

Wheat Raising in North China.

Chinese crop and agriculture are the subjects of a long and interesting letter from Charles Denby at Peking, to the *Philadelphia Record*, from which the following extracts in relation to wheat raising in North China are taken:

The principal crops in the vicinity of Peking, besides the fruits and vegetables, of which there are almost all that are found in western countries, are wheat, barley, buckwheat, numerous varieties of millet, beans, Indian corn, sesamum, hemp, rice, cotton and some tobacco.

Wheat in North China is planted in two crops, known as autumn and spring wheat, of which the autumn wheat, in both quantity and quality, is superior. This is planted at about the autumnal equinox, or, at the latest, not after the semi-monthly period known in the Chinese calendar as the "cold dew" (about October 8). It is harvested at about the summer solstice. The yield per Chinese mou is estimated in a good year at one tan, or about 240 pounds, or nearly 1,700 pounds per English acre. Wheat is not, however, sown broadcast. It is carefully sown in furrows about eighteen inches apart, leaving room between furrows for hoeing, in which, when the wheat is partly grown, some vegetable crop is planted. The seed required to sow a mou of land is about 17 to 20 pounds, or nearly 130 pounds to the English acre. The seed, say the Chinese farmers, should be sown in damp ground.

The price of wheat in Peking varies every day, just as in other centers, according to supply and demand. It is fixed by the brokers at the markets, who are under official supervision, and who arrange sales and measure out the grain, receiving a commission. A Chinese tan (about 240 pounds) was quoted at Peking a few days ago at 2.6 taels, or \$2.85 in United States currency.

Spring wheat is only sown when, by reason of excessive rains or other unfavorable causes, the ground is not ready for the autumn crop. It is then sown at about the spring equinox, or not later than the period known as the "pure brightness" (about April 5). It ripens at the same time as autumn wheat, but produces some 20 to 40 pounds less grain per mou, and is of inferior quality.

Both spring and autumn wheat are used exclusively for the manufacture of flour, being ground by mill worked by hand, horse or donkey power, or rarely by water-power.

Grain Storage in Ancient and Modern Times

The ancients used to store their wheat underground extensively, either in natural caves or granaries constructed in the rock or the soil for the purpose. Among the latter the most curious are perhaps those which are still in existence and which were constructed by the Romans on the left bank of the Loire at Amboise, in Touraine, where they were "caves a blo de Cesar," and though they are quite close to the bank of the Loire, a river which is subject to periodical inundations, they are so constructed that they remain dry at all times, and must have kept the grain they contained effectually.

On this principal General Demarcay has invented underground granaries, which he alleges wheat can be kept for the space of three

years in a state of preservation, free from weevil and keeping its color; in fact, being scarcely distinguishable from new wheat. His granaries are so constructed that the mean temperature is about 10 degrees C. throughout the year.

M. Doyere was commissioned a few years ago by the French Minister of Agriculture to study the underground granaries built either in former or present times in other countries, and he therefore visited the silos of Tangiers and of Oran, as well as those which are found in Spain. He also carefully observed the granaries built by the Romans and the Moors in Spain, where, according to the notion of the natives, wheat can be kept in a good state of preservation for an unlimited period. The result of his observations was that the best plan would be to follow the example of the old knights of Malta, who kept their wheat in iron cases.

This underground hermetical silo consists of a vessel of sheet iron made in the shape of a wine bottle, and which has been well tested as to its tightness and imperviousness to moisture. The mouth is closed by means of a lid shut by great pressure, and the walls are preserved from oxidation by being covered either with a coat of zinc or one of bituminous varnish. The metallic case is let into a bed of concrete, and circular wall is built so as to act as a protection against water from the outside and the weight of the wheat inside. Well dessicated wheat only is introduced, and experience has proven that M. Doyere's theory was correct, inasmuch as wheat was kept in those metallic silos for a long period without losing any of its quality and colour.

Duhamel, after having ascertained that the whole of the empty space existing between the grains of wheat which fill a vessel is 3.11 of its capacity, placed wheat in some double-bottomed vessels and passed cold air through those vessels by means of bellows, and for the purpose he adopted Dr. Hale's bellows. These are fully described in Dr. Hale's "Treatise on Ventilators," where is found the description of a small windmill having eight broad sails, constituting a wind turbine, which was the motive agent of these bellows. The cold air was distributed through the vessel by means of perforated tubes, and a thorough ventilation thereby effected. M. Salaville took up this idea again lately, and constructed strong vessels on this principle, for which he took a patent. We understand that this process is in use in Algeria and works tolerably well.

M. Phillips Girard showed in the exhibition of 1851 a "Grenier Conservateur," which consisted of a row of suspended silos or vertical cases in wood, closed at the bottom by hoppers in the shape of pyramids, made of sheet iron and resting on arches or long horizontal wooden beams. These hoppers were provided with gratings, through which air could be blown or aspirated by means of long horizontal tubes connected with an exterior ventilating apparatus, while the wheat itself was constantly displaced inside the silos by an ingenious arrangement put slowly in motion by a steam engine of five or six horsepower. The whole of the wheat was thus moved and effectually ventilated. This granary is different from that of Oliver

Evans, to which it is superior. Girard established it in Poland in 1844 in a large storehouse where a vast quantity of wheat was usually kept.

Messrs. Huart, of Cambai, also invented a granary of this sort, but their plan is only an improvement on that of Oliver Evans, with the addition of a few features of Girard's granary.

The great objection to these granaries is the relatively high cost of their construction, this being equal to about eighteen shillings per quarter of the wheat stored.

M. Pavy describes also a "Grenier Conservateur," but only for small quantities of wheat. It consists of vessels, made out of earthenware, provided with winnowing machines at the bottom, but the apparatus is hardly suitable when pretty large quantities of wheat have to be stored.

M. Valley's invention consists of a vessel made in the shape of a barrel with internal compartments and double grating, which revolves around a horizontal axis. This is put in motion by a steam engine, while the external air is admitted through the metallic grating. The chief aim of this apparatus is to destroy weevil by a perpetual motion and aeration, or at least to prevent their development and reproduction. But this granary is a most expensive one, and has scarcely ever been practically adopted.—*The American Elevator*.

Profits in Wheat.

There can be no denying the fact that immense profits have been made by a few members of the Montreal Corn Exchange who were fortunate enough to hold a considerable quantity of Manitoba wheat before the late unprecedented advance set in. Within the short space of the last six weeks the price of No. 1 Northern has advanced in this market from 95 cts. per bushel to \$1.25, which shows an advance of 30c. per bushel, 24c of which was gained in 17 days. From the lowest point in April last when No. 1 Northern touched 84c per bushel on actual business, there has been a rise of 41c per bushel, and to illustrate the insatiable nature of men's cravings we may mention the fact that notwithstanding the large fortunes which have been realized by several Montrealers some of them are still unsatisfied, as we learn that one of them expressed his regret for selling part of his wheat in England before the advance came, and another was greatly disturbed because he sold a portion of his stock too soon to avail himself of the full extent of the rise. It must be admitted, however, that holders of Manitoba wheat in this city have realized profits ranging from \$50,000 to \$250,000 respectively. Speculators have also come in for a large share of profits through being long on wheat in Chicago, a well known Montreal operator who followed up the advance having made sufficient to retire from the arena of business altogether, and enjoy himself in ease and luxury the rest of his life.—*Montreal Trade Bulletin*.

J. H. Ross, of Moose Jaw, has made large purchases of Montana sheep for his new ranch at the former place.