

BUSH DISEASE.*

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THE evidence adduced by Veterinary Officers of the Department over the period of fourteen years that they have been cognisant of the matter goes to show that the condition in stock known locally as "bush disease" or "bush sickness" which occurs in the Rotorua, Matamata, and Taurangi Counties (long. 176° E., lat. 38° S.) is not a disease in the proper sense of the term, but a physiological condition resulting either from— (a) a food-supply wanting or deficient in some essential nutrient, which therefore results practically in starvation; or (b) a food-supply containing naturally or adventitiously (1) some toxic compound, or (2) some normal constituent present in abnormal quantity, resulting in chronic poisoning.

Assuming, therefore, that the pathologists have satisfied themselves that there is no abnormal micro-organism present; that there is no sign of acute disease in a wasting animal (which commences to recover as soon as it is removed on to unaffected country); that the disease is not communicable to other (healthy) animals either by contact or by transfusion of blood or by other inoculation tests; and that the sickness is confined to a definite area of country outside of which it does not spread, but on which it always in time develops in cattle and sheep, the problem must be one connected with the food-supply, and therefore one for the chemist to elucidate by research.

The following questions naturally suggest themselves: (1.) Is there any poison present in the animal, in the food, or in the soil? (2.) Whether such poison (if present) is there in amounts which would be injurious under the conditions prevailing on the "sick" country. (3.) Is there a want of balance in the food-constituents, organic or inorganic, which would result in the condition complained of?

Bush sickness has been described by Professor Gilruth as "progressive anæmia." Specimens of the dried blood (including clot and serum) of cattle analysed have always shown a great increase in the inorganic salts of unhealthy over those of healthy blood; or, to put it in what is physiologically a better manner, there is a diminution in the organic matter of the unhealthy blood compared with healthy blood. In the unhealthy blood there is roughly only half the normal amount of iron-oxide, and

* The term "bush sickness" is quite a misnomer. The condition may develop on land that has been cleared of bush or forest for over twenty years.