than ten times as big as the state of New York or as large as Alaska itself.

Have you ever spilled a cupful of water on a level bit of ground? If so, you have probably noticed how far the liquid spread. Again, you have no doubt poured a bucketful of water into a barrel and been disgusted at the modest degree it went toward filling it. In a popular way this illustrates the manner in which the waters of a rising tide advance upon low-lying lands and, again how the same influx is relatively but little noticed when the basin is deep and broad.

Without entering into the details of Arctic tides, it is a fact that they are normally of modest range, and yet in some parts the rise and fall is considerably less than it should be if the water were free to circulate from shore to shore or from side to side of the Arctic basin. Indeed, so we are told by R. A. Harris of the United States coast and geodetic survey, "at Bennett island at Teplitz bay, Franz Josef land, the range of the diurnal wave has about one-half of the magnitude which the tidal forces acting over an uninterrupted Arctic basin would produce." In other words, the normal or theoretical flow is somehow impeded, and the question is, What is the nature and the extent of this obstruction or series of tidal checks?

"The semi-daily tides found in the Arctic ocean are derived almost entirely from those of the North Atlantic, because the semi-daily forces vanish at the pole and are very small in the higher latitudes," Mr. Harris continues. "It is a case of getting near the hub of a wheel. These tides enter the Arctic ocean proper by way of the strait lying between Spitzbergen and the eastern coast of northern Greenland. They are propagated through the Arctic to the New Siberian islands, the average rise and fall at Bennett island being 2.5 feet.

"Now upon the assumption of an uninterrupted Arctic basin the tides at Point Barrow and at Flaxman island could not differ greatly in size from the tides which would, upon the same assumption, be found at Bennett island. But as a matter of fact the rise and fall of the semi-daily tide is 0.4 foot at Point Barrow and 0.5 at Flaxman island."

But the presence of an obstruction, assuming the water for the tidal movement to come, as Mr. Harris says, from the Atlantic ocean via the passage between the northeastern coast of Greenland and Spitzbergen, is further evidenced by the directions in which the ebb and the flood tides flow. If no barrier existed to the free movement of the flood from east to west then the ebb would run east to the outlet between the two points mentioned. In short, it would leave by the shortest route to the original point of entry into the Arctic basin.

Other records are available that help to bear out Mr. Harris' argument in favor of a vast uncharted continent or extended group of big islands of which Crocker land is but a part. In September, 1879, the Arctic exploring craft Jeannette was caught by the ice and frozen in near Wrangel island, where the Karluk's men are now marooned. She was carried by the ebb tide along with the ice to the westward until she sank on June 12, 1881, to the northeast of Bennett island.

Again, Nansen's Fram was frozen in to the eastward of Bennett island on September 22, 1893, and after drifting generally westward got clear on July 19, 1896, at a point nearly due north of Spitzbergen. Now let us see what happened to the Karluk.

On October 6, last year, Stefansson's ship was swept from her anchorage by a gale and carried off shore at a point northeast of Barter island near Manning point. There she was caught by the Arctic pack, from which it was impossible to break her loose, and thence she, too, drifted to the westward—always westward—until crushed and sent to the bottom north of Wrangel island at a position close to that in which the Jeannette was first gripped by the ice in September, 1879.

Why should all these vessels have been moved continually to the west by the Arctic drift? Simply because, as Mr. Harris and others have explained, the incoming tide from the Atlantic has to sweep to the eastward and around some great obstruction that reaches down from close to the pole to a point fairly near Alaska and the uppermost shores of the Dominion of Canada. The ebb tide in passing out in turn has to follow the same circuitous route, but its movement is to the westward, and probably stronger in its general effect than the incoming or flood tide. Why should this be?

Look at the little map that goes with this article. The curving lines with time marked in Roman numerals show how the advancing high tide moves from the Atlantic and the other figures and decimals indicate the measure of the rise. Plainly, the further the water sweeps into the pocket ending at Beaufort sea the smaller the tidal flux and the slower the water moves in the interval of tide change; the water, so to speak, is being crowded. Accordingly on the ebb the sweep is freer, as it is trending toward the great open Atlantic, and this probably accounts for the aggregate net gain in the westward drift.

In this fashion, with the tidal data available, the hydrographer has been able not only to compute the general area of the unknown continent or archipelago, but to approximate its broad contours. True, the Karluk never reached her objective, and Stefansson did not even see Crocker land, but his ship, in her unchecked wanderings in the grip of the Arctic pack, confirmed the existence of the vast barrier in the Arctic basin and will inspire further efforts in the direction of its exploration.

After the Karluk sank Captain Bartlett and his men made their toilsome way southward over the pack ice to Wrangel island, where they encamped with such of the ship's stores as they were able to carry off with them. From Wrangel island Captain Bartlett and one Eskimo made a sledge trip to the Siberian coast and Providence bay, thence crossing in the American whaler Herman north of the St. Lawrence island to St. Michael on the Alaskan shores. From St. Michael news of the predicament of his men on Wrangel island was dispatched to the United States, and steps were at once started looking to the early relief of the shipwrecked crew.

At this time the United States revenue cutter Bear is on her way into the Arctic ocean and would undoubtedly have gone sooner had it not been learned that the Arctic pack was still as far south as Point Hope, Alaska. The work cut out for the doughty little steamer is perilous, for she will probably have to nose her way north and westward against a good deal of opposition as it is. We can best gather an idea of the task by reference to the kindred duty performed by the ship in the early summer of 1898 when she got the crews of the eight whalers out of their hazardous positions on the northern Alaskan coast.

Capt. F. Tuttle, then in command of the Bear, started from St. Michael on July 7 and on the 17th of that month stood northward through Bering strait. Arriving off Point Barrow about July 30, the Bear was made fast to the solid pack. It was impossible to anchor. One of the whalers, the Jeannette, was also secured to the ice to the south of the revenue cutter. Here is what Captain Tuttle reported of the situation at the time:

"In the afternoon of the 30th there were large pieces of ice drifting along with the current. Fearing they might strike the vessel and part the mooring lines, got under way and steamed into an indentation in the ground ice, where the steamer Jeannette was made fast. A suitable mooring place was found and the vessel made fast to the ground ice.

"On August 1 and 2 loose ice would drift in and pack around the vessel where she lay in the indentation in the ice. As there was only a trifling pressure no danger was anticipated. At 2 p. m. August 3 came a sudden pressure of the ice, the four forward fasts carried away and the vessel forced astern about five feet. The pressure then coming against the starboard side forced the port side against the ground ice.

"A point of ice under water abreast the engine room, the weakest place in the vessel, as there are no athwartship timbers there, forced the port side in sufficiently to buckle the engine room floor plates. Men were immediately sent with ice chisels and the ice was cut away. As soon as the ice was removed the pressure at that point ceased and the floor plates dropped back in place.

"The after section of the rudder was sprung about an eighth of an inch. The ice was cut from around the rudder and the pressure on that was removed. So far as can be seen no material damage was done by the nip. A vessel less strongly constructed would have been crushed at once."

On more than one occasion that year the little Bear was hard put to it and her mission of mercy was fraught with hazards. On several occasions during that Arctic summer she had to blast a channel open to clear water, and this exploit was not always immediately successful, while the odds against escape piled up in a threatening manner. However, the ship kept steadily at her task, and in the end the ice-bound whalemen were succored and carried back to civilization, or after restoration to health set upon other whalers in that treacherous region.

Ice was not the only peril, for with the milder months there was fog, and occasionally very strong winds or gales that meant danger upon that barren coast. As a part of the relief expedition a sled party was dispatched overland long before the Bear could nose her way into the Arctic ocean, and of the gallant work of those men Americans and the personnel of the revenue cutter service may well be proud.

In closing his report to the treasury department Captain Tuttle said: "The officers and crew bore the monotonous isolation with the greatest patience, complaints being almost unheard of. The courage, fortitude and perseverance shown by the members of the overland expedition are deserving of the highest commendation.

"Starting over a route seldom traveled before by dog sleds, with a herd of over 400 reindeer to drive and care for, they pushed their way through what at times seemed impassable obstacles, across frozen seas and over snow-clad mountains with tireless energy until Point Barrow was reached and the object of the expedition successfully accomplished."

Such is the type of the men now aboard the little cutter, and there is every reason to expect the same splendid performance of their present mission as was witnessed under somewhat kindred conditions 17 years ago.

NOTICEABLE ACCENT.

Rosemary—Look at the man making motions with his hands and wriggling his shoulders.

Thornton—Yes; I happen to know him.

Rosemary—Who is he and what is he doing?

Thornton—He is a deaf and dumb man who talks with a French accent.

WORTH TRYING.

"Now some doctor advises people to eat sand. Seems dangerous to me. What do you think?"

"Dunno. I think it might be safe to take a chance. Most of us need it badly in our systems."

GOOD EATING FOR NEIGHBOR

Man Discovered, Altogether Too Late, That He Had Been Killing His Own Chickens.

A good story is told about two well-known residents of the North end. Both kept hens, and as each has a garden they have been rather fussy about keeping their henhouses locked up and the birds confined. Both have the same breed of hens. Only a few days ago one of them found that a hen had been scratching and injuring his garden. He looked at his hencoop and saw it was all shut up and he immediately suspected his neighbor's fowls. The annoyance continued and finally one day he said to his friend:

"Say, your chickens are raising havoc with my garden."

"Is that so?" said the other. "Now if you find any of my hens over on your place just kill them."

"Do you mean it?" said the other.

"Certainly I do," replied the man.

A few days later the man's wife saw a headless chicken thrown over on the lawn. She picked it up and carried it in the house and told her husband about it when he came home to dinner.

"We will eat it," he quietly said. Two more came over, and the family had more chicken dinners. A few days ago the man who had been doing the butchering met his neighbor on the front lawn and said:

"Say, do you know, I have been killing my own hens?"

"Sure," said the other, "and I have been eating them."

It seems that the man who made the complaint found out back of his own coop that one of the hens had burrowed a hole underneath and they were getting out that way. The hole was so covered that it did not show from the front.—Manchester Mirror and American.

Replacing Animal Fats.

Oil pressed from copra, the dried meat of cocoanut, is rapidly replacing animal fats in the manufacture of artificial butters in Europe.

Home Town Helps

UTILIZING THE VACANT LOTS

Matter of Importance in Which This Country Might Learn a Lesson Form Older Lands.

Some of the gayest, happiest pictures of family life to be found in Germany, and even as far north as Copenhagen, are of the evening gatherings of working men and women in the vacant lots, for families who live in apartments and tenements are allowed to have small gardens or playplots there. The actuating purpose behind this movement in Europe is the preservation of the home, and limitation of the poverty and disease due to alcoholism, but it is as powerful an influence in directing the recreation of the "grownups" into wholesome channels as are our schoolgardens in this country.

A New York paper recently computed the value of 191,742 pieces of vacant land in the city to be $644,637,185. It is being argued that the owners should contribute the use of this land for "temporary playgrounds for children and potato patches to help hold down the cost of living for the poor."

An enterprising department store in Los Angeles recently purchased a quarter-block of land for a new site, upon which it will build five years hence. The walls of adjoining buildings were painted artistically with mountain scenery and an announcement of the advantages of this site for the future business of the store. The ground was laid out as an inviting public recreation park for children and adults, to be used until building operations commenced. Such experiments would be possible and valuable in almost every city or town.

COUNTRY TOWN MUST STAY

City Centralization a Menace to the Most Vital Interests of the Country.

The pendulum of trade is swinging slowly but certainly toward the elimination of the country town in business systems of a not far distant day, according to the views of some serious-minded students of the times. Numerous retailers of the state foresaw changes coming years ago, and are beginning to predicate their beliefs on this town elimination on the now existing conduct of business in practically every town in the state, says a Lincoln (Neb.) correspondent of the St. Louis Globe-Democrat.

It is a problem that has caused many a country storekeeper to swallow a lump when he began to think about it. Economists have given it theoretical attention and the merchants have considered it in the light of practice. Both are arriving at some conclusions in the matter and both are pointing out remedies which they believe could be applied in such a way that the disease, if such it be, can be checked and the identity of the country town preserved.

If not the country town—what? Therein students of economy, besides business men, become a factor in the equation. That is just it. If not the town, what shall supplant it? That is the question which farmers have begun to study, too. It's all very much of a problem to which the thoughts of hundreds of Nebraska business men are being directed at this time. It is the guiding impulse in convention discussions and the topic wherever a few of them are gathered.

Rest Rose Bushes Now.

In the case of roses now more than one year planted, no water need be given until October, unless the soil is very light indeed. This will afford a much-needed rest. Do not be troubled if some leaves turn yellow and drop away, for no harm will result. Small and soft canes may have their bark shrivel. These should be cut away about October 1, all crossing canes, tangled growths pruned out, the center of each bush left free and two-thirds of all other growth cut back. This leaves a few stubby, sturdy canes. Water well, and keep watered. When vigorous growth is started the plants will begin to hunger. Then fertilize, lightly at first, and in three or four weeks as heavily as you choose. The result will be roses of a high order.

Journalistic Feat By "T. P."

A brilliantly striking feat in journalism was recently performed by T. P. O'Connor, M. P. The best appreciation of Mr. Chamberlain, from the point of view of a personal observer, which appeared in the London newspapers, was that written by Mr. O'Connor for the Telegraph. A request for the article was sent to Mr. O'Connor just as the House of Commons was rising at 5 o'clock. Between 5:30 and 7:30 p. m. he had written the appreciation, which ran to between five thousand and six thousand words. This did not exhaust Mr. O'Connor's activities for the day, as he attended the dinner of the Associated Industrial Insurance Societies in the evening, and delivered a brilliant after-dinner speech.

"Tay Pay" is renewing his journalistic youth!

His Wish.

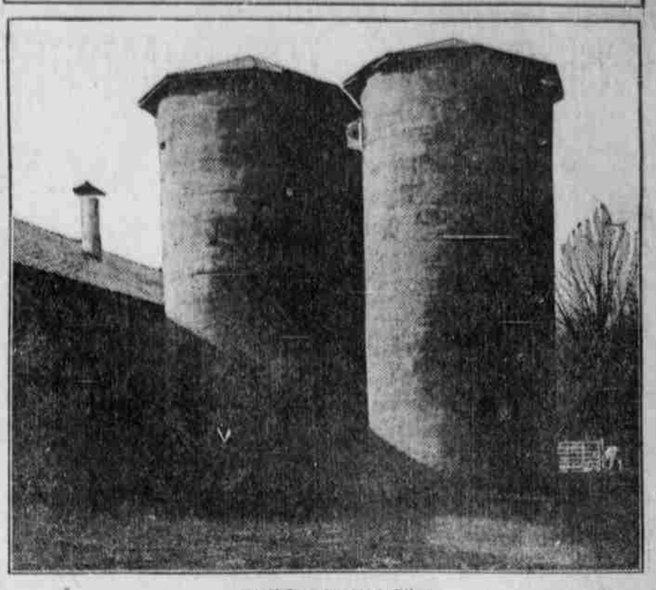
Flatbush—I notice two novelties to aid gardeners are a hoe with a seed box near the blade with which planting may be done, and a shovel with a second grip part way down the handle.

Bensonhurst—But what we really need most is a weed getter that will work while we sleep.

Put It on the Other Fellow.

"We should so live," remarked the man on the car, "that the other fellow will be to blame if anything goes wrong."

PLAN FOR CONSTRUCTING CONCRETE SILO



Well-Constructed Silos.

(Prepared by the United States Department of Agriculture.)

A well-constructed home-made silo will last indefinitely, and there is no danger of its blowing down, rotting out or being attacked by vermin, says Farmers' Bulletin 589 of the United States department of agriculture.

The cost of the home-made silo depends so much on the size of the silo and on the local price of materials that no definite amount can be assigned which would be applicable to all conditions. Recently collected data on the cost of home-made silos show an average cost of concrete silos to be $2.58 per ton capacity. The stave silos cost $1.63 and the modified Wisconsin $1.61 per ton capacity. Silos of small diameters cost more per ton capacity than silos of large diameters.

There are some features which are essential to the construction of all silos and without which silage will not be kept in perfect condition.

1. The walls should be air-tight. Since the keeping of silage depends upon the exclusion of air it is imperative that the walls of the silo be built in such a way as to keep out the air. The lumber should be well matched, and that containing large knots should be rejected. In concrete silos a wash on the inside with cement or with raw coal tar thinned with gasoline is effective in making the walls impervious to air. Care should be taken that the doors fit closely into their frames.

2. The walls should be smooth and plumb so that the silage will not adhere to them in settling and thus cause air spaces in the outer edge of the silage. Furthermore, the walls should be capable of standing considerable lateral strain without cracking or bulging. This is one reason why rectangular silos are unsuccessful.

3. The silo must be deep enough so that the pressure from above will thoroughly pack the silage and force out the air. The greater the pressure the less air in the silo and the less will be the loss of nutrition materials by fermentation.

4. The only form of silo to be recommended is one which is round. This form is the cheapest, capacity considered, and the walls are more rigid than those of the rectangular or octagonal forms. This results in more perfect preservation of the silage.

Small-Sized Silo.

The silo should be placed outside rather than inside the barn. As a silo ordinarily does not need the protection of a barn, it is not economical to use barn space for this purpose. An exception to this rule may be made in the case of the round barn. A silo in the middle of a round barn serves to support the superstructure as well as to place the silage in a position for convenient feeding. A silo so placed, however, is liable to be very inconvenient to fill. The most popular location is not more than a few feet from the barn and opening into a separate feeding room. The door of the barn can then be closed and the silage odors kept out of the stable at milking time.

The silo should not be built in the ground so deeply as to make it necessary to lift the silage more than five feet in getting it out from the bottom. In other words, the bottom should not be more than five feet below the lowest door.

The Size and Capacity of the Silo.

The diameter of the silo will depend upon the amount of silage to be fed daily. The silage should be removed from the top at the rate of 1½ to 3 inches per day, depending upon climatic conditions. The warmer the weather the more silage must be removed from the surface daily in order to prevent spoiling. For the winter feeding season it is safer to figure upon removing two inches daily rather than a smaller amount. A common error in building is to make the diameter too large for the size of the herd. The weight of a cubic foot of silage varies according to the pressure to which it is subjected, but in a silo 30 feet deep it will average about forty pounds. So, by knowing the amount of silage to be fed daily, it is possible to estimate what the diameter of the silo should be to permit the removal of a certain number of inches in depth each day.

The following table will prove of interest to those contemplating building silos:

Relation of size of herd to diameter of silo for winter feeding, on basis of 40 pounds of silage per cubic foot:

Inside diameter of silo, feet	Quantity of silage in depth of 2 in., pounds	Number of animals that may be fed allowing— 40 lbs. per head	30 lbs. per head	20 lbs. per head	15 lbs. per head
10	524	13	17	26	42
11	634	16	21	31	50
12	754	19	25	37	59
13	885	21	29	44	69
14	1,026	25	34	51	80
15	1,178	29	39	59	93
16	1,340	33	44	67	89
17	1,513	38	50	75	101
18	1,696	42	56	83	113
20	2,094	52	70	104	139

INFLUENCES TOUCHING SOIL

Thorough Pulverization of Soil Following Drought Tends to Increase Yields—Frost Is Factor.

Big crops usually follow a year of drought, in the main due to the thorough pulverization of soil from that agency. Frost is another factor that gives big crops whenever it enters the ground deeply, and either of these agencies will till the soil deeper than any tools can reach.

There is yet another agency which should never be neglected, deep-rooting plants, which, beside their mechanical and acid action on the soil, bring to the surface again fertility that has leached or that which is out of reach of the shallower rooted plants, or those with less subsoil penetration. Wheat or oats will attack the subsoil to a limited extent. Alfalfa and sweet clover will work with us and for us all the time.

While we work the top soil free of weeds, and retain the soil mulch, which will enable the alfalfa to survive, the plant roots are doing an infinitely greater work below, besides adding bacteria, bringing a soil to life that has lain practically dead, except at the very top, for all the ages that have gone.

CORN FOR FILLING THE SILO

Grains Should Be Well Dented and Glazed, and Few of Lower Leaves Turned Brown.

Corn is ready to harvest for filling the silo about the same time it is ready for harvesting the fodder; the grains should be well dented and glazed, and a few of the lower leaves turned brown. If the corn is cut too green the silage will be sour, and the feeding value decreased, while, on the other hand, if the corn is too ripe it will not pack well in the silo, a large amount of water will be necessary to insure its keeping quality, and there is danger of dry hot, which lowers the feeding value.

Sorghum should be harvested for the silo while the seeds are in the dough stage. Like corn, if it is left in the field until it has become too dry, the silage will contain a larger amount of indigestible material, and will not make a good quality of silage.

The time of harvesting the crops for filling the silo—that is, the stage in which the crops should be harvested—must be given great consideration if a good quality of silage is to be obtained.

Pea vines, soy beans, and other hay crops should be harvested for the silo at the same time as for making hay—that is, when in full bloom and few of the heads are ripe.

The corn harvester is becoming very popular for harvesting corn for filling the silo, and the work is carried on much faster than when the hand method is used, of cutting; however, if the amount of corn or other crops used is not great enough to justify the expense of a harvester hand cutting may be practiced.

In determining the size of cutter, engine, and other machinery to be purchased the amount of work to be done should be taken into consideration. The cutter should be large enough to carry on the work as fast as the entire force of men employed can get the crop to the cutter, and, on the other hand, the cutter should not be too large for the engine that is to drive it.

The larger cutters having the self-feeding device afford the greatest capacity, and save a large amount of labor which is required in the operation of the smaller machines.