LETTERS TO THE EDITOR

OCCURRENCE OF MENACANTHUS PALLIDULUS ON DOMESTIC FOWL IN PAPUA NEW GUINEA

In their published list of the lice occurring on chickens in Papua New Guinea, Egerton and Rothwell (1964) recorded 4 species of biting lice, namely Goniocotes gallinae, Goniodes dissimilis, Lipeurus caponis and Menopon gallinae. Subsequently Talbot (1969) recorded 2 additional species, Cuculogaster heterographus and Menacanthus stramineus. This letter reports for the first time the occurrence of Menacanthus pallidulus in Papua New Guinea.

The specimens on which the present report is made were obtained from Port Moresby area through the courtesy of Mr John Humphrey, Veterinary Department at Kila Kila, Port Moresby. Identification was made using the keys provided by Emerson (1956) and Matsudaia and Kaneko (1969). Of a total of approximately 150 lice submitted only 6 were M. pallidulus; M. gallinae formed the bulk of the collection and G. gallinae, G. dissimilis and L. caponis were also present.

M. pallidulus is similar to M. gallinae, a well-known species in the area, in such significant diagnostic features as the colour, size and shape of the body (especially the males) and in the distribution of setae on the tergites (Emerson 1956; Matsudaia and Kaneko 1969). Because of this superficial resemblance previous records of M. gallinae probably have included M. pallidulus. It is also possible that M. pallidulus has been mistakenly identified as immature stages of M. stramineus (Emerson 1956).

The occurrence of M. pallidulus is generally associated with areas of high rain fall occurring throughout the year such as Sri Lanka (Seneviratna 1963), Thailand and Laos (Segal et al 1968), Chiba Prefecture area of Japan (Matsudaia and Kaneko 1969) and southern Nigeria (Fabiyi, unpublished data). Thus although the species has not been reported in Australia, it may be present in the wet tropical areas of Northern Queensland.

As yet an insufficient number of birds has been examined in Papua New Guinea to permit any comment on the prevalence and pathogenic importance of the species. Based on Nigerian experience where there is a direct correlation between rainfall and prevalence and intensity of infections of M. pallidulus, it is probable that the species will be present in most parts of Papua New Guinea and at times in large numbers in such places as the central highlands of New Guinea. The Port Moresby area from which these specimens were collected is among the least wet areas of Papua New Guinea.

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10 September 1979

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HAEMAGGLUTINATING ENCEPHALOMYELITIS VIRUS INFECTION OF PIGS

The occurrence of the disease caused by Haemagglutinating encephalomyelitis virus (HEV) in pigs has not been reported in Australia. In August 1978 a syndrome in piglets resembling this disease occurred on 2 farms near Leitchville in Victoria. This report briefly describes the clinical and pathological features of the disease and the methods used in its diagnosis.

The disease was manifested by a sudden onset and characterised by clinical signs of vomiting, ataxia and recumbency with paddling movements of the limbs. Most affected piglets died 36 to 48 hours after clinical signs were first observed and mortality in affected litters (5 to 14 days of age) ranged from 50 to 90 percent. All piglets in litters under 14 days of age became ill. However, the course of the disease outbreak was short and pigs born 10 to 14 days after the beginning of the outbreak did not develop the disease.

No significant gross lesions were found at post mortem. Histological lesions were confined to a non-suppurative disseminated meningo-encephalomyelitis characterised by vascular lymphocytic infiltrations, diffuse and focal gliosis, satellitosis and degeneration of neurones. In mild cases, the histological changes were found predominantly in the brain stem area. These microscopic lesions were consistent with the histological changes found in HEV infected pigs (Alexander et al 1959; Greig et al 1962).

A 10% suspension of brain tissue in phosphate buffered saline was used for virus isolation purposes. These suspensions were centrifuged at 1,000 g for 15 minutes, the supernatant passed through a 0.45 μ filter and filtrates absorbed onto monolayers of primary pig kidney cells. The inoculated cells were incubated at 37°C and examined daily for cytopathic changes using an inverted light microscope. No foci of cytopathology were detected in unstained specimen during the first 5 days of culture, although the supernatant fluids harvested at this time haemagglutinated a 0.75% suspension of chicken erythrocytes.

Cytopathic changes were detected after further passaging of supernatant fluids from the initial cultures in primary pig kidney cells and a pig kidney cell line designated LLC-PKI.
Numerous large foci of multinucleated syncitia could then be observed as early as 18 hours after inoculation of virus. These foci could be seen in unstained cultures, but were most obvious in infected cells that had been grown on cover slips and stained with haematoxylin and eosin. The virus suspension was found to directly haemagglutinate mouse, rat, chicken and turkey erythrocytes at room temperature, but not goose, duck, guinea pig, rabbit, sheep, horse, cow, pig or human type O erythrocytes.

Haemagglutinating encephalomyelitis virus is at present classified as a coronavirus (Greig et al. 1971; Phillip et al. 1971). Supernatant fluid from the 9th passage of the virus in LLC-PK1 cells was mixed with equal volumes of serial tenfold dilutions of pig serum collected from gilts that had HEV affected litters. The mixtures were allowed to react at 4°C overnight centrifuged at 10,000 g for 60 minutes and the supernatant discarded. The deposit was resuspended in 3 drops of sterile distilled water, the preparation negatively stained with potassium phosphotungstic acid at pH 6.4 and examined in a Hitachi H300 electron microscope. Aggregates of virus particles morphologically resembling coronavirus were observed at serum dilutions to 100.

The isolation of haemagglutinating agent with the morphological features of a coronavirus from the brains of pigs exhibiting a nervous disease suggested the virus was HEV of pigs. The virus was referred to the Central Veterinary Laboratory, Weybridge, Surrey, England for confirmatory tests, as no reference HEV antiserum was available in Australia. The virus isolated was identical, or closely related, to the Weybridge strain of HEV when tested by an indirect fluorescent antibody test (S.F. Cartwright, personal communication).

A serological survey of pig herds in the State of Victoria using a haemagglutination-inhibition (HI) test was subsequently undertaken. The HI test was performed in V-shaped microtiter trays using 8 haemagglutinating units of virus, serial twofold dilutions of serum inactivated at 56°C for 30 minutes and a 0.75% suspension of chicken erythrocytes. All sera were treated with a 25% suspension of acid washed kaolin in borate saline at pH 9.0 and adsorbed against chicken erythrocytes prior to testing. The virus-serum mixtures were allowed to react for 60 minutes and the test was read at room temperature 45 minutes after the addition of erythrocytes. An HI titre of 1 in 16 and greater was considered to be indicative of HEV specific antibody. A total of 364 sera from 24 herds (a minimum of 10 sera per herd) were examined. Ten of the 24 herds were found to have specific antibody, with the HI titre of most sera from infected herds being 1:64 to 1:128. Retrospective examination of stored serum revealed the presence of specific antibody in serum collected from herds of pigs in 1972, 1973 and 1974. These herds had experienced outbreaks of a syndrome resembling Vomiting and Wasting Disease as described by Cartwright et al. (1969) but the virus had not been isolated.

The results indicate that HEV is endemic in pigs in Victoria, and that it has been present since at least 1972. Clinical outbreaks of the disease, however, appear to be uncommon.

Grateful acknowledgements are made to the Director and Dr. S. Cartwright, Central Veterinary Laboratory, Ministry of Agriculture, Fisheries and Food, Weybridge, Surrey, England for assisting with the identification of the virus. We are indebted to Dr. I. G. W. Parish, Leitchville, for submitting the diseased pigs.

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17 August 1979

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HAEMATOLOGICAL VALUES IN VITAMIN B12 Responsive calves

We have recently investigated haematological values in calves responding to vitamin B12 supplementation. The investigation was carried out near Robe, South Australia with Hereford calves depastured on calcareous sands supporting largely strawberry clover and lucerne. In May-June 1978 the calves, aged between 1 and 12 weeks, were stratified by bodyweight within sex and allocated at random to treatment groups. One group of calves the 'B12' group, received subcutaneous injections of vitamin B12 at approximately 6-weekly intervals. In a second group of calves, the 'CoP' group each calf received by mouth two 10g cobalt pellets † when introduced to the trial and a third group, the 'Nil' group, were not treated. All calves grazed as one herd and were weighed and given anthelmintic ‡ at 6-weekly intervals. Subcutaneous injections of copper § were given to all calves when introduced into the trial and then at 6, 13 and 32 weeks after the trial had commenced: serum copper of the calves, monitored at 6-weekly intervals, was maintained in the normal range of 8 to 22 umol/l.

Blood samples for haematology were taken into EDTA and values determined using a Coulter S blood cell counter. The haematocrit values obtained by this method were checked manually using a micro-haematocrit centrifuge. When the values did not agree, the manual value was substituted to establish the true red blood cell count. This procedure was undertaken because the more microcytic cells may have fallen

* 2 mg hydroxocobalamin/50 kg bodyweight; 'Cobalex', V. R. Laboratories, Sydney, New South Wales.
† IFI Australia Ltd, Melbourne, Victoria.
‡ 'Syntamek', Coopers Pty Ltd, Melbourne, Victoria.
§ 60 mg/calf, 'Cuprate', Phillips-Duphar Pty Ltd, Sydney, New South Wales.
II Coulter Electronics Inc, Harpenden, Hert, England.

Australian Veterinary Journal, Vol. 55, October, 1979