

Changing Seed Wheat.

BY F. D. COBURN, SECRETARY KANSAS DEPARTMENT OF AGRICULTURE.

It is no longer disputed that in ordinary farming the sowing of any given variety of winter wheat continuously on the same land or in the same locality results in its deterioration, both as to yield and quality.

The numerous letters which each season brings this office relative to this condition, and as to the sections from which the most profitable change of seed is likely, render it desirable to publish the views of those having the largest opportunity for observation in such matters, and noting intelligently some of the practical results. No other men are in such close touch with wheat raisers and the wheat interest as the millers, and the tenor of the valuable information secured from them in reply to inquiries is well shown in extracts from some of their letters as follows :

Mr. C. V. Topping, of Enterprise, secretary of the Kansas Millers' Association, writes : "The belief existing among winter wheat growers that sowing the same varieties year after year in the same latitude lowers the yield and quality, is correct. C. Hoffman & Son, extensive millers at this place, last year imported from Russia some of the pure Russian wheat. (This is the Crimean winter wheat, and I would suggest for accuracy and definiteness that the name Crimean winter wheat be used for this Russian variety and that the misnomer 'Turkey' or 'Rice' wheat be discarded.) A number of years ago the same quality of wheat was imported, and by comparing the wheat that has been sown here year after year with that just imported, it shows a very marked difference both in quality and certainly in yield of bushels per acre as well as in the wheat product. The flour from pure Russian wheat is much stronger than that from wheat that has been sown and resown in this country for a number of years. This is very noticeable in European markets, where the Hungarian flours command from 20 cents to 50 cents a barrel more than our ordinary Russian wheat flours. Farmers should change seed certainly every five years, and I consider that it would pay them well to change every three years. For this part of the State (Dickinson county) I would recommend sowing the hard varieties, and in exchanging seed the central part of Kansas could use that grown in either northwestern or northeastern Kansas ; but of course where it can be had, the pure Russian seed from the Crimea should be used."

Mr. J. W. Krehbiel, manager of the Moundridge Milling Company, at Moundridge, McPherson county, says: "The nature of our wheat undergoes some change, and it would be very profitable to procure new seed at least every ten years. I think a decline in the original qualities for milling will first be manifested, but as the plant loses its native European hardiness (as the Turkey variety), it will not stand the winter so well and consequently give a less yield. Our locality would want Turkey wheat imported from Russia. Mr. B. Warkentin, of Newton, now has some of this new seed imported, and the use of such should be a great profit to our farmers."

Mr. Warkentin above mentioned, president and manager of the Newton Elevator and Milling Company, Harvey county, says experience teaches him that by sowing the same variety year after year in the same locality, it changes its qualities both as to yield and milling. "Our so-called Turkey wheat is becoming softer from year to year. Of course the growing season has much to do with this. If the wheat can mature without too much rain, the per cent of gluten, which makes it valuable, will be much larger than otherwise. In my opinion our farmers should change seed at least every four or five years, and new seed should be imported from the Crimea about every six or eight years. Farmers should be encouraged to exchange for seed from a distance of say 25 miles, as I have found it a great means of improvement. Our soil and climate seem best adapted for the red, hard winter wheat, with which we can easily compete in the world's markets. I have twice within the past ten years imported fresh seed wheat from the Crimea—the wheat known as the Russian-Turkey, the beneficial results of which are very plainly seen in our country."

Geo. H. Hunter, president of the Hunter Milling Company, at Wellington, Sumner county, writes : "Our considerable experience and observation is that continuous sowing of the same wheat in one locality is injurious to it. We have tried wheat from other portions of our county and find a change, especially from the north, is beneficial. We would not recommend seed obtained from too great a distance, say not to exceed 150 miles, but it has been our experience that when new seed has been brought in either wheat or corn, the yield has been much better for several years. Generally a poor yield makes a poor product, which is the only complaint we would make as to quality. It is a good rule to change seed at least once every five years."

The Messrs Colburn, of the Queen Bee Roller Mills, at McPherson, write in substance as follows : "We believe our farmers should change seed as often as once in three or four years ; not necessarily to imported seed but to that raised in a different locality. This we be-

lieve with the exceedingly good milling qualities of the Russian, or as we term it, 'Kansas Hard,' would hold both the yielding and milling qualities intact for many years. While we are firm believers in changing seed at least once in three years, it is a fact that prevailing climatic conditions make a wonderful difference in the outcome of quality and yield, whether the change is made or not. Everything does not depend upon seed ; we have seen the choicest of seed sown, only to produce the meaneast wheat, and vice versa. If some of the imported was available each year, it would certainly tend to hold up the reputation we are now attaining in the world's markets on 'Kansas Hard Wheat,' as well as the flour made from it."

Prof. C. C. Georgeson, of the State Experiment Station, at Manhattan, says : "That wheat does deteriorate in the course of years under the care that the average farmer gives his crop I think must be conceded. The yield becomes less, the grain of an inferior quality, and the millers complain that the proportion of bran to flour is too large. From what section it would be most desirable to procure a change of seed cannot be answered positively. In our experience here at the station we have as a general thing had the best results from wheat grown in about the same latitude to the eastward of us. The start for our best yielding varieties came from Virginia, Maryland and Ohio. A variety of superior merit, produced only by selection and culture under the most favorable conditions, can maintain its superiority only when grown and selected with the same care which produced it. Our farmers do not give their wheat that care and culture, and the legitimate result is that it runs out. The main cause of deterioration then is under the control of the farmer himself."

NEW PHOTOGRAPH ENLARGING APPARATUS.

The enlarging of small pictures is one of the most agreeable operations of photography. The new enlarger



SIMPLE PHOTO-ENLARGING APPARATUS.

designed by J. Carpenter has the form of a truncated rectangular pyramid. Its base is formed by a plate holder, with a cover, R, 18x24 inches, and its vertex by a series, I, of kits for holding the negatives, from 9x10 inches to 4 1/2 x 6 inches. A screen, D, covers them when the apparatus has to be taken into the daylight. In the base frame there is a perfectly smooth glass, 18x24 inches, without ridges or defects. On the inner side of the glass is applied the sheet of gelatino-bromide of silver paper, held in contact with the glass by a little board and a lock or spring at the two ends. The first board, instead of being of one piece, has an intermediate square, thus making it possible to take a photo copy 13x18 inches.

In the interior of this truncated pyramid are lens boards that can be moved upward or downward by the button, B, in the center of which is a rectilinear objective, O, which exactly covers the maximum dimensions of the photograph to be enlarged. At the proper time the other lenses, mounted on a sheet of steel, L, move when the button is operated until they are in focus and are supplied with proper diaphragms.

When the button, B, is moved, it carries with it an exterior disk, P, which carries an arrow placed like one of its radius and which moves concentric with a graduated circle, B, showing the different degrees of focus, for different sized pictures, that may be desired.

Let us rotate the disk so the needle will indicate the figure 4 and at the same time produce a slight noise by an escapement, and it will show that the objective has been automatically located so that the dimensions of the enlarged image will be four times as great as those of the little pictures and the whole of the central part of the little picture will have the maximum dimensions, 18x24 inches.

After the paper is adjusted in position on the base plate in the dark room, the hinged cover, D, is folded over the negatives. The whole apparatus may then be

removed into the light and the exposure made by opening the lid, D, for a few seconds.

If it is desired to enlarge on a plate instead of on paper, the former is put in the place of the latter. We believe that the enlarging apparatus to which we refer shows real progress in the practice of enlarging.—La Fotografia Practica.

Rules of the Road at Sea.

Congress has finally passed and the President has approved the bill making amendments to the proposed new rules of the road at sea. It was hoped that the new rules could be proclaimed this summer, but this is now found to be impossible.

It is the intention of the State Department to communicate with all foreign governments, asking that they agree upon some date for the rules to go into effect. It is expected that about March 1, 1897, will be the date selected. When it is agreed upon the President will issue a proclamation. The law as it goes on the statute books is as follows :

Article 15. All signals prescribed by this article for vessels under way shall be given :

"First—By 'steam vessels' on the whistle or siren.

"Second—By 'sailing vessels' and 'vessels towed' on the foghorn.

"The words 'prolonged blast' used in this article shall mean a blast of from four to six seconds' duration.

"A steam vessel shall be provided with an efficient whistle or siren, sounded by steam or by some substitute for steam, so placed that the sound may not be intercepted by any obstruction, and with an efficient fog horn, to be sounded by mechanical means, and also with an efficient bell. (In all cases where the rules require a bell to be used a drum may be substituted on board Turkish vessels, or a gong where such articles are used on board small seagoing vessels.) A sailing vessel of twenty tons gross tonnage or upward shall be provided with a similar foghorn and bell.

"In fog, mist, falling snow, or heavy rainstorms, whether by day or by night, the signals described in this article shall be used as follows. Namely :

"(A) A steam vessel having way upon her shall sound at intervals of not more than two minutes, a prolonged blast.

"(B) A steam vessel under way, but stopped, and having no way upon her, shall sound, at intervals of not more than two minutes, two prolonged blasts, with an interval of about one second between.

"(C.) A sailing vessel under way shall sound at intervals of not more than one minute, when on the starboard tack, one blast ; when on the port tack, two blasts in succession, and when with the wind abaft the beam, three blasts in succession.

"(D.) A vessel when at anchor shall, at intervals of not more than one minute, ring the bell rapidly for about five seconds.

"(E.) A vessel when towed, a vessel employed in laying or in picking up a telegraph cable, and a vessel under way which is unable to get out of the way of an approaching vessel through being not under command, or unable to maneuver as required by the rules, shall, instead of the signals prescribed in subdivisions (A) and (C) of this article, at intervals of not more than two minutes, sound three blasts in succession, namely : One prolonged blast, followed by two short blasts. A vessel towed may give this signal and she shall not give any other.

"Sailing vessels and boats of less than twenty tons gross tonnage shall not be obliged to give the above mentioned signals, but if they do not, they shall make some other efficient sound signals at intervals of not more than one minute.

"Section 2. That said act of August 19, 1890, as amended, shall take effect at a subsequent time, to be fixed by the President by proclamation, issued for that purpose."

Navy Dry Docks in the United States.

With the completion recently of the Port Royal dock on the Atlantic coast and the Port Orchard dock in Washington, on the Pacific, the United States Navy Department now has ten large dry docks completed for war ships as follows :

Location.	Material.	Length		Width Floor.		Water.	
		Ft.	In.	Ft.	In.	Ft.	In.
Boston.....	Stone.	391	30	27	0	27	0
Brooklyn.....	Stone.	350	30	25	6	25	6
Brooklyn.....	Timber.	530	50	25	6	25	6
League Island.....	Timber.	530	50	25	6	25	6
Norfolk.....	Stone.	360	30	24	0	24	0
Norfolk.....	Timber.	530	50	25	6	25	6
Port Royal.....	Timber.	600	50	26	0	26	0
Port Orchard.....	Timber.	650	50	26	0	26	0
Mare Island.....	Stone.	530	30	28	0	28	0

—Marine Review.

THE medical department of the War Office of the British government considers that the Roentgen rays are so practical that two sets of Roentgen ray apparatus have been sent up the Nile to be used by the army surgeons in locating bullets in soldiers and to determine the extent of fractures.