

that a steer weighing 1,000lb, if heavily infested, would lose up to 200lb of blood in one year. It is not difficult to appreciate these figures when it is realised that each tick, in its life history, has three meals of blood, becoming distended to the size of a small grape, over 3mm in diameter. The toxic effect of the bite varies according to the host species. Myers (1924) states that horses are more sensitive to the bite than cattle and dogs are known to be affected. However, there are no records of red deer being more than just irritated by the bite.

Apart from the red deer many other hosts are known, mainly from the warmer parts of tropical and subtropical countries. They include most domestic animals, moose deer, Chinese roe-buck, rabbits, birds and, occasionally, man.

In New Zealand red deer act as reservoir hosts for this tick, making its eradication extremely difficult. So far only the female tick has been recorded from the red deer, the male being very rare. Myers (1924) suggests that parthenogenesis might occur.

THE INTERNAL PARASITES

(a) Nematodes.

Ostertagia (Ostertagia) leptospicularis Assadov, 1953. (Text-fig. 3e.)

Occurred in three (25%) of hosts examined. Found in the abomasum, it is a small, whitish worm, the male being approximately 6.5mm in length. No more than 320 worms were found in any one host, so that this nematode generally formed the minority of the trichostrongylid population (up to 10%).

In the present study records were made from the Kaingaroa region of the North Island, however, the New Zealand wide presence of a similar worm in sheep has been recorded by Brunson (pers. comm.) and it appears that they are the same species. The only other known host is the roe deer (*Capreolus capreolus*).

Ostertagia (Grosspiculagia) rubricervi Andrews, 1963. (Text-figs. 4e-4f.)

Recorded from four (33%) of hosts examined, two from the North Island and two from the South Island. The male was 6.5mm in length, whitish in colour, and was found in the abomasum. The maximum population of this species was 255, forming a small part (about 5%) of the total trichostrongylid population. There are no other known hosts for this species.

Apteragia quadrispiculata Jansen, 1958. (Text-figs. 4c-4d.)

Recorded from two (16%) of red deer examined. Both records were made in the Sabine valley near Lake Rotoiti, South Island. Whitish in colour, the male is slightly larger than those described above, measuring 8.1mm in length. It is found in the abomasum in very small numbers (eleven was the largest number recorded—1.4% of the total trichostrongylid population). This species is also found in roe deer and fallow deer. *Skrjabinagia monodigitata* Andrews, 1963 is synonymous with this species.

Spiculopteragia asymmetrica (Ware, 1925) Travassos, 1937. (Text-figs. 4a-4b.)

Occurred in 11 (91%) of red deer examined, ranging from Kaingaroa in the North Island to Lake Marchant in the South Island. It is probable that this parasite is New Zealand wide in distribution. The size of the worm ranges from 7.7mm in the male to 8.6mm in the female, somewhat larger than those recorded overseas (Jansen, 1958; Ware, 1925). It is reddish-white in colour and is found