

NOTES ON ELEAS COLLECTED ON RAT AND HUMAN HOSTS IN SAN FRANCISCO AND ELSEWHERE.

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In Feb., 1908, Dr. W. B. Wherry, of the Dept. of Public Health of San Francisco, sent to the University for identification a few vials of fleas, most of which had been collected from rats in the plague-stricken districts and from doctors, nurses and others who had been at work in these districts. Those from the rats showed the following species: *Ceratophyllus fasciatus*, Bosc., 1 ♂, 6 ♀'s; *Ctenocephalus canis* (Curtis), Baker, 2 ♀'s; *Loemopsylla (Pulex) cheopis*, Rothschild, 16 ♂'s, 19 ♀'s. Five ♂'s and one ♀ of *Ctenopsyllus musculi* (Duges), Wagner, were taken from a mouse in the plague laboratory, and 220 specimens of *Pulex irritans*, Linn., were taken from human hosts or on their clothing in the plague laboratory and hospital and in the refugee camps where human plague cases were of frequent occurrence. A single specimen of an undetermined species of *Ceratophyllus* was also taken from a human host.

A later sending from Dr. Wherry, April, '08, showed 88 specimens of *Ceratophyllus fasciatus* and 1 *Ctenopsyllus musculi* from rats, 7 *Loemopsylla cheopis* from mice, 25 *Pulex irritans* and 1 specimen of *Ceratophyllus* sp. from human hosts (one *P. irritans* was from the body of a Chinaman who had died of the plague), and 477 specimens of *Ctenocephalus canis* collected from a single Dachshund pup.

From time to time between March 1st and June 1st, Dr. W. C. Rucker, executive officer of the U. S. Public Health and Marine Hospital Service, has sent me many vials of fleas taken from rats and humans. These were mostly collected by the small army of rat catchers in the different sections of the city. A summary of all these sendings shows 619 specimens of *Ceratophyllus fasciatus*, 163 specimens of *Pulex irritans*, 56 *Ctenopsyllus musculi*, 9 *Ctenocephalus canis*, and 139 *Loemopsylla cheopis* from rats, and 668 *Pulex irritans* and 2 *Ceratophyllus fasciatus* from human hosts..

From February to May, Dr. Snow, of Stanford University, had a man catching rats and mice on the campus in order to determine whether any showed symptoms of plague.

From the rats were taken 174 specimens of *Ceratophyllus fasciatus*, 62 *Ctenopsyllus musculi*, and 8 *Hoplopsyllus anomalus*, Baker; from the mice, 26 *Ceratophyllus fasciatus* and 14 *Ctenopsyllus musculi*.

On examining a number of dead rats in San Jose, that had been brought in for the bounty, I found, on March 14, 7 specimens of *Loemopsylla cheopis*. Only this one lot of rats was examined there.

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