

CHAPTER XVI.

ARTICLE 114.

OF THE QUALITY OF MILL-STONES, TO SUIT THE QUALITY OF THE WHEAT.

It has been found, by experience, that different qualities of wheat require different qualities of stones, to grind to the highest perfection.

Although there be several species of wheat, of different qualities; yet, with respect to the grinding, we may divide them into three kinds only, namely:—

A TABLE

Showing the Product of a Bushel of Wheat of different weights and qualities, ascertained by Experiments in grinding parcels.

Weight per Bushel.	Superfine flour.	Tail flour and middlings.	Ship stuff.	Bread stuff, shorts and bran.	Screenings and loss in grinding.	Proof.	Quality of the grain.
lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	
59.5	38.5	3.68	2.5	13.1	1.72	59.5	White wheat, clean.
59	40.23	3.65	2.12	12	1	59	Do. do. well cleaned.
60	38.7	3.6	1.61	8.52	7.57	60	Red do. not well cleaned.
61	39.7	5.68	2.4	9.54	3.68	61	White do. mixed with green garlic.
56	35.81	5	1.85	7.86	5.48	56	White do. very clean.
59.25	35.26	4.4	1.47	11.33	6.79	59.25	Red do. with some cockle and light grains.

If the screenings had been accurately weighed, and the loss in weight occasioned by the grinding ascertained, this table would have been more interesting. A loss of weight does take place by the evaporation of the moisture by the heat of the stones in the operation.

The author conceived that if a complete separation of the skin of the wheat from the flour could be effected, and the flour be reduced to a sufficient degree of fineness, it might all pass for superfine; and having made the experiments in the table, he effected such improvements in the manufacture, by dressing the mill-stones to grind smooth; and, by means of the machinery which he invented, returning the middlings into the eye of the stone, to be ground over with the wheat, and elevating the tail-flour to the hopper-boy, to be bolted over again, &c., that in making his last 2000 barrels of superfine flour, he left no middlings or ship-stuff, which was not too poor for any kind of bread, excepting some small quantities which were retained in the mill; and the flour passed the inspection with credit. Others have since pursued the same principles, and put them more fully and completely into operation.

1. The dry and hard.
2. The damp and soft.
3. Wheat that is mixed with garlic.

When the grain that is to be ground is dry and hard, such as is raised on high and clayey lands, threshed in barns, and kept dry,* the stones for grinding it should be of that quality of the burr, that is called close and hard, with few large pores, in order that they may have more face. The grain being brittle and easily broken into pieces, requires more face, or plane parts, (spoken of in Art. 104,) to reduce it to the required fineness, without cutting the skin too much.

When the grain that is to be ground is somewhat damp and soft, such as is raised on a light sandy soil, is trodden out on the ground, and is carried in the holds of ships to market, which tends to increase the dampness, the stones should be more open and porous, because the grain is tough, difficult to be broken into pieces, and requires more sharp edges, and less face (or plane surface,) to reduce it to the required fineness. † (See Art. 104.)

When there is garlic, or wild onion, (mentioned Art. 111,) mixed with the wheat, the stones require to be open, porous, and sharp; because the glutinous substance of the garlic adheres to the face of the stones, and blunts the edges; by which means little can be ground before the stones get so dull that they will require to be taken up and sharpened; and the more porous and sharp the stones are, the longer they will run, and grind a larger quantity without getting dull. There is a quality of the burr stone which may be denominated mellow or soft,

* Such wheat as is produced by the mountainous and clay lands of the country, distant from the sea and tide waters, is generally of a brownish colour, the grain appearing flinty, and sometimes the inside a little transparent, when cut by a sharp knife. This transparent kind of wheat is generally heavy, and of a thin skin, and will make as white flour, and as much of it, as the whitest grain.

† Such is the wheat that is raised in all the low, level, and sandy lands, of countries near the sea and tide waters of America, where it is customary to tread out their wheat on the ground by horses; and where it sometimes gets wet by rain and dew, and the dampness of the ground. This grain is naturally of a fairer colour, and softer; and, when broken, the inside is white, which shows it to be nearer to a state of pulverization; it is more easily reduced to flour, and will not bear so much pressure as the grain that is raised on high and clay lands; or such that, when broken, appears solid and transparent.