A SEROLOGICAL SURVEY OF DOGS, NATIVE RODENTS AND HUMANS IN NEW MEXICO 1

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A study was made of the sera of blood samples collected from 112 mongrel dogs at the Albuquerque Animal Control Center; 206 Beagle dogs at the Lovelace Foundation, Fission Products Inhalation Program's kennels (18 miles Southeast of Albuquerque); 102 native rodents live-trapped in the vicinity of the kennels and 108 local human inhabitants. The human sera had originally been sent to the Department of Microbiology, Lovelace Foundation for other purposes. This survey was initiated to determine if certain enzootic diseases occurred in rodents adjacent to the Beagle kennels and if the Beagle dogs have experienced infections with these agents. The sera of Beagle dogs maintained in a "closed" colony were compared to mongrel dog and human sera.

All sera were collected between March, 1967, and April, 1968 and stored at -20°C until tested. The procedures used for the complement fixation (CF) tests for Venezuelan equine (VEE), Western equine (WEE), Eastern equine (EEE) and St. Louis equine encephalitis (SLE), *Coxiella burneti, Rickettsia rickettsii* (spotted fever group), *R. mooseri* (typhus group), *Chlamydia* spp. (Psittacosis group), *Pasteurella pestis, P. tularensis, Coccidioides immitis* and *Histoplasma capsulatum* with minor modifications, were similar to those previously reported (Thorpe, *et. al.*, Proc. Soc. Exp. Biol. Med., 118: 179-181, 1965). The procedures for the CF and

TABLE 1. *Antibody to certain enzootic disease agents in dog, native rodent and human sera.*

Type of Sera	Number of sera	Number of Positive Sera and Type of Test**														
		Arboviruses														
		EEE	WEE	VEE	SLE	*Coxiella burneti*	*Rickettsia rickettsii*	*R. mooseri*	*Chlamydia spp.*	*Pasteurella pestis*		*P. tularensis*		*Brucella abortus*	*Coccidioides immitis*	*Histoplasma capsulatum*
		CF	CF	CF	CF	CF	CF	CF	CF	CF	HA	TA	CF	TA	CF	CF
Mongrel Dogs	122	0	0	0	1	0	1	0	3	0	0	9	2, 7	0	0	0
							—		—				—			
Beagle Dogs	206	0	0	0	0	2	0	0	1	0	0	1, 1	0, 1	0	0	0
						—			—			—	—			
Native* Rodents	102	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
Human	108	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0

* The following numbers of each species were tested: *Spermophilus spilosoma* (4), *Perognathus flavus* (3), *P. apache* (1), *Dipodomys ordii* (39), *D. microps* (10), *D. spectalis* (1), *Reithrodentomys megalotis* (20), *Peromyscus maniculatus* (13), *P. eremicus* (1), *Neotoma mexicana* (2), *Onychomys leucogaster* (8).

** Underlined results are low titers (1:8 for CF or 1:10 for TA) which appear to be specific but are not considered significant. Other results: Complement fixing (CF) titers of 1:16 or greater and tube agglutination (TA) or hemagglutination (HA) titers of 1:20 or greater.

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Haemagglutination (HA) tests for *P. pestis* were done according to those previously published (Cavanaugh, *et. al.*, Bull. Wld. Hlth. Org., 32: 197-203, 1965). The standard agglutination test was used for *P. tularensis* and *Brucella abortus*.

The results of this study are summarized in Table 1.

There was no evidence of CF antibody to EEE, VEE, *R. mooseri*, *C. immitis*, *H. capsulatum*, or *P. pestis*, HA antibody to *P. pestis* nor *B. abortus agglutinins* in any of the sera tested. The native rodent and human sera were also negative for antibody to all of the other agents except for one rodent and one human sera which had a titer of greater than 1:8 against WEE virus and one human sera with a titer greater than 1:8 against SLE. Complement fixing antibody levels of questionable significance (1:8) against several agents were observed in the sera of both mongrel and Beagle dogs. Two sera from Beagle dogs and 9 from the mongrel dogs agglutinated *P. tularensis* antigen at titers of 1:10 to 1:40. Ten of these sera also fixed complement in the presence of *P. tularensis* antigen. The presence of *P. tularensis* agglutinins in the sera of mongrel dogs is not unusual (Calhoun, Am. J. Trop. Med. Hyg., 3: 360-366, 1954) but the presence of such antibody in Beagle dogs in a "closed" colony was certainly not expected. Neither ticks nor fleas have been know to occur on any of the Beagles in the Foundation's Kennels during the past three years. It is possible that these seralogical reactions may be due to some type of cross reaction although *P. tularensis* of unknown origin has occurred in a "closed" hamster colony (Perman and Bergeland, Lab. Animal Care, 17: 563-568, 1967).

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