to be done, if possible, in the summer or early in the autumn, so that the newly turned earth may be exposed to the air for the longest period of time. The air acts on the certain substances in this new earth, and fits it to sustain plants, which in many cases it would not do when first turned up; an example of this may be often seen in earth dug from cellars; when first taken up, plants would not grow in it, but by being spread on the grass lands it absorbs the gases from the atmosphere, and its mineral substances are prepared by the action of the air for the plants, and thus the spots on which it is spread become more fertile. In the same manner new earth turned up by the plough enters into contact with the atmosphere, and every particle of it becomes saturated with atmospheric substances, and the new earth thus increases the fertility of the field.

Make it a rule to plough your lea land five or six inches deep, but let the deepest ploughing be given when the land is intended for turnips, carrots or other roots. I would not recommend new earth to be brought up in ploughing land which has been in turnips or other roots, and which is intended for wheat or barley, because the manure which has been applied with the roots will then be turned too deep. I think that by thus turning up new soil when ploughing turnip land for wheat, my wheat crop has been injured, which is easily accounted for. Land from which turnips or other roots has been removed, must be ploughed late in the fall and sown with wheat very early in the spring, and the new earth, not having been long enough exposed to the air to absorb the gases and have its mineral substances fitted for the plants, checks instead of assists the growth of the wheat.

I have no doubt many will say the horses here could not carry so deep a furrow as I recommend. If they are badly fed they cannot, but let farmers keep fewer and feed them well, and any of our Island nags will be able for the gradual deepening recommended, and when once the ground is well stirred to eight or nine inches deep it is easy to plough to that depth afterwards."

DAIRY MANAGEMENT—MILK.

If new milk is designed immediately for the market, it should be put into a tin can, and carried there with as little motion as possible; and in warm weather, it will be right to put the milk vessel into a tub of cold spring water until the time of taking the milk away; this, it will be observed, is a different thing from putting water into the milk.

Milk to be kept at home, is taken to the dairy and set for cream in a wide shallow cooler, five or six inches deep, which allows the cream to rise to the surface sooner than if it were in a deep vessel.

Whether the dairy utensils be of wood, metal, earthenware, or glass—and the time will come when strong and solid glass coolers will be cheap and common—they should be kept perfectly clean. The wooden tubs, coolers, churn, skimming dish, strainer, and butter prints should be frequently scalded and secured, and exposed to the sun and air; for sourness, or any impurity in milk vessels, injures the flavour of the milk and butter.

Fresh milk consists of the oily substance which becomes cream and butter, curd and whey, which are separated from each other by certain processes.

Milk set in a cooler is usually fit to be skimmed in twelve hours; and if sweet cream and prime fresh butter are wanted, it is best to skim the morning's milk regularly in the evening, and the evening's milk in the morning; but in very cold weather, it may be necessary to leave the milk untouched for twenty-four or thirty-six hours (where butter-making is the object), for cream will not ripen sooner when the temperature is very low; even a longer time may be advisable for the resting of the cream on the milk (if it is not to be churned soon afterwards), because thus it keeps in a sweet condition, better than if mixed with other portions of cream in a pan. Its ripeness may be judged of by putting a knife into it and drawing it out; if no milk rises in the cut, the cream is ripe for churning. It should be taken up with a scollop shell or skimming dish, and collected in a stone-ware jar.

In very large dairies it is the practice to churn each meal's milk by itself, by which a greater quantity of butter, as well as sweeter buttermilk, is obtained. It is certainly bad to let the cream become more than slightly sour; yet a little acidity assists the separation of the butter from it

However, I need not dwell on this mode of management, which is not suited to a cottager.

Though cream that has not lain long on milk is sweeter, and the butter better flavoured, than when the milk becomes sour before the cream is taken off, it is more prudent, when *butter-making* is the principal object, to leave the cream on the milk for at least twenty-four hours, to give time for all the oily particles to rise.

SCIENTIFIC.

LOWER CARBONIFEROUS COAL-MEASURES OF BRITISH AMERICA.

A paper by Principal Dawson, giving an account of the present state of knowledge respecting these interesting beds and their fossils, was read before the Geological Society of London, at its meeting of April 28th. The following is from the Abstracts of Proceedings of the Society:

"Deposits indicating the existence of the Coral flora and its associated freshwater fauna at the beginning of the Carboniferous period, are well developed in Nova Scotia and New Brunswick, with a clearness and fulness of detail capable of throwing much light on the dawn of the terrestial conditions of the Coal-period, and on the relation of these lower beds to the true coal-measures. This lower series comprises shales and sandstones (destitute of marine remains, but containing fossil-plants, fishes, entomostraca, worm-tracks, ripple, and rain marks, sun-cracks, reptilian foot-prints, and erect trees) and great overlying marine limestones and gypsums. These are distinct from the true coal-measures by their position, mineral character, and fossil remains, In the western part of Nova Scotia (Horton, Windsor, &c.) the true (or Upper and Middle) Coal-measures are not developed; and here the Lower Carboniferous marine deposits attain their greatest thickness. The lower coal-measures (or Lower Carboniferous freshwater or estuarine deposits) have here a thickness of about 600 feet. These beds are traceable as far as the Shubenacadie and Stewiacke Rivers. The outcrop also on the south side of the Cobequid Mountains, where the marine portion is very thin, owing perhaps to the fact of these mountains having been land in the coal-period.

Along the northern side of the Cobequid Range the upper and middle coal measures and the marine portion of the Lower Carboniferous series are of great thickness. The freshwater-beds are absent here, though brought up on the northern side of the coal-trough of Cumberland, where, as well as in New Brunswick (Peticodiac River, &c.), they are remarkable for their highly bituminous composition, their well-preserved fish-remains, and the almost entire absence of plants. To the north, at the Bay of Chaleurs, the great calcareous conglomerate, with sandstone and shale, 2766 feet thick, described by Logan, and containing a few plant-remains, probably represent the Lower Coal-measures of Nova Scotia. In eastern Nova Scotia and Cape Breton, the Middle Coal-measures are found at Caribou Cove and elsewhere; the marine limestones and gypsums, and the underlying sandstones and shales, are seen at Plaister Cove, also at Right's River, and St Mary's River.

In Nova Scotia these olde Coal-measures, as compared with the true coal-measures, are more calcareous, more rich in remains of fishes, and have fewer vegetable remains, and indications of terrestrial surfaces. They occur generally along the margins of the coal-areas, near their old shores; and, as might be expected under such circumstances, they are associated with or replaced by beds of conglomerate derived from the neighbouring highlands of Devonian or Silurian rocks. When the conglomerates are absent, alternations of sandstones with sandy and calcareous shales occur, with frequent changes in character of the organic remains; the general aspect being that of muddy estuarine deposits, accumulated very slowly, and discoloured by decaying organic substances. The supply of sediment, and the growth and preservation of vegetable matter appear to have been generally on a smaller scale in this early carboniferous period than subsequently. In those districts where the true coal-measures are least developed the lower series is most important; showing that the physical and vital conditions of the Coal-measures originated as early as those of the Mountain-limestone; and that locally these conditions may have been contemporaneous throughout the whole period; but that in some localities the estuary swamp deposits first formed were completely submerged and covered by oceanic deposits, whilst in others early marine-beds were elevated and subjected to the conditions of gradual