of putting two consecutive crops in his pocket being too great to be resisted. Under the most favourable circumstances this a very questionable gain, and under ordinary circumstances a very certain loss. Both crops belong to the same order of plants; they require the *same food* from the soil, and in about the *same quantities*, to perfect their growth. The wheat occupies the ground first, and has about nine months to search about and abstract from it all the food it needs. It is then followed by the barley—a plant less vigorous in its growth which, however, is expected, during the short time it occupies the soil—four to five months—to obtain from it, in its now impoverished state, the same amount of mineral matter which the wheat had double the time to effect in. The consequence is, that the second grain crop is generally a very reduced one. It may look very well while it is growing; but when it comes into the barn, its yield will be found diminished in quantity, while the wheat of the sample shows its deterioration, and lowers its market value. The succession of crops of the same order, too, tells its tale of injuries sustained by the attacks of insects and plant diseases, which, though noticed probably to only a small extent in the first, may, with the powers of increase so remarkable in them, become enormously developed in the second. Where barley follows wheat, the seeds, generally containing grasses—again the same order—invariably suffer; and we all know the value of a good crop of seeds everywhere where mixed husbandry is carried out.

Again, in some rotations, barley is taken after a leguminous seed crop—beans, or peas, or vetches. These, especially the two last, generally leave the land in a very foul and dirty condition—a state very ill suited for barley with which seeds are to be sown down. For these to succeed and give their full return, the land cannot be too scrupulously clean. Besides which, the beans and peas require from the soil the same food as the crop of clover looks for, and are afflicted by the same diseases and injuries which so often diminish our seeds. As a rule, we should always bear in mind that *the longer the interval between the same crops, or crops of the same natural order, on the same ground*, the better, and the greater the chance of remunerative cultivation. Experience has long ago pointed this out to the observant farmer, and science has now proved it, by showing him the cause of it.

DAIRY HUSBANDRY.

(*Continued from page* 143.)

CHURNING.—This is generally done out of the dairy, either, as in summer time, in a paved shed adjoining, or in a back kitchen or washhouse, where the cream may be more easily kept warm during winter. In order to the separation of butter, agitation and mixture of the cream with air are both necessary. The agitation breaks and unites its oily globules, and the absorption of air appears to be a necessary thing in order to their appearance in the form of butter. This is proved both by the fact that milk or cream, however sweet, becomes sour by churning, and that considerable heat is given off, the bulk of the liquid rising in temperature 4 or 5 degrees Fahr. during the process; and both of the facts indicate considerable absorption of oxygen gas.

(1.) In those cases where whole milk is churned for butter, the churn is a fixture. It is an upright, somewhat conical vessel, made so, however, only in order to secure the tightness of its hooping, and it is of various dimensions, from three feet and upwards in height, and from fifteen inches in diameter, and according to the quantity of milk to be treated. This milk is churned when about three days old, varying according to the weather, being first allowed to cool, and then placed in large wooden vats to become sour. The practice is to place it in coolers, as in ordinary dairies, until it has acquired the temperature of the air, thereafter to pour it into large wooden vats capable of holding two meals at a time, where it sours; and if churning is done twice or three times a week, to put into the churn all the milk which has become sour, whether it be sixty, forty-eight, or only twenty-four hours old; never, however, putting sweet milk into the churn along with the sour, as, if milk becomes sour by churning, or otherwise than in the natural way, the buttermilk soon becomes rancid and unsaleable, whereas the buttermilk from milk soured naturally retains an agreeable and saleable quality for a much longer time. The milk in summer is churned at the natural temperature; in winter hot water is poured in with it till it is raised to 65 or 70 degrees. In winter, too, when cows are fed on turnips, the milk is poured at once into the churn, and allowed to sour there; and being hindered as much as possible from cooling, and afterwards heated by the addition of hot water, the butter does not retain any taste of the turnip. The churning commences and is carried on for three hours, a regular stroke of the plunging float-board being an essential part of the process, and a rate of forty to forty-five strokes per minute being maintained. This regularity is attained by