then add seventy pounds rye meal, and stir it well, when completely mixed, the heat of the mash should be from 145 to 150 degrees Fahrenheit. Let it stand three or four hours according to the weather, stirring it frequently, then add twenty to twenty-five gallons of returns that has stood over night, and is clear, fine and cool, stir it in and fill up with clean water, so as to reduce it to a proper heat, then yeast it, and it will be fit for the still in forty-eight or sixty hours.

I have somewhere met with the following as the Holland plan of mashing.

"Take ten pounds malt, ground very fine, and three pounds of common wheat or rye meal, add two gallons cold water, and stir all well together; then add five gallons boiling water. When this is cold, add two ounces solid yeast, and ferment it in a warm place loosely covered."

It is not unusual to vary these receipts as to the time of putting in the malt; sometimes to mix the malt with cold water, or with the water at 110 or 120 degrees, and let it stand from ten to twenty minutes before the corn is stirred in; neither of these methods ever appeared to me to make any difference in the product. It is proper however to mention, that the cracked appearance takes place sooner when the malt is mashed first; but then the mash cannot be so well judged of by the taste, as the malt always sweetens it. The quantity of malt may be increased or diminished according to circumstances.—See Malt.
Of Mash Ing.

To mash Rye.

(See M'Harry's Distiller.)

"Take four gallons boiling water, and two gallons cold water, put it into a hogshead, then stir in one and a half bushels chopped rye, let it stand five minutes, then add two gallons cold water, and one gallon malt, stir it effectually; let it stand till your still boils, then add sixteen gallons boiling water, stirring it well, or until you break all the lumps, then put into each hogshead, so prepared, one pint coarse salt, and one shovel full of hot coals out of your furnace, (the coals and salt have a tendency to absorb all sourness and bad smell that may be in the hogshead or grain; if there be a small quantity of hot ashes in the coals it will be an improvement; stir your hogsheads effectually every fifteen minutes, keeping them close covered until you perceive the grain scalded enough, when you may uncover; if the above sixteen gallons boiling water did not scald it sufficiently, water must be added until scalded enough, as some water will scald quicker than others; it is necessary to mark this attentively; and in mashing two or three times, it may be correctly ascertained what quantity of the kind of water used will scald effectually, after taking off the covers they must be stirred effectually every fifteen minutes, till you cool off."
To mash two-thirds Rye and one-third Corn in summer.

"This I have found to be the nicest process belonging to distilling; the small proportion of corn, and the large quantity of scalding water, together with the easy scalding of rye, and difficulty of scalding corn, makes it no easy matter to exactly hit the scald of both.

"Take four gallons cold water, put into a hogshead, then stir half a bushel of corn into it, let it stand uncovered thirty minutes, then add sixteen gallons boiling water, stir it well, cover it close for fifteen minutes, then put in your rye and malt, and stir it until there be no lumps, then cover and stir it at intervals until your still boils, then add eight, twelve, or sixteen gallons boiling water, or such quantity as you find from experience to answer best, (but with most water twelve gallons will be found to answer) stirring it well every fifteen minutes until you perceive it is scalded enough, then uncover and stir it effectually until it is fit to cool off; keeping it in mind always, that the more effectually you stir it, the more whiskey will be yielded. This method I have found to answer best; however, I have known it to do very well, by soaking the corn in the first place with two gallons warm, and two gallons cold water, instead of
four gallons cold water mentioned above; others put in rye when all the boiling water is in the hogshead, but I never found it to answer a good purpose, nor indeed did I ever find much profit in distilling rye and corn in this proportion."

"To know when rye is sufficiently scalded, take up some of it on your mashing stick, and you will perceive the heart or seed of the rye, like a grain of timothy seed, sticking to the stick, and no appearance of mush."—See M‘Harry’s Distiller.

The two last receipts are published in conformity to the plan of giving a variety, out of which the reader may have a choice, and because the writer of them says, they are the best that could be obtained. I would recommend as absolutely necessary however, the use of perfectly sweet casks instead of the ‘salt and coals,’ mentioned to take away the acidity after mashing; they will not have the effect.

Previous to the publication of the former edition, a respectable friend advised the insertion of a few experiments in mashing, or a particular account of that process every day, with the various results. Although I have at all times kept memorandums of my work, yet those which I then had, were not sufficiently accurate for the purpose. I have therefore endeavoured to remedy the deficiency by the following account of the daily work for 38 days during the winter of 1814-15.
Of Mashing.

It will be observed, that for a number of days the weather was very cold, the thermometer being but a few degrees above the freezing point in the middle of the distillery, the produce was consequently not such as it ought to have been, and not equal to the produce of similar mashing when the thermometer stood higher.

For several days I used a process recommended to me of mashing entirely with boiling water. The produce was never equal to eight quarts per bushel. I mention this to warn others from a similar error; for it is frequently as beneficial to make known the failure of an experiment, as to publish a successful attempt.

Monday, Dec. 5, 1814—Thermometer 40 deg.—Mashed 7 hhd. 4 Gall. cold water 56 deg, 6 gall. boiling water, 60 lbs. corn meal, well mixed and stood for one hour; then 16 gallons boiling water, heat 148 deg., then 8 gall. do. heat 165 deg., stood 20 min.; then 2 lbs. malt and 25 lbs. rye meal. Cooled off in two hours and a half, at 3 o'clock, P. M. 84 deg. a 86 deg. 3 quarts yeast, fermentation slow. At 8 A. M. on Tuesday, head not broke.

Same day, 6 hhd. additional. 60 lbs. corn meal soaked as above, stood 1 hour 30 min., then 16 gall. boiling water 146 deg., then 8 gall. do. 160 deg., stood 15 min., then 2 lbs. malt and 25 lbs. rye. Cooled off in two hours and a half, at 7 P. M. 86 deg. a 90 deg. 3 qts. yeast.
Tuesday, Dec. 6—Therm. 34 deg.—6 hhds. Corn soaked as usual, stood 1 hour 45 min., then 16 gals. and 8 galls. boiling water 158 deg., stood half an hour, then 2lbs. malt and 25 rye. Cooled off in two and a half hours, at 4 P. M. 90 deg. a 92 deg. 4 qts. yeast. Fermentation on Wednesday, at 7, A. M. only tolerable. Yeast for these 19 hhds. 28lbs. rye.

Wednesday, Dec. 7—Therm. at 7 A. M. 36 deg.—6 hhds. Corn soaked as usual, stood 1 hour, then 16 galls. boiling water 150 deg., stood 10 min., 8 galls. boiling 158 deg. a 161 deg., stood 20 min., then rye and malt. Cooled off in 3 hours, 1 o'clock, 86 deg. a 88 deg.

Same day. 6 hhds. Corn soaked as usual at 10 hours 30 min., stood till 13 hours 5 min., then 16 galls. boiling water 150 deg., at 12 hours 20 min., 8 galls. do. 163 deg., stood till 1 o'clock, then malt and rye. Cooled off at 3 hours 30 min., 86 deg. a 89 deg. 3 qts. very good yeast. These casks run 30 galls. singlings per charge.

Thursday, Dec. 1—Therm. 7, A. M. 34 deg.—6 hhds. Corn soaked as usual at 9 hours 45 min., in one hour 16 gallons boiling water 150 deg., 8 galls. do. 160 deg., at 13 hours 15 min. malt and rye. Cooled off at 1 o'clock, 86 deg. a 89 deg. 3 qts. very fine yeast. Head raised at 7, P. M.

Same day, 6 hhds. Corn soaked as usual at 2 hours 30 min., at 3 hours 45 min. added 16 galls. boiling water 150 deg., then 8 do. 159 deg., at 4 hours 15
min. malt and rye. Cooled off at 6 hours 45 min. 86 deg. a 90 deg. 3 qts. fine yeast.

At 7, A. M. on Friday, no head or visible fermentation on 2 hhds. which however produced their equal proportion of singlings.

Friday, Dec. 9—Therm. 7, A. M. 36 deg.—7 hhds. Corn soaked as usual at 9 hours 20 min., at 10 hours 20 a 30 min. 16 gallons boiling water 151 deg., then 8 do. 163 deg., stood 20 min., then malt and rye. Cooled off at 1 hour 30 min., 86 deg. 3 qts. fine yeast. No head on 4 hhds. next day at 5 P. M. owing to cold weather; added 4 gallons boiling water and 2 qts. yeast to each.

Saturday, Dec. 10—Therm. 7, A. M. 32 deg.—7 hhds. As above. Cooled off at 3, P. M. 90 deg. therm. 42 deg. Run 4 charges of wash 2 hhds. each, produce 24 gallons singlings per charge.

Monday, Dec. 12—Therm. 7, A. M. 32 deg.—7 hhds. As above. Cooled off at 3, P. M. 32 deg. 3 basins very good yeast. No head the next day at 7 A. M.

Tuesday, Dec. 13—Therm. 7, A. M. 40 deg.—7 hhds. Corn soaked as usual at 8 hours 20 min., stood till 9 hours 40 min., then 16 gallons boiling water 145 deg., 8 do. 153 deg., stood 10 minutes, then rye and malt. Cooled off at 1 hour 20 min., 82 deg. a 86 deg. 3 basins very fine yeast. This day began
of Mashing.

to use rye and malt at the rate of a half bushel to 7 hogsheads, for yeast.

Same day, corn soaked as usual at 11 hours 20 min., stood 1 hour, then 16 gallons boiling water 148 deg., 8 do. 159 deg., rye and malt as above at 1 o'clock. Cooled off at 3 hours 26 min., 2½ basins very fine yeast, fresh stock from brewery, and 6 gals. boiling swill. This mash produced 34 a 36 gals. singlings per charge.

Wednesday, Dec. 14—Therm. 7, A. M. 86 deg. —7 hhds. At 9 hours 10 min. corn soaked as usual, at 10 hours 15 min. 16 galls. boiling water 150 deg., 8 do. 159 deg., in 30 minutes rye and malt as above. Cooled off at 12 hours 30 min., 86 deg. a 88 deg. 3 basins fine yeast. At 6, P. M. therm. 44 deg.

Thursday, Dec. 15—Therm. 36 deg.—7 hhds. As usual. Scald, 150 deg. Cooled off to 86 deg. Yeast very good.

6 do. As usual. Scald, 164 deg. Cooled off to 90 deg.

Therm. at 6, P. M. 46 deg. All these casks were working well at 7, A. M. on Friday. No material difference perceptible in the time or manner of their fermentation, or the produce.

Friday and Saturday, Dec. 16 and 17—Therm. 46 deg.—Mashed 13 hhds. as usual.

Tuesday, Dec. 20—Therm. 46 deg.—7 hhds. as usual.
Of Mashing.

Wednesday, Dec. 21—Therm. 42 deg.—6 hhds. Corn soaked as usual, last heat 156 deg. a 158. Cool ed off at 3 P. M. 84 deg. a 85 deg. 2 large basins fine yeast and 2 buckets hot swill.

Thursday, Dec. 22—Therm. 42.—7 hhds. Corn as usual, last heat 162. Cooled off to 86 deg. at 1 hour 30 min. 2 basins fine yeast. Fermentation tolerable next day at 7, A. M.

Friday, Dec. 23—Therm. 46 deg.—7 hhds. As usual, last heat 158 deg. Yeast very fine.

Saturday, Dec. 24—Therm. 32 deg.—Mashed 13 hogsheads.

Monday, Dec. 26—Therm. 32 deg.—7 hhds. Corn soaked as usual stood 2 hours, then 16 galls. boiling water 154 deg. a 160 deg., stood 20 min., rye and malt as usual. Cooled off in 2 hours, 84 deg. a 88 deg. 2 large basins good yeast, 38 deg. therm.

Tuesday, Dec. 27—Therm. 36 deg.—7 hhds. Corn soaked as usual stood 2 hours, then 16 galls. boiling water 150 deg., stood 45 minutes, then 12 galls. boiling water 158 deg., stood 15 min., then rye and malt as usual. Cooled off in 2 hours. Yield 32 gallons per charge.

Wednesday, Dec. 28—Therm. 42 deg.—7 hhds. mashed.
Thursday, Dec. 29—Therm. 42 deg.—12 hhd. mashed.

Friday, Dec. 30—Therm. 42 deg.—12 hhd. 6 galls. cold and 8 boiling water, 60lbs. corn, stood 1 hour 45 min., then 16 galls. boiling then 10 galls. boiling water 151 deg. a 162 deg., stood 30 a 40 min., then rye and malt as usual. Cooled off to 90 deg. Therm. at 12, P. M. 48 a 52 deg.

N. B. The hogsheads used this day were old lime hogheads, the fermentation better than any preceding. Yield 56 a 38 gallons singlings per charge.

Saturday, Dec. 31—Therm. 47—12 hhd. As yesterday. Cooled 6 hhd. off to 90 deg. and 6 hhd. to 86 deg. Fine yeast. Therm. from 6 to 12 P. M. 55 deg. a 52 deg.

Monday, Jan. 2, 1815—Therm. 50 deg.—12 hhd. As usual. Fine yeast, and good fermentation.

Tuesday, Jan. 3—Therm. 45 deg.—12 hhd. as usual.

Wednesday, Jan. 4—Therm. 45—12 hhd. As usual. Cooled off to 90 deg. Fermentation very good. Therm. 12, P. M. 55 deg.

Thursday, Jan. 5—Therm. 50.—12 hhd. Corn soaked as usual, stood nearly 2 hours, then 16 galls. boiling water, then 8 or 10 galls. boiling water 188
o 16° deg., stood 30 a 40 min., then rye and malt as usual. Fermentation commenced very fine in 6 hours after cooling off. Therm. at 12, P. M. 65 deg.

Friday and Saturday, Jan. 6 and 7—Therm. 50.—22 hhd. mashed.

Monday, Jan. 9—Therm. 50.—6 hhd. As usual. Cooled off at noon precisely to 80 deg., fermentation very good at 9, P. M.

6 hhd. As usual. Cooled off at 7, P. M. to 90 deg. Fermentation very good at 5, A. M. Therm. 52 deg.

Tuesday, Jan. 10—Therm. 50 deg.—12 hhd. as usual.

Wednesday and Thursday, Jan. 11 and 12.—Therm. 45 deg.—24 hhd. mashed as usual.

Friday, Jan. 13—Therm. 45.—6 hhd. As usual. Scald 156 deg. Cooled off to 86 deg.

6 hhd. As usual. Scald 154. Cooled to 84 deg. Head on the first 6 hhd. in 6 hours. Therm. 10 P. M. 50 deg.

Saturday, Jan. 14—Therm. 49 deg.—Mashed 6 hhd., 6 galls. cold, 8 boiling water, 60lbs. corn, stood 1 and a half hours, then 28 galls. boiling water 154 deg., then 25lbs. rye and malt immediately.

N. B. 2 hhd. stood half an hour longer than the
Of Mashings.

others, added 4 buckets boiling water, and cooled off to 98 deg. Fermentation of the whole commenced at 10, P. M. all alike.

N. B. Doubling this day yielded 38 galls. of proof spirit, being the produce of nearly 480lbs. corn and 200lbs. rye and malt. Almost 3½ galls. per bushel.
### Recapitulation

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- The temperature at 12 A. M. may be seen by recurring to the days on which it was noted.

Bushels of Grain: 429
Gallons: 1187
21/2 gallons per bushel.
CHAPTER XIII.

Containing observations on Grain.

THE preceding directions for mashing are confined to rye and corn, they being most generally used by distillers. Every kind of grain, however, may be made to produce spirit, and as each may occasionally be within the reach of the distiller, he should be acquainted with the proper mode of treatment. Such observations therefore, are here given concerning each as are considered necessary, without interfering with the particular directions for mashing.

I have ever considered the union of rye and corn in mashing, as productive of more spirit and of a purer quality, than can be obtained from either grain alone; and if the proportion of one fourth part of rye can be obtained, it is enough.

Of Indian Corn.

I believe corn to contain more spirit than any other grain; being of the same weight per bushel, and having little or no bran. Hence it cannot be well fermented alone, as it sinks to the bottom of the cask. Some other grain therefore becomes necessary to ena-
Observations on Grain.  143

ble it to be completely acted upon by the fermentable principle.*

Of rye enough has been said, and it may be sufficient to remark

Of Wheat.

That this grain is of too high price for the distiller, yet it yields more spirit than rye, in the proportion of six to five. It should be mashed nearly at the same heat, or rather lower, and in the same manner.

During the embargo I purchased damaged wheat flour at three dollars a barrel, and mashed it with corn; it answered very well. The heat for mashing appeared to be best between 137 and 147 degrees. Sprouted wheat does well.

On the distillation of Oats.

A mixture of two thirds corn and one third oats, will yield upon distillation, a very fine spirit. The oats impart a peculiar flavour, which I think preferable to that given by rye; there is however so large a quantity of bran in, or hulls upon oats, that it is difficult and

* Directions for malting Indian corn are given in a small work on brewing, published at New York about two years since.
Observations on Grain.

even dangerous to work it; unless it has undergone a very complete fermentation it will rise in the still, and the hull being light, is thrown up and adheres to the head, or if the fire is very strong the whole is forced into the worm which is very soon choaked and endangers the bursting of the head. In such case the fire should be immediately extinguished and the plug in the breast of the still knocked out.

Sixty pounds of oats will produce three gallons.

The directions for mashing rye with corn should be followed in mashing oats, except that oats do not require to be scalded quite so high as rye.

Could any method be employed by which to separate the hull, it would be attended with less trouble both in mashing and distillation. I was always however of the opinion that the head formed by the oats on the top of the hogsheads, was very favourable to fermentation on account of the complete exclusion of the external air; but I frequently took off this head or top, which consisted almost entirely of bran, before putting the wash into the still, when this was done, there was no trouble in distillation.

Of Buckwheat.

Buckwheat is very serviceable to mix with corn when a sufficient quantity of rye cannot be had; it does not
Observations on Grain.

however answer to work alone, but with corn it may be worked very nearly according to the directions given for rye; it must not be scalded quite so high as rye, and as it is disposed to a very rapid fermentation, care must be taken to cool off lower, and not quite so much yeast should be used as with rye: a lesson may be had upon this subject from the making of buckwheat cakes where they have good yeast. Buckwheat weighs about 33 pounds to the bushel, and will yield three gallons to sixty pounds.

Cockle,

When accidentally mixed with other grain excites a very rapid fermentation if in any quantity, and it renders the spirit very fiery. It certainly produces a great quantity of spirit, and is not of material disadvantage to the yield.

Barley

Is a very hard flinty grain and does not work well unless malted. It is not much raised by farmers except in the neighbourhood of breweries, where the price is generally so high that it is not an object to the distiller, except for malt, and even for this, rye will be mostly found cheaper. It should be mashed like corn.
Garlic,

If mixed in any considerable quantity with rye, will hinder it from grinding well, and consequently lessen the product. It imparts a disagreeable flavour to the spirit, and abounds most in grain of inferior quality, which is another reason why a bushel of pure rye, will produce more than the same measure of garlicky rye, for garlic does not yield any spirit.

The weight and produce of different kinds of Grain will be found to be nearly as follows:

Wheat, - - 60 lbs.——12 to 16 quarts per bushel.  
Rye, - - 60 lbs.——12 to 16  do.  
Corn, - - 60 lbs.——12 to 16  do.  
Buckwheat, 33 lbs.— 5 to 6  do.  
Oats, - - 32 lbs.— 6 to 8  do.  
Barley, - - 45 lbs.— 7 to 9  do.  
*Rice, - - 70 lbs.—14 to 16  do.

* The author has tasted arrac upwards of fifteen years old, said to have been made from rice. It was remarkably strong, and finely flavoured, partaking of both Cogniac brandy and old cane juice. Of the process, and precise produce per bushel, he is ignorant.
CHAPTER XIV.

Of Malt.

THE celebrated Irish whiskey is made principally from malted grain. Attempts have been made to imitate it in this country, but have been generally unsuccessful. How far this is practicable, and whether if so, it would be more profitable than our present method of distilling, requires consideration. To the speculative it may afford matter of conjecture, why the making of Irish whiskey is given up as wholly impracticable, although attended by no secret art or hocus pocus, by the very men who are constantly puzzling their brains about Holland gin, and the secret by which the Hollanders are enabled to excel us in that article. Is it not probable that the same cause operates in both cases? If not, why is not Irish whiskey (about which no secret is pretended) made in this country, equal to what is imported?

Not having a malt kiln attached to my distillery, and it being generally difficult for me to obtain malt, I have made no experiments on the subject. There are many objections to the general introduction of malt distilleries. These however should not operate against individual attempts to imitate Irish whiskey, as the making of two gallons of it from a bushel of malt would be the most productive kind of distilling, so
long as the present high price of that article continues. But as there can scarcely be said to be a proportionate medium between the price of our common whiskey and Irish whiskey, a malt distillery would certainly not answer unless capable of producing a perfect imitation of Irish whiskey.

In most of the Atlantic states, and all places within the influence of breweries, the high price of barley places it beyond the reach of the distiller. But in the western country, barley may be raised for such price as to render it an object to the distiller, and hence we may expect to derive, at no very distant day, our supplies of malt spirit. So long however as Indian corn continues to be a staple of our country, it will constitute a principal source for our national beverage, and other grains malted, will be used as a mean of facilitating our operations and increasing their product.

Malt then may be made of rye or barley, according to the price or facility of procuring either grain, it being now pretty generally allowed, that any advantage which one may have over the other, depends upon these circumstances. There are a variety of opinions as to the proper method of making malt for a distillery, not only as to the extent of the germination, but to the drying afterwards. These however will generally be found to be distinctions without a difference, and probably owing to the fact, that the same care is not necessary in preparing malt for the distillery as for the brewery; a circumstance not attended to in the at-
Of Malt.

Attempts at malting in different distilleries. It is a common practice in small distilleries to make a bushel or two of malt at a time, and dry it on the stills, and this is preferred to malt made by the brewer. I have frequently used malt of this kind, and never observed any difference in their results. Yet it is very evident, that malt made in this way must be imperfect, and far from possessing the virtues ascribed by maltsters to well made malt. This subject therefore would seem worthy of investigation.

It has been the opinion of some distillers that there is a particular quantity of malt necessary, than which neither more nor less could be used without loss. And of others that the greater the quantity of malt, even were all the grain malted, the better. On the contrary, it has been discovered by the Scotch and English distillers, that "by mixing good grain reduced to meal, with their malt, that they obtain more spirit than from an equal quantity of good malt."* Grain also which has sprouted in the field, and whose vegetation has been stopped, and thence concluded not proper for vinous fermentation, the change into saccharine matter not being perfect, upon being mixed with a quantity of malt and fermented, was found to furnish as much spirit as if the whole had been in the state of perfect malt. Without pretending to reconcile, or account for, these different opinions and facts, a mention of which was considered as proper, I will merely observe that the most

* See Irwin's Chemical Essays, page 318.
proper quantity appeared to me from different experiments, to be from ten to fifteen pounds for each hogshead, in cold weather, and in warm weather a smaller quantity may do. The Holland distillers use about twenty pounds of malt and seventy pounds of raw grain.

To the mere practical distiller, it may be sufficient to know how to make the most of his materials; to him the operation of causes and effects is not of primary importance. But to the philosopher, and the man of science, whose business and whose pleasure it is, to search out hidden causes, and unfold the secrets of nature, here is a subject not unworthy of attention. If the vegetation which the grain undergoes in the process of malting, forms the saccharine matter, and if it be considered that this saccharine matter, alone and exclusively, produces the spirit, then, doubtless malted grain should yield more spirit, and of a more pleasant taste, than raw grain, in proportion as the process may be perfected. But the experience and practice of all distillers appear to prove this to be a mistaken theory; or have they made their experiments, or continued their practice, without sufficient attention to those circumstances and precautions actually necessary to obtain a correct result? I rather think not.

What matter then is added to or disengaged from grain by the process of malting, or what circumstance so changes its nature, that by the mixture of a certain proportion of raw grain with it, more spirit is produced
than can be obtained from an equal quantity of malt or an equal weight of grain unmalted?

Queries of this nature might be multiplied without end; I leave the matter however for the investigation of more able heads, and will proceed with matter more immediately within the design of the present work.

The distiller who is near a malt kiln, where wood is high, will generally find it to his advantage, to purchase malt, it frequently happening that a kiln of malt may be dried too much for brewing, which will yet answer for distilling, and consequently may be obtained rather below the market price. If however, he is on a sufficiently large scale to use eight or ten bushels of malt per day, without exceeding the proportion mentioned in the preceding directions, it will be better for him to build a kiln, and make his own malt. Or, if he be situated where malt must be hauled from a distance, he must make for himself. He may in either case then, have the great advantage, of having the full proportion of malt necessary, at a trifling addition of expense to the price of the raw grain, and very little risk or trouble.

He who undertakes to make malt will find the process simple, though requiring very close attention where perfection is expected, and for this end should have a complete maltster; but for the generality of distillers, who do not use a large quantity, the directions in the ensuing chapter will suffice.
To the preceding remarks upon malt which will probably be found sufficient for practical men, and distillers, it may not be improper to add a few observations on "the nature and properties of malt" from "Theoretic hints on an improved practice of brewing malt liquors," by Mr. Richardson.

However we may differ in our opinions on the necessity of perfecting the process of malting for our distilleries, the remarks of Mr. R. may be of service to those who attempt to make malt.

"The process of making malt is an artificial or forced vegetation, in which the nearer we approach the footsteps of nature in her ordinary progress, the more certainly shall we arrive at that perfection of which the subject is capable. The farmer prefers a dry season to sow his corn in, that the common moisture of the earth may but gently insinuate itself into the pores of the grain, and thence gradually dispose it for the reception of the future shower, and the action of vegetation. The maltster cannot proceed by such slow degrees, but makes an immersion in water a substitute for the moisture of the earth, where a few hours infusion is equal to many days employed in the ordinary course of vegetation; and the corn is accordingly removed as soon as it appears fully saturated, lest a solution, and consequently a destruction of some of its parts, should be the effect of a longer continuance in water, instead of that separation which is begun by this introduction of aqueous particles into the body of the grain."