ly by merely yielding this supply to the growing crops; but in our latitudes only a small part of its beneficial effects can be ascribed to this cause. It is to pasture and meadow land almost solely that irrigation is applied by British farmers, and the good effect it produces is to be explained by a reference to various and natural causes.

1. If the water be more or less muddy, bearing with it solid matter which deposites itself in still places, the good effects which follow its diffusion over the soil may be ascribed to the layer of visible manure which it leaves every where behind it. Thus the Nile and the Ganges fertilize the lands over which their annual floods extend, and partly in this way do some of our smaller streams improve the fields over which they either naturally flow or are artificially led.

2. Or if the water hold in solution, as the liquid manures of the farm-yard do, substances on which plants are known to feed, then to diffuse them over the surface is a simple act of liquid manuring, from which the usual benefits follow. Such is the irrigation which is practised in the neighbourhood of our large towns, where the contents of the common sewers are discharged into the waters which subsequently spread themselves over the fields. In so far also as any streams can be supposed to hold in solution the washings of towns or of higher lands—and there are few which are not more or less impregnated in this manner—so far may their beneficial action, when employed for purposes of irrigation, be ascribed to the same cause.

3. But spring waters which have run only a short way from their source are occasionally found to be valuable irrigators. In such cases, also, the good effect may be due in whole or in part to substances held in solution by the water. Thus, in lime-stone districts, and especially those of the mountain lime-stone formation—in which copious springs are not unfrequently met with—the water is generally impregnated with much carbonate of lime, which it slowly deposites as it flows away from its source. To irrigate with such water is, in a refined sense, to lime the land, and at the same time to place within the reach of the growing plants an abundant supply of this substance, in a form in which it can readily enter into their roots.

In other districts, again, the springs contain gypsum and common salt, and sulphate of soda and sulphate of magnesia, and thus are capable of imparting to plants many of those inorganic forms of matter, without which, as we have seen, they cannot exhibit a healthy growth.

4. Again, it is observed that the good effects of irrigation are produced only by *running water*—coarse grasses and marsh plants springing up when the water is allowed to stagnate. This is explained in part by the fact that a given quantity of water will soon be deprived of that portion of matter held in solution, of which the plants can readily avail themselves, and that when this is the case it can no longer contribute to their growth in an equal degree.

But there is another virtue in running water, which makes it more wholesome to the living plant. It comes upon the field charged with gaseous matter, with oxygen and nitrogen and carbonic acid, in proportions very different from those in which these gases are mixed together in the air. To the root, and to the leaf also, it carries these gaseous substances. The oxygen is worked up in aiding the decomposition of decaying vegetable matter. The carbonic acid is absorbed by and feeds the plant. Let the same water remain on the same spot, and its supply of these gaseous substances is soon exhausted. In its state of rest it re-absorbs new portions from the air with comparative slowness. But let it flow along the surface of the field, exposing every moment new particles to the moving air, and it takes in the carbonic acid especially with much rapidity—and as it takes it from the air, almost as readily again gives it up to the leaf or root with which it first comes into contact. This is no doubt one of the more important of the several purposes which we can understand running water to serve when used for irrigation.

But further, if water be allowed to stagnate over the finer grasses, they soon find themselves in circumstances in which it is not consistent with their nature to exhibit a healthy growth. They droop, therefore, and die, and are succeeded by new races, to which the wet land is more congenial.

5. It is known also, that even running water, if kept flowing without intermission for too long a period, will injure the pasture. This is because a long immersion in water induces a decay of vegetable matter in the soil which is unfavourable to the growth of the grasses—producing chemical compounds which are not naturally formed in those situations in which the grasses delight to grow, and which are unwholesome to them. Although, therefore, the water continues to supply those various kinds of food by which the grasses are benefitted, yet it becomes necessary to withdraw it for a time in order that other injurious consequences may be avoided.

6. Lastly.—Irrigation is most beneficial where the land is well drained beneath—where the water, after the irrigation is stopped, can sink and find a ready outlet. The same benefits indeed flow from the draining of irrigated as from that of arable lands. The soil and subsoil are at once washed free of any noxious substances they may naturally contain, or may have derived from the crops they have grown, and are manured and opened up by the water which passes through them. As the water descends also, the air follows it, to change and mellow the under-soil itself.

Such are the main principles upon which the beneficial action of irrigation depends, and they appear to me satisfactorily to account for all the facts upon the subject with which I am acquainted. I pass over the alleged beneficial action of water in keeping the temperature of irrigated fields from sinking too low. As irrigation is practised in our islands, little of the good done to watered meadows can be properly attributed to this cause.

News, &c.

The Annual Meetings of Sabbath Schools.—On New Year's Day morning the usual gatherings of Sabbath School children took place, giving proof of undiminished efficiency in this branch of Christian effort. The schools in connexion with the following bodies, viz., the United Secession, the Baptist, the Congregational, the Free Church, and the American Presbyterian, met in the place of worship belonging to the latter, and were addressed by the Rev. Mr. Alexander, of the Free Church, Cote Street. The parents and teachers present on the occasion were addressed by the Rev. Mr. Gridley, of Vermont, at present supplying the Gosford Street Congregational Church. The Methodist Sabbath Schools also collected in great strength at their church in St. James Street, and were appropriately addressed. Other Sabbath Schools in connexion with other bodies met separately, and in many the children were treated to refreshments. Upon the whole, we trust it was for the young a happy and profitable day.—*Witness.*

The Bonsecours market was thrown open to the public for the first time on the 4th instant.

On Monday an inquest was held on the body of a girl named Campagne, 16 years of age, living in the Quebec suburbs. She had been intoxicated the night before; in the morning she drank more and was soon after found dead. Verdict, death from intemperance.

Another inquest on the body of Ellen Davis. She was found in a yard, to which the Police were attracted by her cries. She was removed to the Station in the Parliament buildings. Verdict, died from drinking and exposure.

The *Review Canadienne* says that very lately a tailor who had in vain entreated a fashionable customer, for payment of a suit of clothes got him into a gateway, and took payment by stripping the debtor of three-fourths of the suit, viz., coat, vest, and great-coat, and then finally sent the unfortunate home in a cab.

A Montreal and Toronto Electro-Magnetic Telegraph Company has been formed in this city, and tenders for the work have been advertised for. The Line is expected to be completed and ready for operation by 1st August next, at the latest.

Canadian Voltigeurs.—At this moment a corps of Voltigeurs is being formed in Montreal, the command of which has been offered to and accepted by Colonel De Salabury.

The usual meeting of the Montreal Building Society took place at the News Room of the Mechanics' Institute on Monday evening last, the 4th instant, at which the Directors disposed of £600, at a bonus varying from 35¼ to 37½ per cent.

A shocking instance of juvenile depravity, chiefly caused through intemperance, occurred in the parish of St. Clement de Beauharnois, on the 18th of last month. A young man of the name of François Guerin, a labourer of dissolute habits, and scarcely 20 years old, having spent the greater part of the day in drinking at the taverns of the village, went towards evening to his father's house, where, after much violent altercation and disturbance, he