

TO PREVENT GRAIN SMUT

BEST AND MORE EFFECTIVE THAN OLD DIPPING PROCESS.

Results of Experiments at the State Agricultural College—Discussion of the Subject.

COORVILLE, Or., Nov. 9.—The results of late tests at the State Agricultural College for prevention of smut in grain are likely to attract wide attention from farmers. The popular method, among agriculturists, for a long time, in treating grain for prevention of smut, has been dipping in a solution of blue vitriol. It is proposed by college specialists to treat the seed grain with hot air instead.

Tests have given most satisfactory results. The work has been in progress for several months under the direction of the bacteriological department.

Seed wheat and oats were put in a hot-air chamber and the temperature raised to 200 degrees. The grains were kept there 20 minutes, and afterwards planted. At the same time another plot was sown with grain treated in the old method, and the results of 120 degrees. The purpose of the experiments was to demonstrate the efficacy of heat as a destructive of smut spores. Both were successful but the hot-air process was more efficacious than vitriol solution.

Along with these two plots eight others were planted, mostly with grain treated in the old way with vitriol solution, applied in the usual manner. These and the plots sown with grain that had been treated with heat were sown side by side, and the soil and climate, as well as other conditions, were identical, save in the matter of treatment.

In the hot-air plots, but a single smut head was noticed. In those sown with seed treated by the old method 34 to 54 affected heads appeared. In the first, 90 per cent of the seed germinated. It is thus proven that the hot-air process will smut a wide range of temperature without injuring the germinating quality of the seed. Though the experiments so far are very satisfactory, they are to be continued. A bulletin setting forth the results already obtained is shortly to be issued by the bacteriological department.

The new plan is desirable, not only because more effective for prevention of smut, but because it is more easily applied. Any treatment of seed wheat by dip process has numerous drawbacks.

First—The heat is confined to a bush, and beneath this it is covered with small hairs. Either or both of these prevents the liquid from coming in contact with the entire surface of the grain, which may be lodged among the hairs or beneath the husks, so that there are more or less spots which escape being treated.

Second—Oats which are dipped into a solution are difficult to dry, especially in rainy or damp weather, and they are liable to germinate or become moldy before being sown.

Third—It requires a large floor space to dry them, and considerable time and apparatus to perform the operation of dipping successfully. The heat is confined to a water treatment, where barrels, kettles, thermometers, furnaces, and other appliances are needed.

The hot-water method, if properly performed, is very effective, but if improperly or carelessly done there is danger of simply smothering the spores instead of destroying them. The hot-air method is simply a vehicle to convey heat; it has no other virtue.

In order to obviate the necessity of so much apparatus as is required for the hot-air process is better. The heat can be applied in a hopper, fruit-rier, or by any other means. The seed could be treated at any time and in any place, and it is not necessary that it be treated in a hopper, but it must be remembered that seed which is treated for smut should not be returned to the sacks again without having been treated in a hopper, because the meshes of the fabric offer an excellent place for the spores to lodge, so that if the sacks were not treated, re-infection of the grain would occur.

RETURN OF ENTIRE NOME FLEET. Due Within Two Days—Should Bring About 1000 Passengers.

SEATTLE, Nov. 9.—The next 10 days will doubtless witness the return of the entire NOME fleet, sail and steam. Probably before this time the last vessel has left the camp for Seattle. The boats are to arrive at the city by the following route: Easta Ana, Portland, NOME City, Aloha, Bear, McCulloch and Seward. There are about six sailing vessels en route. As the boats are to be returned to NOME, the 3500 is probably a conservative estimate of the number of the people returning on the 31 passenger carriers.

The Portland-bound last vessel sailing on the return trip. She had left NOME for Dutch Harbor for a cargo of 200 tons of coal, which she hoped to be able to deliver at NOME, despite the threatened ice. The vessel is expected to arrive at the Kimball, which reached port Thursday.

The Oregon left NOME October 23 for Fort Canby, expecting to return to NOME for Seattle a week later. The NOME City is expected Sunday, and the Santa Ana and Centennial about November 23. The Santa Ana, which lost two of her propeller blades, will be replaced by one of the United States revenue cutters, probably the Bear. The Aloha and McCulloch were at Dutch Harbor when the Bear left that port.

WANTON SLAUGHTER OF BIRDS. Oregon Being Made to Supply the San Francisco Market.

SALLEN, Nov. 9.—According to a letter by E. V. Carson, director of the Game Warden Quimby, San Francisco markets are causing large numbers of birds to be killed in the vicinity of Klamath Lake.

Mr. Carson's letter says: "The railroads are running south from here inform me that large shipments of ducks are being made from Ager, Cal., to the San Francisco market, and that these ducks are being taken by one of the United States revenue cutters, probably the Bear. The Aloha and McCulloch were at Dutch Harbor when the Bear left that port."

OREGON CITY COUNCIL MEETING. Vain Attempt to Compromise With Sewer Contractors.

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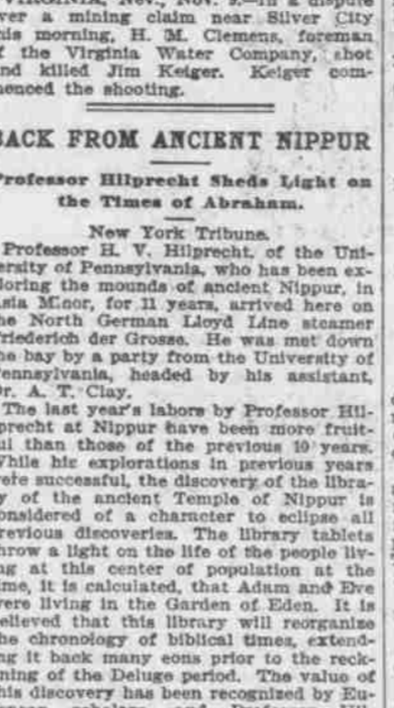
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Do Not Wait until Granular Deposits Develop into GRAVEL STONES

Just as soon as you notice a sediment in your water on standing, take the GREAT SOLVENT

WARNER'S SAFE CURE

OBHKOSE, Wis., Sept. 22, 1899. Warner's Safe Cure Co., Rochester, N. Y. Gentlemen—Eight years ago I suffered greatly with kidney trouble. I consulted several physicians but their medicines did me no good. A friend of mine in the drug business suggested that I try Warner's Safe Cure. I followed the suggestion and after using a couple of bottles I noticed a slight improvement. I continued its use for about six months, and the experts told me that it completely cured me. I have waited several years before giving this testimonial in order to see if my cure was permanent. I now believe it is. Yours truly, Secretary Obhkoese Times. W. C. JENKINS.

Send postal for free sample to WARNER'S SAFE CURE CO., Rochester, N. Y. Mention this paper when writing.

WILL KILL BY THE SCORE

FRENCH INVENTOR DESIGNS NEW ENGINE OF SLAUGHTER.

Possible to Fire Thirty Rounds a Minute With Utmost Ease—Surpasses the Maxim Gun.

The special correspondent of the London Times, who has attended the French military maneuvers, has an opportunity of seeing the much vaunted new 25 mm. quick-firing gun at work. He says: "Each gun, besides its limber, has an ammunition wagon. When in column of route the ammunition wagon and the gun move abreast if possible; if that is not practicable, the wagon precedes the gun. The draught for a wagon is a team of four, for a gun a team of six. Each battery is accompanied by a reserve ammunition column of three wagons. When the battery comes into action, the gun and wagon unlimber abreast of each other, and the limbers of both gallop clear to cover. If the gun unlimbers 'action front' the wagon unlimbers as if for 'action rear,' and vice versa. Nos. 5, 6, and 7 are simply to hand each round to the ground and open the top shutters, which fall back from a center fastening and make a shield, behind which the three gunners kneel. The first round is thrown in a rack before them, each wagon holding 30 rounds. As the gun and wagon are now wheel and wheel abreast No. 5 is simply to hand each round to No. 2, who is kneeling by the trail prepared to load.

"And now as to the gun itself. As far as I could judge, while standing in the battery the breech of the gun which takes the recoil is part of the gun. Certainly when fired with blank the only movement apparent is the running back of the gun itself on a sliding seat underneath the trunnions. The whole of the breech end of the gun seems seated in this heavy socket. A brake, which is lowered on either side of the gun, is used to stop the recoil, as well as a spade affixed to the end of the trail. Before the gun is laid the trail is raised to an angle of 45 degrees and immediately falls to the ground. This might be to insure the setting of the spade, but from the sound it makes and the fact that after the gun team has finished handling the spade some time is lost in the operation before again coming into action I am inclined to believe that it is a mechanical buffer by which some pneumatic buffer is loaded. This much is certain, that once the trail has been raised, the brake adjusted and the spade imbedded the gun carriage never moves again, though 30 rounds are fired in rapid succession. The gun then runs back into the spade action of the Vickers-Maxim carriage, in which both gun and carriage run back on the spade for several feet.

"The breech action of the French gun is a marvel of simplicity. The breech opens with a single action, the whole of the breech mechanism being taken up by the reverse action loads the piece, the motion of opening extracts the case and throws it clear. No. 8 opens and closes the breech in two motions, while No. 10 loads. No. 11 attends to the laying of the gun—once laid any alteration in range is made by turning a hand screw, to which is fitted an indicator and dial. It would be possible to load the gun in a minute with the utmost care. But hitherto during the maneuvers no rapid fire has been attempted. The gun is provided with a light bullet-pool which can be raised or lowered by the four men working the guns are under cover, while, as was stated before, the No. 6 and 7 kneel behind their ammunition wagons, and are also completely screened.

EXPORT OF MANUFACTURES. Noteworthy Advance in Our Relative World Position.

New York Journal of Commerce. No better illustration could be given of the expansion of the export trade of the United States in the products of manufacture than the statement that for September last there was an increase of \$5,000,000 over the corresponding month of the year 1899. The Chinese market has been practically closed, with the result of showing a decrease in the export of cotton cloth equal to \$600,000, and in kerosene oil a decrease of \$200,000. The maintenance for a time of a uniform level of high prices may also be assumed to have had its effect in curtailing the purchases of American manufactures abroad. But, as a matter of fact, every month of the calendar year has, so far, shown a marked advance over its predecessor in the value of the exports of manufactures, and the total for the first nine months of the year is \$2,000,000 over that of the corresponding period of 1899. It is instructive to note that of the increase in exports during the first three quarters of the present year manufactures furnished a larger share than the products of agriculture, and that the percentage of the former to the total exports, which was 21.34 last year, has risen to 23.44 in the present year. As recently as 1880, the proportion of the exports of manufactured goods to the total was only 13.5 per cent; during the first three quarters of 1899, by 1896 it had advanced to 25 per cent, and now it is good for a third of the whole amount, with a rate of increase more rapid than that of any other department of our foreign trade. It is highly probable that for the present year the value of these exports will reach \$400,000,000. Remembering that up to 1876 the annual total of our exports of manufactures failed to reach the sum of \$100,000,000, and that up to 1896 the amount of \$200,000,000 had not been attained, the extraordinary rapidity of the recent development of this trade will be readily ap-

preciated. The process is one which has no counterpart in the foreign trade of any other nation, the much vaunted increase of German exports being less than 10 per cent in the last four years, and the sum of British exports of manufactures having suffered a positive decrease since 1897.

There are, it is true, two important elements of this trade which are more nearly related to the cruder products of the mine than to the developed products of manufacture. These are natural oils and copper pigments, which represent, as they did four years ago, 29 per cent of the total exports of manufactures. The product of cotton cloth shows a decrease of some \$2,800,000 up to the end of September, mainly due to the interruption of the Chinese market; though there has been a notable increase in the sales to Great Britain and India, and a gain in British Australasia. In all the other leading items of the export trade in manufactures, there has been an almost uniform rate of gain of about 20 per cent, suggesting under all the circumstances the existence of healthy conditions in this branch of our foreign trade. In the department of the products of mining there has been a still greater ratio of increase, chiefly due to an advance in the value of our exports of coal, from \$16,720,000 to \$18,230,000 for the first three-quarters of 1900, against \$14,000,000 for the corresponding period of 1899. This is credited to the demand from British North America, but the exports to France have risen in one year from \$200 to \$250,000, and the rest of Europe accounts for \$22,000,000 against \$14,000,000 a year ago. Of the coal exported, \$10,000,000 was bituminous and \$5,000,000 anthracite. It is noticeable that while outside of British America we have exported \$4,700,000 worth of coal in the nine months, the same period of the last two years accounted, in each case, for only a little over \$3,000,000.

The place which the United States is destined to take in the markets of the world is pretty clearly indicated in these returns, and particularly in the fact that our exports of iron and steel, and their manufactures have nearly tripled in four years. In an article on the international commerce of the century in the current number of the North American Review, Mr. Austin, Chief of the Treasury Bureau of Statistics, points out that while the total commerce of the world has grown from \$1,475,000,000 to \$3,195,000,000, that of the United States has increased from \$280,000,000 to over \$2,000,000,000, while the ratio of increase in exports of domestic merchandise has been much greater. He goes on to explain that the figures of our commerce for the first 10 years of the century are quite misleading, as they include large quantities of foreign goods brought to our ports by American vessels and merely declared as entries, while in fact they never left shipboard. The result of this was that during the period in question our reported exports of foreign goods amounted to as much as those of domestic products, and in some years actually exceeded them, while now they are only about one-third of the total amount. In general, it may be said of the commercial total exports of manufactures, "The product of the mine and the products of the mill, iron and steel and manufactures of it," accounted for \$7,000,000 of the exports of the first nine months of the year—an increase of nearly \$2,000