

In support of the opinions expressed, samples of soil have been freely taken and submitted to the Department's Chief Chemist, Mr. B. C. Aston, whose analyses are herewith appended.

NOTE.

- (a.) For analyses of soils, see Chief Chemist's report appended.
- (b.) Areas fit for irrigation, marked pink on map herewith.
- (c.) Areas fit for cultivation without irrigation, marked deep red on map.
- (d.) Total area fit for irrigation, and not at present irrigated, appended.

EARNSCLEUGH BLOCK.

Earnsclough Flat is situated on the right bank of the Clutha River, and extends from opposite Clyde to near Alexandra, containing about 5,400 acres.

It is composed entirely of river-gravels, covered with a sheet of soil varying from nothing to several feet in depth. Of this area about 2,900 acres is fit for irrigation, the balance being shingle, and in many places destitute of soil.

There is abundant evidence that water would percolate rapidly through this formation without producing any appreciable benefit, even were it applied in enormous quantities. Where top soil is present it is so very friable that on the application of water it at first readily transforms into a puddle, with the result that ultimately stunted rushes make their appearance instead of luxuriant vegetation.

On the area referred to as being suitable for irrigation the soil is fine decomposed schist, with a fair admixture of humus, and responds well to cultivation. A portion of this land (about 700 acres) has been irrigated for years, and is capable of better cultivation than obtains at present.

BLACKMAN'S GULLY.

This is a beautifully situated valley for fruit-growing, extending from Earnsclough Flat, which is about 600 ft. above sea-level, to an altitude of possibly 1,600 ft. It consists of isolated basins intersected by rocky ridges, and contains possibly 500 acres of fine sandy loam, lying with a northerly aspect and well sheltered.

Although this beautiful valley would no doubt respond well to irrigation, its irregular surface configuration and steepness would necessitate the exercise of great care in the application of water to obviate undue seepage to the detriment of the lower basins.

Hand-cultivation would have to be largely depended upon, much of the land being too steep for the use of modern appliances. This would be likely to make hill orchards prohibitive under the present conditions of labour, even were a sufficient supply of water available at a nominal cost, which in this case it would not be.

There are also several small areas in the vicinity of Conroy's Gully similarly situated, and to which the above conditions would apply.

This country is all included in the Earnsclough pastoral runs, the lease of which does not expire for some thirteen years.

At Bald Hill Flat there is an area of about 1,700 acres which could be profitably irrigated were a sufficient supply of water obtainable.

CLYDE BLOCK (II).

This extends from the Clyde Commonage along the foot of the Dunstan Range to Chatto Creek, reaching to the Manuhierikia River, and thence along the Clutha River to Clyde, of which area approximately 3,000 acres is fit for irrigation. There is a belt of fertile soil, averaging about a mile in width, along the foot of the hill from near Clyde to Chatto Creek. Owing to its irregular surface form, and to its being intersected with outcrops of gravel, it cannot be described as lending itself well for irrigation, and I am of opinion that there is sufficient natural seepage from the mountain to make farming profitable, especially in growing winter feed for stock.

There is a small expanse of fertile soil below Moutere Station, another at Springvale, and a third towards the Manuhierikia River, but of no appreciable extent.

CLYDE RACECOURSE.

I am informed that this land was reported upon some years ago by the Department's Pomologists as being suitable for fruit-culture provided a sufficient supply of water could be obtained. I consider this an ideal field for experimental work, being quite close to Clyde Railway-station. It contains about 100 acres, more or less, of fairly good land, somewhat deficient in humus, but admirably adapted for experimental irrigation. Taken in conjunction with the adjoining land, which is considerably lighter, being similar to other areas in Central Otago, notably the Cromwell Flat, it should assist in determining whether irrigation could be profitably adopted or not.

I should recommend for your consideration the practicability of obtaining a sufficient water-supply for experimental purposes on this block.

Adjoining the Clyde Racecourse there is a holding of some 60 acres which, I am informed, has been under irrigation for about forty years. On the best of the soil the results appear to have been highly satisfactory, but it is observable that on reaching the lighter soil the water disappears. Possibly experimental work may demonstrate that the cultivation and ploughing-down of leguminous crops would aid nitrification, and thus extend the irrigable area.