

the surface too long and too frequently immersed in water. The more effective but more costly remedy for both these evils is found in thorough-draining with deep gutters placed below the level to which the roots of corn or grasses usually descend. By these the water of land-springs is prevented from rising into contact with the roots, and the rain is so absorbed, that it neither forms ponds, nor saturates and destroys the permeability of the soil or subsoil—the same drains that carry off the water which ascends from subterraneous sources, removing also the rain that descends into them by percolating the soil.

The practice both of carrying off ground-springs by deep drains, and removing rain-water by shallow gutters on the surface, is of most ancient use; but the doctrine is new, that where there are no ground-springs, a system of under-drains, not less than thirty inches deep, and from twenty to thirty feet apart, is profitable for a large proportion of our cultivated lands.

The name of *thorough-draining* has been recently applied to this more perfect mode of removing water both from the loose and porous soils through which ground-springs ascend, producing bogs and swamps upon the surface, and also from dense clay-soils which, as soon as they are wet, are impenetrable to rain. These thorough-drains cause the rain of every shower to descend through the soil into the subsoil, imparting to every root it bathes in its downward passage the fertilizing elements of ammonia and carbonic acid, with which each drop of rain is charged. In the early months of spring, when the atmosphere is often warmer than the earth, the descent of rain-water through the soil applies to the plants the further benefit of heat—which is brought down by warm showers, and imparted to the earth wherever the rain finds a free descent through porous soils. There is a further cause of higher and more genial temperature in lands whose soil is dry, in their exemption from that loss of heat by the evaporation of stagnant water, which keeps cold the surface of all lands upon which water is permitted to accumulate. The power of sowing early and getting an early harvest, is another benefit resulting from the drainage of wet lands. Nor are the benefits of drainage limited to vegetation only:—we have also to include the extinction of agues and fevers in regions which had been rendered unhealthy by the miasmata exhaled from decomposing vegetables in the stagnant waters upon their surface.

It is consolatory to know that nearly one third part of England, which is composed of ill-cultivated land, may, by thorough-draining be converted to land of the second order of productivity, and made to yield in many cases nearly double the amount of produce that it has ever done. It is encouraging to hear of the immediate benefits resulting from drainage in the substitution of valuable green-crops in the place of barren summer fallows, and in the power of cultivating roots, and feeding sheep, on lands where, in their undrained state, it was almost impossible; add to this augmented produce, the economy of labor and capital by ploughing with two horses, the reduction of cost in horse-meat and harness, and the diminished wear and tear of heavy implements, and the gain of time, in which one man with two horses can plough an acre of drained land sooner than a man and boy can plough land that has not been drained with four or five. We need no further facts to show the vast advantage which the prospect of a general introduction of thorough-draining would impart to the entire community, if means can be devised to meet the large expenditure of money that is required to accomplish so desirable an end.

Sir Robert Peel has rendered to his neighbours a valuable service by his experiment in thorough-draining a few acres of wet land at Drayton Manor, the details of which are recorded in the third volume of these "Transactions." The field selected was in the worst condition of any that could be found on the estate; its subsoil an admixture of sand grave and clay, sufficiently tenacious to cause it to be half covered with shallow ponds of water. In the autumn of 1840 it was thoroughly-drained and subsoiled in the manner recommended by Smith of Deanston, and having been manured with lime and rotten dung, was sown, in the month of June, 1841, with several kinds of turnips, which, notwithstanding prophecies of failure from the late period of sowing, produced crops varying from sixteen to twenty-seven tons per acre. In 1842 it yielded a crop of barley so large that it fell to the ground with its own weight—followed in 1843, by a not less abundant produce of clover. The restoration of this field to a state of fertility was instantaneous. The value of the first year's crop of turnips went far towards repayment of the cost of drainage; and the land—whose last produce before the drainage had

been a scanty crop of oats, sowed down with clover and grass that was almost worthless—was at once brought into a state of permanent fertility. The beneficial effect of the experiment has not been confined to the field on which it was made. The tenant, who in 1840 was afraid to undertake its drainage at his own charge, and gave up the field in order that the experiment might be made by its owner, is now adopting the same process at his own expense in an adjacent field, which he would never have dared to drain without the assurance of success resulting from the example of his landlord—an example which should produce the further and infinitely more important benefit of convincing other landlords of the electric efficacy of one small and good experiment, conducted by themselves. Sir Robert Peel's experiment on a single field has the further advantage of showing the applicability of the benefits of thorough-draining and subsoil-ploughing to estates of the smallest extent—even to an insulated acre.

NEWS.

Sir Robert Peel, on the 6th of May, introduced into the House of Commons the long expected and very important measure for the renewal and modification of the charter of the Bank of England.

"He proposed to divide the Bank of England into two branches—one to be a bank of issue, the other a bank of deposit. The former to issue paper to the extent of fourteen millions sterling, the Government holding security in the sum of eleven millions due from the Government to the bank, in addition to the three millions of stock which is to serve as a guarantee for the amount of notes. The new bank of deposit is to manage the national debt, and serve private customers, and it is guaranteed certain exclusive privileges; it will have the power of contracting and expanding the circulation under proper regulations. The accounts of the bank to be published weekly. No new bank of issue to be permitted, and those which are already in operation to be confined to their average issues of the last two years. As in the case of the Bank of England, so of the country banks, the accounts are to be recorded at short intervals. Local banks to possess the power, if they choose to arrange for the issue of the notes of the Bank of England instead of their own. Increasing facilities are given to Joint Stock Banks to sue and to be sued, but the regulations concerning partners in those establishments proceed on the principle of publicity. Registration of the papers, prospectuses, and partners, are amongst the measures devised for the prevention of bubble companies and frauds on the public."

Mr. O'Connell's sentence has been postponed until the next term of the Court; for what reason has not transpired.

Norris Castle, Isle of Wight, is to be the Royal Marine residence. It has been purchased for £60,000.

There is a rumor afloat, which, it is stated, has caused considerable uneasiness and dissatisfaction among the immediate connections of Mr. Daniel O'Connell. It is credibly believed that he is about to re-enter the holy bonds of wedlock, with a sister of a distinguished member of Trinity College, and, moreover, a staunch member of the tenets of the Church of England.

FRANCE.

The Ministry are becoming weak, having recently suffered two defeats. There has been in the Chamber of Deputies a discussion on the abolition of slavery in the colonies. The prevailing opinion seemed to be that slavery must sooner or later disappear from the French possessions, but an immediate abolition would be very disastrous.

The Duchess of Kent is still in Paris, where she continues to receive the utmost attention and hospitality of Louis Philippe and his family. The intended visit of the King to England is again spoken of.

The state of trade is represented as in a deplorable condition.

SPAIN.

A new Spanish Ministry was formed on the 4th inst., consisting of Gen. Narvaez, President of the Council, and Minister of War. The Marquis de Villuma, Minister for Foreign Affairs.

Its cause was very generally attributed to the influence of the Queen's mother, who, it was said, insisted upon the sales of the national property being stopped, and the restoration to the secular clergy of all that part of the church property which remains unsold.