

BREEDING OF FARM ANIMALS.

THE LAWS OF HEREDITY.

Paper read by Mr. W. D. HUNT, Wellington, to the New Zealand Board of Agriculture.

I SHOULD like to state at the outset that I think it can be taken as an established fact that the first necessity in stock-breeding is ability to select the best animals; that knowledge of the laws of heredity is no use without this ability; that a breeder will never get anywhere either in breeding purebred stock or crossbred stock unless he has the ability to select good animals; that the person who wishes to succeed as a breeder of any class of animals must first learn how to select, and when he has learnt this, then—but not till then—will he be ready to make use of the knowledge of the laws of heredity.

I would like also to state before I go further that one of the first things a man must do if he wishes to succeed as a stock-breeder is to consider his country—what is the class of animal best suited to his country. The breed of stock must be selected that will suit the country they have to occupy. A breeder may be an excellent judge of his breed, and know the last word on the laws of heredity, but he will never get far if his stock does not suit his country. No breeder can succeed with his country working against him.

Another necessity, if a breeder is to be successful, is proper feeding. I do not mean overfeeding, but feeding that will give the stock a chance of full normal growth and development. Particularly is this necessary when the stock are young. An animal underfed when young may, if well fed afterwards, develop to normal size. Its growth, in fact, has been arrested for a time, and has afterwards moved on again until normal size has been reached. The period of starving, however, leaves its mark on constitution, and constitution is the most important attribute of all in stud stock.

The natural laws that govern heredity are not yet fully known; the study is as yet in its infancy. It is only about 168 years since Bakewell first started his work, and while he and other master breeders discovered the methods that were necessary to get the results they achieved, it is really only during quite recent years that we are beginning to learn some of the reasons why the methods adopted give the results obtained. In this connection it is found that the broad principles that govern inheritance are much the same in the vegetable world as in the animal world. Inquiry into the laws governing the inheritance of animals can be much helped by studying inheritance in plants. Experiments can be made with much larger numbers and in such shorter time with plants than is possible with animals, and definite results with plants are thus obtained much more quickly.

The work of the really successful breeders, both past and present, has been based upon the principle that "Like begets like, with a continual tendency to variation." In the working-out of the principle