

the soil, which may be accomplished either by ploughing in green crops (green-manuring), or growing a larger share of clovers and other leguminous plants in the pasture, or, where possible, by applying organic manures, stable manures, or flax-waste refuse, and generally adopting methods of farming which will conserve the organic matter in the soil." The Cawthron Institute's chemist, Mr. T. Rigg, has recently pointed out as a result of his investigation of this land that "every effort should be made to maintain the humus content of the soil. This may be effected by periodical ploughing-in of catch-crops of blue lupins or tares with oats. The latter crop is particularly recommended."

The pumice gravels and coarse sands of the North Island thermal district show similar improvement, and largely lose their identity as coarse soils when they have been submerged by lake or river, mixed with the remains of aquatic plants, and have finally emerged as a terrace highly fertile in comparison with the material as it existed in its original state, and still exists in many parts where the beneficial influence of lake or river has not been felt.

Attempts to improve coarse pumice lands should be based upon the methods seen to be successful in nature, but hastened to accord with present needs. In forested areas which have been cleared top-dressing methods must suffice until the stumps can be profitably removed, but in areas growing scrub green-manuring and rolling could at least be tried experimentally. In areas suffering from exceptionally severe climatic conditions the planting of exotic forest will mitigate the severity of the cold and add organic matter to a soil greatly in need of it. (A discussion on pumice soils may be found in the *Journal*, vol. 4, 1912, page 374.)

#### CONCLUSION.

It is thus seen that organic matter improves the texture of all soils deficient in that constituent, whether they are, on the one hand, extremely loose and porous, or, on the other hand, stiff, impermeable, and tenacious. However rich a soil may be in mineral plant-food, if it lacks the texture conferred by an adequate supply of organic matter there will be trouble in abnormal seasons; while for a large number of soils of coarse texture and deficient water-holding power it is essential that prompt attention should be paid to the organic-matter content if fertility is to be maintained. Organic matter tends to accumulate in land under permanent pasture, and to diminish in land under crop.

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*List of Qualified Veterinary Surgeons.*—The name of Mr. A. Taylor, F.R.C.V.S., was omitted from the list published in the June *Journal*. Mr. Taylor recently retired from the staff of the Canterbury Agricultural College, Lincoln, and is now located at Christchurch.

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*The Gold Medal of the Linnean Society* (London) has this year been awarded to Mr. T. F. Cheeseman, of Auckland, author of the "Manual of the New Zealand Flora."