Symptoms and Control of X Chick Disease

THE condition X chick disease has become quite well known to poultry farmers in many areas of the South Island, and the name, originally given because of its unknown cause, has continued in popular use. After several seasons of field investigation and experimental work the disease is recognised as a form of vitamin E deficiency. This article by J. J. Thompson, Veterinary Research Officer (Poultry), Department of Agriculture, Wellington, describes briefly the research work carried out and the results which have been obtained together with recommendations on the prevention of chick losses from the disease.

A 4-week-old chick showing the typical symptoms of X chick disease. The chick is unable to stand upright.

ALARMING losses of up to 80 per cent. in batches of young chicks on poultry farms in the Dunedin and Invercargill areas were reported during the 1950 rearing season. Early attempts at diagnosis soon showed that a new condition was being encountered.

From the number of birds affected and the apparent rapid spread of the disease it was obvious that the condition was:—

1. An infectious disease probably of bacterial origin; or
2. A condition caused by some factor common to all the chicks, such as a fault in management or a nutritional deficiency which would affect the whole batch of chicks.

The cause of the condition remained unsolved during that season, and further research work had to be postponed until the following year to await any fresh outbreaks which might occur. In the meantime a limited survey showed that the disease had occurred fairly extensively throughout the area.

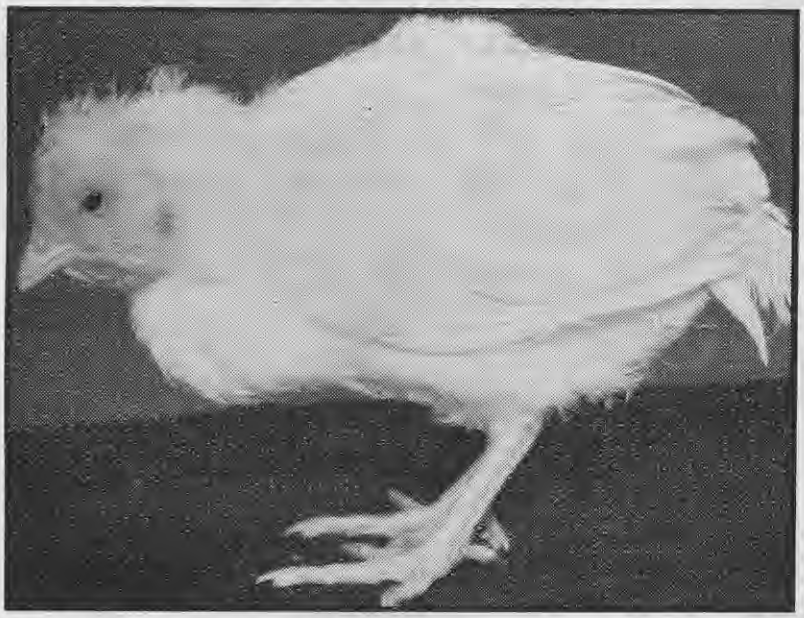
In the following year the disease was encountered in the Canterbury, Otago, Southland, and West Coast areas. Ample material was therefore available for laboratory examination, and full advantage of it was taken to follow up the work done in the previous season. Full reports of the disease, the management conditions, the source and type of feed used, the symptoms and death-rate, and all the details which might furnish even a little extra information were sought from the affected farms. In this way a comprehensive knowledge of X chick disease was built up and recorded for study.

The facts obtained showed that the disease was present on poultry farms which reared chicks by battery brooders, by infra-red lamps, by electric hovers of various types, and under conditions of management which ranged from very good to very poor. This information ruled out the possibility of the condition being caused by bad management.

In addition all attempts to transmit the disease from affected to healthy chicks failed, both in the field and in the laboratory, and extensive laboratory work to isolate bacteria which could be responsible was equally unsuccessful.

Full consideration of the facts obtained from field investigations and the symptoms and course of the disease combined with the failure to show that the disease was infectious pointed to the condition being a nutritional one.

In the symptoms and post-mortem lesions of the disease some resemblance was noted to an experimental condition which arose from the feeding of a particular artificial diet to chicks and which proved to be a form of vitamin E deficiency. This experimental condition, known as exudative diathesis, could be prevented by adding vitamin E to the diet either in the form of the pure vitamin or of a foodstuff containing it, such as wheat germ meal. This opened a new line of investigation, subsequently proved to be the right one.



A chick with swollen head and neck caused by the presence of exudate under the skin. This chick died shortly after the photograph was taken.