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☞ We are under the necessity of sending this number *minus* the *Literary* and *Ladies* departments. We had to choose between doing this and not getting it out until next week, as the printer had some heavy business in hand which occupied his type. We thought it preferable to send our readers less matter (for at this season they have very little time to read) than to disappoint many who may have to send some distance to the Post Office.

THE GRIST MILL.

The following interesting observations are taken from a Lecture published in the New York *Farmer and Mechanic*, by General T. W. Harvey:—

Under this head, we commence with the oldest in the catalogue—the Grist Mill.

All the essential improvements in these mills, and other kindred machines for growing grain or preparing the same for food, have probably been made within one hundred years.

The mill of the ancients would not be called a machine at the present day, but under the transforming power of the age in which we live, the grist mill is now a machine, upon a grand scale.

It is to be presumed that the first attempts for the reduction of the grain to a powder, were very simple; in the absence of proof on the subject, we draw upon the imagination to supply a presumed account of its history and progress; at the outset no doubt, two simple flat stones were selected, and placed one upon the other, and having the grain between them, were rubbed together by hand, and in this form the germ of the now powerful and perfect mill appeared; an eye in the top stone for the convenience of introducing the grain under it, next followed; and anon, a spindle, a curb, and rotary motion was attained, with a crank to drive it by hand. In this condition we are told in scripture—"two women shall be found grinding," &c., at a period 2000 years since, and in this state it may have continued two or three thousand years.

But it is presumed that the grist mill is among the first of all machines, driven by power; wind has been employed as the propelling power for grist mills, for several hundred years. [Invented in the time of Augustus Cæsar.] But it must be recollected that in no instance was this kind of mill furnished with the now ordinary fixtures for elevating the grain to the loft, or any other mode of hoisting, that a man's broad shoulders, and efficient knee joints—the power was employed simply to rotate the stones and bolt; to these mills, no such thing as a smut machine, cooler, nor packing press was ever known, and the same remark would apply to water mills, a half century ago; the grain was transported to, and from these mills in sacks or bags.

The grain was ground, but not purified; it remained for the master genius of a man, as a mechanic, the first of the age in which he lived, to ordain, that the old grist mill should assume the distinctive traits of a machine.

Oliver Evans concentrated his powerful mind upon it; improved and kept it perfect, so that to the present day, with the single exception of a more perfect smut machine, no great improvement has been added to it, since it came from his hands.

A merchant's flouring mill of the present day is a huge machine; in addition to the ordinary hoisting machinery of the day, it contains elevating machinery peculiar to itself; that is, an endless belt of leather passes over a drum, or pulley in the loft, to which is affixed a succession of lifting buckets, throughout the circuit of the belt, in such a manner, as that the buckets on the ascending portion, are capable of filling with grain, while on the descending portion of the belt, they are reversed, and consequently discharge their contents, of course this discharge takes place at the summit of the circuit, and thus the grain is elevated to the loft required.

The lower circuit of the belt is made to embrace a short drum attached to a sweep, the upper end being hinged or jointed to a beam of one of the stories above, and by which the same is directed to any heap of grain in a lower story, or swung out of a door, and directed into the granary apartment of a vessel or boat lying alongside the mill, and elevated to the loft desired.

The grain having been hoisted in this manner to the cleaning loft, usually the one the next above the grinding loft, is there submitted to a process of beating, scouring, and fanning; after which it descends by a canvass conductor by its own gravity to the stones, for its principal operation of grinding; from thence it continues to fall in the same way to the bolting loft next below, to undergo the separating the flour from the bran; from this story it is again elevated to the highest loft in the building—the one the most remote and secure from the dust of the other operations, possible; to be submitted to the cooling process, where it is discharged at the outward rim of a circular platform, some forty or fifty feet in diameter, and where by the sweep of revolving brushes, whose tendency is to concentrate the flour towards the eye of the cooler at the centre of the platform, being at the same time carried around in the direction of the sweep, is spread over a vast surface; every particle of which having to travel many thousand feet in its circuitous convolutions to the centre and eye of the cooler, from which it again descends through a conductor, passing several lofts, to the packing room upon the lower floor—entirely relieved of its heat, previously caused by the friction of the stones in grinding, and there weighed and packed into barrels, by the aid of a suitable press for that purpose, the top head of the barrel coopered in, when after being marked and branded, is fitted for transportation and sale.

These establishments are usually built five or six stories high, one or two of which are used for storage, located between the cleaning and cooling lofts.

Every good flouring mill should have a cooling loft, a loft or lofts for storage, a grinding loft, and a loft for packing, for the purpose of a due regard to cleanliness, (without which no good flour can be made) and the convenience of moving the grain to the best advantage through the different processes.

A flour mill is therefere a mammoth machine, whose machinery extends through several stories of a building, performing its clock-like motions harmoniously, and with astonishing efficiency.

At many of these establishments in our country, several hundred barrels of flour are made and packed daily. A canal boat arrived at Rochester, from the West, at 12 o'clock of one day, with 1500 bushels of wheat has been known to be discharged the next day, having had in the intervening time, its cargo of wheat transferred from the boat to the mill, there manufactured into flour—the same weighed, packed, and delivered to the boat, in that space of time.

Such is the gigantic perfection of this great work, as left by the hand of *America's greatest mechanic!!!*

But the grand mill of Oliver Evans, has, in the progress of improvements, thrown off in its flight a host of satellites, in the shape of portable mills for a variety of purposes, adapted to the diversified domestic wants of man—such as the horse-power mill for secluded farmers in every part of the country, and hand-power mills for the Pioneers of the West. Mills for grinding corn and cob for the animals, for grinding paint, medicines, mustard, coffee, &c.

Within the last thirty years, there have been invented and brought into use, numerous other kindred machines for the growth and preparation of grain, the most important of these are thrashing machines; horses are now made to do the labour which would require 100,000 men, if done in the old way by the flail. Corn shellers, smut machines, fanning mills, hay and straw cutters, vegetable cutters, machines for hulling cloverseed, drilling machines, corn planters, machines for sowing grain broad cast, reaping machines with more or less success, and portable horse power machines are among other machines so brought out; and such has been the improvements in the plough, (originally a mere tool,) that it has assumed many attributes of a machine; take for instance, a plough furnished with a *dynamometer*, to measure the draft, a regulating clevis to gage the width and depth of the furrows, and a changeable (with the right hand, and left hand,) mould board, and you have what would be called thirty years ago, a *machine plough*.

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From the American Journal of Agriculture and Science

COMPARATIVE VIEW OF RAISING A CROP OF WHEAT IN ENGLAND AND AMERICA.—By C. M. Bement.

In looking over the 12th volume of the "Farmers' Magazine," published in London, I find the total cost of raising an acre of wheat and sending it to market is stated at £12 5s 6d sterling. This estimate allows the tenant for his labour £1 16s sterling. The gross product of the acre of wheat, straw, feed, &c., &c., is stated at £11 11s. The value of the wheat is stated at 52s per quarter.

This statement shows us that the United States is a natural region for growing wheat when compared with England. In our Western States a farmer can purchase a farm of 200 acres, fence it in and break up 100 acres for $1,200 or $1,500. He can put on a house and barn for $500, making the whole cost $2,000, His first crop, every thing favorable, will bring him on an average $1,000, and his second 100 acre crop of wheat, $1,000. His lands and improvements are now paid for. The third year, if 150 acres are put into wheat the product will be $1,500.

Now, in England, according to the work above quoted, the charge on one acre of wheat, for two years tithes, is ten shillings sterling; and poor, highway, and church rates for two years, is eight shillings sterling—our land has no such charges as this. Our farmers may well be satisfied with their own country.

In the State of New York, I am informed, that wheat lands may be purchased from $30 to $50 per acre, in improved farms. Every 100 acres of wheat yields from $2,000 to $2,500. gross income.

It is clear then that with free competition, the United States will command the Wheat and Flour markets of Europe and America.

One fact, however, requires the consideration of the American husbandman. It is calculated by McCulloch, that the increased average production of wheat in England, since 1821, probably from improved implements, and a more enlightened and scientific cultivation, now at 26 bushels to the acre, bring an increase of 9 bushels, which is about double to that of the State of New York at the present time.

Farmers of America! are you satisfied to rest with only obtaining from 12 to 13 bushels of wheat the acre? Sixty bushels per acre have been raised the past season, and what has been done, *can* be done again. It is only to let our heads assist our hands, and we can increase the result very considerably. It is in this way that great results can be obtained.

At one of our agricultural meetings held in the Assembly room, a few evenings since, Dr. Beekman said, "With respect to the necessity of agricultural schools, my mind is fully made up that it is a most desirable object. There will always be great diversity of opinion in respect to all the operations of farming—as to plowing, sowing, manures, the application of ashes and plaster, &c., the manures of the chemist and the barnyard. It is high time, among our intelligent people, that we should bring these varied opinions to a focus—to some point—so as to find out the best way of making our farms most successful. Should we follow the old method and do nothing? can we not adopt method? And what way can be better than in the first place to inform ourselves of the composition of soils and how to add to their fertility? To get this knowledge in advancing our present pursuits, what better way than to study agricultural chemistry—the composition of all the grain we use, and what is best adapted to their growth—what enters into their composition, and what benefits them? How can it be better than by acquiring systematic knowledge?"

"There is everything abroad to encourage us. In Europe it results in raising double, treble what we do, and who will say our soil is not as good as theirs? We work our soil too much, so that it degenerates, and yet neglect to inform ourselves thoroughly of the means of restoring it. By the establishment of an agricultural school, agricultural chemistry, botany, mathematics, and mensuration, would be taught; young men attending would get habits of industry, they would learn how to keep farm accounts, and lay up a store of general intelligence; no matter whether they were the sons of rich or poor, they would learn to work. Taught there, after being prepared for it in the common school, all the sciences would be useful to them as agriculturists, they would come out to be serviceable, industrious, accurate systematic farmers—men, both in information and their position in life, independent."

"If such a school should turn out a hundred men, their influence would soon reach to every part of the State. Their minds would be prepared for systematic farming, and many others would soon follow their example The influence of a good example is great. Whoever does his work well is sure to succeed. Let a good and skilful farmer settle in a neighbourhood and pursue his occupa-