REPORT OF THE COMMISSIONERS OF PATENTS.

We are under high obligations to the Hon. H. L. Elsworth, Commissioner of Patents, Washington, United States, for his admirable Report for 1843, containing 340 pages of closely-printed matter. The Report in question contains a vast amount of Agricultural Information, of the most valuable character. For the benefit of our readers, we copy the following practical remarks upon the productions of the Dairy :—

The productions of the Dairy are of great value, and may become still more so as their exportation is extened. Science has been directed to the annalysis of milk, and principles having an important bearing on the success of this pursuit have been developed. Thus Dr. Playfair says, respecting a series of experiments, that the milk of the evening contained 3.7 per cent. of butter, and, of the following morning 5.6 per cent. The deficiency in the first observation is referred to a greater consumption of butter, or its constituents, from respiratory oxidation during the day, when the animal was in the field, than during the night when it was at rest in the stall. When confined during the day and fed with after grass in a shed, the proportion of butter rose to 5.1 per cent. When fed with hay, the butter was 3 9 and 4.6 per cent ; when fed with portions of potatoes, hay and bran flour, the butter was 6.7 and 4.9 per cent. ; when with hay and potatoes, 4.6 and 4 9 per cent.

From the accont of the experiments of Professor Trail, contained in the Transactions of the Highland Agricultural Society, are derived the following results :—

1. That the addition of some cold water facilitates the process, or the separation of butter, especially when the cream is thick and the weather hot.
2. That cream alone is more easily churned than a mixture of cream and milk.
3. That butter produced from sweet cream has the finest flavor when fresh, and appears to keep longest without acquiring rancidity, but the buttermilk so obtained is poor, and small in quantity.
4. That the scalding of the cream, according to the Devonshire method, yields the largest quantity of butter, which, if intended for immediate use is agreeable to the palate and readily saleable ; but if intended to be salted, is most liable to acquire, by keeping, a rancid flavor. The process of scalding is troublesome, and the milk after the removal of the cream is poor, and often would be unsaleable, from the taste it has acquired from the heating.
5. That churning the milk and cream together, after they have become slightly acid, seems to be the most economical process, on the whole, because it yields a large quantity of excellent butter, and the buttermilk of good quality.
6. That the keeping of butter in a sound state appears to depend on being obtained as free from uncombined albumen or casein and water as it can be, by means of washing and *working* the butter when taken from the Churn.

That our country possesses some fine milch cows, cannot be doubted by any one who will take the pains to run over the agricultural journals of the past year. A few specimens of these may be added :—In Massachusetts we notice the mention of one cow which fed on pasturage, and having also two or three quarts of meal per day, on being milked three times in the day yielded milk sufficient for 18 lbs. of butter in a week ; also, another which gave 16 lbs. of butter in a week, besides supplying a family of four persons with milk ; another also is mentioned, which gave 253 lbs yielding 12 lbs. 6 oz. of butter. A cow in Wheeling, Virginia, is likewise mentioned as having yielded for 16 days, in May and June, on being milked three times per day, 31½ quarts of milk for two weeks ; the butter made amounted to 14½ lbs per week. Another, still, is mentioned in the State of New York, which, in 21 days, gave 65½ lbs. of butter, or at the rate of 1 lb. for 5 quarts of milk. The average of 65 remarkable cows, mentioned by Mr. Colman in his report, is 10 quarts for a pound of butter ; and several cows which have been formerly noticed as distinguished for the richness of their milk, in one case, gave milk which only yield 1 lb. of butter for 18 quarts ; and in another, 1 lb. for 10 quarts.

In the appendix No. 18, will be found a new method of obtaining cream from milk, by a process said to be well known in Devonshire, England, in which vessels formed of zinc plates are used ; and the effect in the production of butter is stated to be 40 oz. to 4 gallons of milk —being an increase of cream 12½ per cent., and of butter upwards of 11 per cent.

Much is said to depend on the proper beating or working of butter, by which it may be deprived of its buttermilk ; rubbing with the ladle is not sufficient. In an English publication of high authority, it is said that "the great point in making good butter, and that which will keep, is the freeing it from buttermilk ; and, if everything else is well done, if this point is overlooked, good butter is impossible for any length of time. The mixture of milk in any degree with the butter is sure to produce frowyness, or some unpleasent taste to the butter ; and the entire freedom from this constitutes the grand secret of making good butter. There are many who think washing butter compatible with retaining the rich flavor ; but if the water is cold and pure it is scarcely possible anything should be washed away, the buttermilk (which destroys the flavor of all butter) excepted. Besides, the best butter in the world, and that which in all markets commands the best price, (viz. Dutch butter,) is invariably made in this way ; and when the example has been followed by others, it has rarely failed of success. Perfectly free from the substance that causes it to assume the putrid frowy taste of bad butter, it may be kept with almost as much ease as tallow ; solidity in packing, clean sweet vessels, and a low temperature, will ensure its keeping for any reasonable time. Let no one expect good butter, however, so long as coarse impure salt is used, or a particle of the buttermilk is remaining in it."

The allusion above made to the Dutch butter, may be appropriately followed with some account of the mode of butter making in Holland, which is found in one of the ablest of our agricultural journals. It is said that, in 1830, England imported no less then 116,233 cwt. of Dutch butter, and 167,317 cwt. of Dutch cheese. In 1835, 106,776 cwt. of butter came from Holland. It is a singular fact, that the English consume more cheese than butter : thus, the consumption of cheese, in London alone, is stated to be 33,000,000 lbs., while that of butter is but 19,000,000 lbs. In France, the opposite proportion prevails. The pastures of Holland, it is said, " lie low and flat ; and as the water in the canals is always near the top, the soil must be moist." The ground, instead of being ploughed up, " is kept in good condition by top dressings, consisting chiefly of the solid, and especially liquid manures collected in the cow-houses, mixed with the scrapings of the small canals." The first year after such dressing, the land is generally mown for hay. The Hollanders, likewise, "are careful in the selection of their cows, they are generally fattened and turned off to the butcher at eight years old, and the bulls at four or five. The cows are turned to pasture in March or April, and are at first covered with a very thick cloth of tow covering the upper half of the body, from the shoulders to the tail, to prevent disease from the cold. They are pastured about thirty weeks. Hay is the common food in winter, though rape cake and brewers' grains are sometimes added. The *byers*, or cow-houses, are generally lofty, airy, paved with large square bricks, and kept perfectly clean. The roof is about 10 feet high. There are no rack or mangers, but the food is placed in gutters, always clean near their heads. Gutters in the rear serve to carry off the urine and dung, and these gutters are also kept clean. The cows are always milked by men, and the butter and cheese made by women. Ninety cows are managed by nine men and two women. Two women are considered enough for any dairy."

Three kinds of butter are made ; *grass* butter, when the cows are at grass; *whey* butter, from the whey of sweet milk cheese ; and *hay* butter, made in winter. The method of making grass butter is thus described :—

"The cows being thoroughly milked, the pitchers of milk are put into coolers. When the cream has gathered and soured, if there is enough, they churn every 24 hours, and the churn being half filled with sour cream. A little hot or boiling water is added in winter, to give the whole the required heat : and, in very warm weather, the milk is first cooled in the coolers. In small dairies, the milk is sometimes churned, when soured, with ut separating the cream. The butter, immediately after being taken out of the churn, is put into a shallow tub, and carefully washed with pure cold water. It is then worked with a slight sprinkling of fine salt whether for immediate use or the barrel. When the cows have been three weeks at grass, the butter is delicious, and is made in fanciful shapes of lambs stuck with flowers of the polyanthus, and sells as high as 70 or 80 cents the 17¼ ounces, or Dutch pound. If intended for barreling, the butter is worked up twice or thrice a day with soft fine salt for 3 days in a flat tub ; there being about 2 pounds of this salt allowed for 14 pounds of butter. The butter is then hard packed by thin layers into casks, which casks are previously seasoned and cleaned. They are always of oak, well smoothed inside. Before being used they are allowed to stand three or four days filled with some whey, thereafter carefully washed out and dried. Each cow, after being some time at grass, yielded about one Dutch pound of butter per day."

Two points in this process are most important :—

" 1st. No salt is used but what is incorporated with and disolved in the butter, which is necessary to give it flavor ; 2nd. The butter intended for keeping is worked from six to ten times, to incorporate the salt and to separate from it every particle of liquid, which, if left in it, would induce rancidity."

The *hay* butter undergoes a like process.

The *whey* butter is made by allowing the whey to stand three days or a week "after being separated from the curd, when the cream is skimmed off or the whey itself put into the churn, and the butter is formed in about an hour. By this process, in winter one pound of butter is obtained from each cow in a week : or, in summer, one pound and a half," The relative prices are said to be for grass butter 17 cents, for hay butter 13 cents, and for whey butter 12 cents per pound.

The Goshen butter in the State of New York, is celebrated all over the country, and the following account is given of one of the most celebrated of dairies there :—

The cows are "regularly salted and kept in good pasture during the summer ; in the winter, each cow is kept in a stall with a separate door to it, in a building two sides of a square round a large yard ; the upper story of the building is appropriated for fodder and hay. The cows are brought up to the yard, night and morning, and regularly milked. The outer paling of the yard is 50 feet from the house : here opposite the farm house, is placed a tunnel, into which the milk is poured as fast as a pailful is obtained from the cows. A short perpendicular tin pipe connects the tunnel with a horizontal one which is buried 2 feet under ground, out of the way of the frost, and leads into the cellar of the house. When the milking is going on, a woman stands in the cellar with supply-pans placed under the end of this horizontal tube, which, as fast as filled, she sets away on the cellar bottom. Here the milk stands till loppered and soured, as it is said to make more butter in this state than any other, of a better quality. In this state it is poured, cream and all, into churns which hold a barrel each. If the weather be cool, and