roaming into dirty cowsheds, drains, manure piles, etc. Where a succession of cases occurs in permanent farrowing houses, they should not be used for a time, and sows should be farrowed in fresh quarters. This has sometimes resulted in cessation of the cases.

Correct diet, including sufficient protein, such as meat-meal, green-feedgrazing, and some mineral supply, should be supplied to the sow during pregnancy. The addition of iodine to the sow's feed has been tried, but little influence on arthritis was noticed.

#### **PARALYSIS**

Paralysis denotes inability, complete or partial, to use certain muscles because of interference with the nerve supply. In the conditions referred to here the muscles concerned are chiefly those of the limbs, more particularly the hind-quarters, though to some extent all muscles are involved. There is imperfect control of the hind legs, resulting in a staggery gait, or perhaps in the hind legs being trailed on the ground.

Paralysis is seen in fracture of spine, in tuberculosis of spine, and in vitamin A deficiency.

Fracture of the spine occurs mostly in mature pigs, such as sows, as a result of fighting or accidents. Sows which have just weaned a litter appear to be more liable to fracture because of the removal of portion of the mineral matters from the bones during pregnancy and lactation.

The resulting paralysis appears suddenly. The animal appears perfectly healthy, but is unable to raise its hind-quarters from the ground. Treatment is not justified. A waiting policy may be adopted for a day or two, but if the diagnosis of fracture is reasonably certain the animal should be slaughtered.

## Tuberculosis

Tuberculosis of the spine is a rare cause of paralysis, but cases have been seen, again usually in mature pigs. The onset of the paralysis is more gradual. Diagnosis of the actual cause cannot be made with certainty during life, but a positive reaction to the tuberculin test would provide some confirmation.

Paralysis from vitamin A deficiency is the most common type. In Austra-

lia a very comprehensive report on the conditions was given by Seddon and Frazer in 1927, although the cause was not then known. More recent work in the U.S.A. and at Cambridge has shown conclusively that deficiency of vitamin A is a cause.

It has been noted more or less regularly in New Zealand. Here we meet it under conditions of feeding where this deficiency is very likely to occur, namely a skim milk diet without any supplement or green feed or grazing of any kind. It is probably a tribute to the improvement in the type of feeding and to the wider adoption of a sound open-air system with regular access to a good quality grazing that cases of this kind are becoming fewer.

# Symptoms Seen

Affected pigs may be from three to six months old. Frequently they are in good condition. The first sign is unsteadiness on the hind-quarters and a tendency to sag to one side and for the pig to tumble over if it turns quickly. Later, the power of the hind legs is lost to such an extent that the animal is unable to stand on them and adopts a sitting attitude or trails the hind limbs. The voice becomes shriller, and the pigs are somewhat more nervous. A post-mortem examination may show nothing amiss, although the large (sciatic) nerves supplying the hind limbs may be found microscopically to be degenerated.

Treatment consists in supplying vitaman A, which can be done readily by giving fresh green feed, cod-liver oil, or whole milk. Where nerve damage is extensive, recovery does not always follow.

Prevention is along the same lines.

#### TREMBLES

This very apt name is given to a condition perhaps more properly termed chorea, or shivering, which is fairly frequently seen in small pigs. The whole body is constantly agitated by a jerking and twitching of the muscles, which may be so severe as to prevent the animal from standing up. One or two pigs, or perhaps the whole litter, may be affected in varying degrees.

Various writers have discussed this condition, and speculated as to its cause, and while there is a tendency to ascribe it to some hereditary factor,

this is by no means established. In the writer's experience there was in one case a suggestion of an hereditary factor, all the sows farrowing to one boar showing a percentage of cases in their litters, while litters by another boar and farrowing about the same time were unaffected. In other cases, however, sows which had affected litters were again bred to the same boar and had normal litters. A sow affected as a sucker was bred, and litters were not affected.

## More Data Needed

Further information over numbers of cases is required before any preventive measures can be advised.

Where affected piglets are able to suckle, they should be kept, as the tendency in all cases is to gradual disappearance of the condition. Usually, all signs of it are lost by weaning time. Occasionally, little pigs are so badly affected at birth that they are unable to suck or even to stand up.

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