

The introduction of irrigation being free, in case any one opposes the measure, the question is decided by competent tribunals, and if the claims of the opposing party are just, they are investigated and estimated by competent *periti* (public appraisers or surveyors).

If works of irrigation are undertaken by tenants or temporary occupiers of land, at their own cost, certain preliminary agreements are generally entered into, if the proprietor thinks fit, whereby the amount of the expenses, the advantages to be derived from them, whether by the proprietors or occupiers, are settled, and according to this agreement the share to be borne by the respective parties is fixed, so that each party may have a fair profit. There is no general rule fixing the quota of the expenses to be defrayed by the respective parties, as these must necessarily vary according to circumstances.

The works requisite to irrigate a piece of ground can be extended to the purchase of water, and to conducting the same, and to rendering the fields fit to receive it; or the works may be limited to the use of waters already existing upon the property to be irrigated, whether it be freehold or occupied by a tenant.

Works of irrigation undertaken by private individuals are directed by practical people paid by and dependent upon those individuals. The works would be under the superintendence of engineers belonging to the Government in those cases only where the Government itself undertook to conduct water through, or for the benefit of, different territories and provinces. The water right and the questions that may arise as to the use and property of the same, come under the cognizance of the judicial and administrative authority.

The waters are measured according to the laws of hydromatics. "Moduli" and "Bocche," regulators and mouths, which vary in their form and dimensions in different provinces, are used to measure it out. Smaller openings or mouths, "Bocche Secondarie" and "Partitori," are used to redivide it, concerning which full particulars are given in the Italian writers on hydraulics.

Water drawn from a river or a public canal can be purchased either by paying down the capital price or by paying a yearly rent, or it can be acquired at a perpetual lease; * in this latter case however a sum of money must be paid down in the first instance as a premium (*a titolo di adeale*).

The prices vary according to the qualities of the waters and the situation, and but few and incomplete data can therefore be given as to the value of waters for irrigation. It may however be stated, as an example, that by a Vice-Regal Decree of November 24, 1822, the minimum price of the water of the Naviglio Grande, and of the Canal of Pavia, was fixed for the standard Milanese inch, *oncia* †

At 14,000 Austrian livres, if granted as absolute property.

At 600 at a perpetual rent.

At 500, if on a lease for an indefinite time, and only for the summer season, *i. e.* from 25th March to 8th September.

At 60, if only on a lease for the winter season, and beyond the circuit of five miles from Milan.

At 80, as in the preceding case, but within the said circuit.

In the greater part of Lombardy, according to the writer De Regi, the standard Milanese *oncia* is worth 1000 Austrian livres ‡ for the summer season, and 100 for the winter season.

(* *Si se consegna ad enfiteusi*)—*i. e.* the right of using the water on payment of a certain fixed rent, which right cannot be disputed or taken away as long as the rent is punctually paid.

† An *Oncia* corresponds to the quantity of water which passes through an aperture six inches (English) high and eight inches wide, open two inches below the surface of the water, which, with its pressure, determines a given velocity.

‡ One Austrian livre is equal to 8d. sterling.

In some districts of the Provinces of Pavia and Lodi, the water is let out at so much per *pertica* *. Thus the water for summer irrigation from the Cavo Marocco in a rotation of fourteen days, (that is to say, it is given out at intervals of fourteen days,) is sold at the rate of 5 Austr. liv. 80 cent. † for each *pertica* to be irrigated.

In those parts of the Province of Lodi which are watered by the abundant stream of the Muzza, the irrigation of one *pertica* in a fourteen days' rotation, costs from 3 to 1 Austrian livres.

The waters of the Canal of Ivrea in Piedmont, and of the Canal of Carlo Alberto, are sold at the rate of from 1 Austr. liv. 38 cent. to 2 Austr. liv. 22 cent. per *pertica*. The uninterrupted flow of water for irrigating the rice-grounds, is sold in certain parts of Lower Lombardy and Piedmont, for one-fourth of the rough produce derived from them, in other parts for one-half, in others for one-third, according to the fertility of the soil and the local circumstances.

The expense required to prepare the surface of a piece of ground for irrigation cannot be stated with precision, as it must depend upon the work to be done. Neither can the quantity of water be specified that may be required for a given extent, as it must necessarily vary according to the nature of the soil and the cultivation it is subjected to. The following data may however be of use:—

For Rice-grounds. It is generally admitted in Lombardy, that in an average soil one *oncia* of water is sufficient to keep flooded from 360 to 400 *pertiche* of rice-ground.

For the Marcite, or constantly flooded Meadow grounds. It is calculated that one *oncia* of water is sufficient for twelve or fourteen *pertiche* on an average, and supposing the waters to run to waste. ‡

For the common Meadow land. According to the writer De Regi, one *oncia* of water suffices to irrigate forty-four *pertiche* of a gravelly soil in twenty-four hours, or thirty six *pertiche* of arable land where the soil is of a more sandy nature.

It is very rarely indeed that mechanical means are used in Lombardy to raise water for the purposes of irrigation.

The agriculturists of Lombardy do not use water artificially prepared and mixed with manure or earth in suspension or chemical solution. It is certain, however, that waters containing dissolved vegetable or animal matter, when used for irrigation, are very fertilizing. An example may be seen at the gate of Milan. The meadows of the rich property of Camporino, watered by the Vettabia Canal, into which all the drains of the city flow, produce six, and in good years even eight crops of grass.

The irrigated meadows can be drained at any moment by cutting off the supply of water by closing the doors of the sluices.

In no part of Lombardy is irrigation carried on by infiltration.

The particles of manure, &c., carried along by the waters, are deposited by them on the irrigated lands, but no artificial means are used in this respect.

The fields and meadows are irrigated in the summer season at fixed intervals, according to their exposure, to their declivity, to the nature of the soil, to the species of cultivation they are under, and also according to the dryness or windiness of the season.

No fixed or positive rules can be laid down on this head, the elements which determine their application being too vague and variable.

* Seven and a-half *pertiche*, equal one acre English.

† About 4s. English.

‡ *i. e.*—None of the water which has irrigated a higher level to be available for the irrigation of a lower level.