

Records of Siphonaptera from Denmark.

By

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Only one list of Danish fleas has been published so far, namely by F. Meinert in 1896; 14 species are mentioned in that paper*). Apart from Meinert's publication, no papers on the faunistics of fleas in Denmark have been published. The other papers on Danish fleas are of biological interest only; they are included in the list of literature on Danish fleas at the end of this article.

Through the courtesy of Dr. S. L. Tuxen I have been able to examine the whole of the Danish flea collection of the Zoologisk Museum, Copenhagen. This consisted of 24 slides and well over 300 tubes of specimens in alcohol; most of this material was already identified, but I have checked the identity of all specimens. It was necessary to mount much of the spirit material in order to verify it, and I have also mounted the rarer and more interesting species, so that in all 380 microscopic preparations were made. 281 slides have been returned to the Copenhagen Museum, and Dr. Tuxen kindly allowed me to incorporate the remaining 99 slides (as well as some spirit material) into the British Museum (Natural History) collection at Tring; only duplicate specimens have been retained. This material was most welcome, since in this

*) All specimens recorded by Meinert under the name of *Typhlopsylla assimilis* Tasch. proved to be *agyrtes*, which was described by Heller in the same year (1896); specimens of *assimilis* Tasch. are not yet known from Denmark.

collection only three species from Denmark were represented, and these only by scanty material; these specimens in the Tring collection are also included in the list of records.

Thanks to the collecting activities of a number of Danish entomologists and other naturalists (of whom R. W. Schlick and J. P. Kryger deserve special mention) no less than 41 species and subspecies (probably three-quarters of the number of fleas actually occurring in Denmark) proved to be represented in the Danish collection. It therefore seemed worth while to publish in this paper all records, since these greatly enhance our knowledge of the distribution and host-associations of fleas in Europe. But much collecting remains to be done. The host-flea index (p. 543) shows that fleas have been collected from 29 identified species of mammals and only 16 identified species of birds (out of 42 terrestrial mammals and 343 birds (188 of which breed in Denmark) actually occurring in Denmark).

The fleas now known to occur in Denmark, and also those that may be expected to be discovered in future, will be dealt with in a volume of Danmarks Fauna; it is hoped that the latter volume may induce more Danish naturalists to take up the most fascinating study of fleas.

Some remarks must be made on the following list of records of fleas from Denmark:

a) Each record is given in the following sequence: locality, province (in brackets), date, host, name of collector or donor, number of fleas; in a number of instances one or more of these data are lacking.

b) All names of localities are given in the Danish spelling; in order to facilitate the location of a given place, the province in which it is situated has been added in brackets. Where no name in brackets is given, the locality is the particular part of Denmark (e. g.

Amager = the isle of Amager; Jylland (the only continental part of Denmark). English versions exist for: Jylland = Jutland; Fyn = Funen; Sjælland = Sealand; Lolland = Laaland). Under each species the names of the localities are arranged alphabetically.

c) All records are based on specimens I have actually examined.

It is my pleasant duty to express my most sincere thanks to Dr. S. L. Tuxen for the great help he has given me in many ways.

Records of Siphonaptera from Denmark.

Superfamily *Pulicoidea*.

Family **Tungidae**.

Subfamily *Hectopsyllinae*.

Hectopsylla psittaci von Frauenfeld, 1860.

København (Sjælland), Zoological Garden, ex turtledove: 4 ♀.

Family **Pulicidae**.

Subfamily *Pulicinae*.

Pulex irritans Linné, 1758.

Amager (West coast of —), 30-IV-1908, *Charadrius alexandrinus*,

R. H. Stamm: 1 ♂.

Gentofte (Sjælland), E. V. Gundel: 2 ♂, 8 ♀.

Høgslund Kro (Jylland): 1 ♂, 5 ♀.

København (Sjælland), 29-III-1919, E. Olsen: 1 ♀; *Homo sapiens*,

R. W. Schlick: 16 ♂, 26 ♀; *Erinaceus europaeus*, in old University Museum: 1 ♀.

Nykøbing (Sjælland), VII/VIII-1907, R. H. Stamm: 2 ♂, 12 ♀.

Ordrup Mose (Sjælland), 23-IV-1899, R. W. Schlick: 1 ♂.

Vallø (Sjælland), 29-VII-1917, K. Stephensen: 1 ♀.

Subfamily *Archaeopsyllinae*.

Archaeopsylla erinacei erinacei (Bouché), 1835.

Amager, X-1897, H. Deichmann: 12 ♂, 28 ♀; 20-XI-1941, *Martes martes*: 2 ♂, 5 ♀.

- Brahetrolleborg (Fyn), 10-VIII-1916, *Erinaceus europaeus*, E. Deichmann: 1 ♂, 1 ♀.
 Geelskov (Sjælland), 29-IX-1895, free, R. W. Schlick: 1 ♀.
 Gentofte (Sjælland), IX-1913, *Erinaceus europaeus*, J. P. Kryger: 1 ♀.
 Holte (Sjælland), 6-IX-1927, *Erinaceus europaeus*: 4 ♂, 1 ♀.
 København (Sjælland), *Erinaceus europaeus*, old University Museum and H. Deichmann: 9 ♂, 13 ♀.
 Lødderup (Mors), 29-III-1948, *Erinaceus europaeus*, T. Christensen: 24 ♂, 40 ♀.
 Lyngby (Sjælland), 13-V-1947, *Erinaceus europaeus*, A. Windeballe: 9 ♀.
 Norfeld (Møen), 10-X-1943, *Erinaceus europaeus*, B. Benzon: 2 ♀.
 Søborg (Sjælland), VIII-1926, *Erinaceus europaeus*, E. Nielsen: 5 ♀.
 Søllerød (Sjælland), 18-V-1941, *Erinaceus europaeus*, C. Overgaard: 1 ♂, 6 ♀.
 Without locality: 13-IX-1928, *Erinaceus europaeus*: 17 ♂, 32 ♀;
Erinaceus europaeus: 1 ♂, 2 ♀; 25-I-1911: 25 ♂, 24 ♀.

Ctenocephalides canis (Curtis), 1826.

- Brahetrolleborg (Fyn), summer 1916, *Canis familiaris*, E. Deichmann: 2 ♂, 7 ♀.
 København (Sjælland), *Canis familiaris*, R. W. Schlick: 6 ♂, 28 ♀.
 Liselund (Møen), 20-VII-1928, S. L. Tuxen: 1 ♀.
 Nykøbing (Falster), *Canis familiaris*, F. Meinert: many ♂ and ♀.
 Without locality: R. W. Schlick: 6 ♀.

Ctenocephalides felis felis (Bouché), 1835.

- København (Sjælland), *Canis familiaris*, R. W. Schlick: 11 ♀;
Felis domestica, R. W. Schlick: 24 ♂, 79 ♀.
 Without locality: R. W. Schlick: 9 ♂.

Superfamily **Ceratophylloidea**.

Family **Vermipsyllidae**.

Chaetopsylla globiceps (Taschenberg), 1880.

- Eremitagetletten (Sjælland), 10-IX-1922, from the nest of *Vulpes vulpes*, 1 ♂, 3 ♀.
 Freerslev Hegn (Sjælland), 28-IV-1890, *Vulpes vulpes*, T. Mortensen: 5 ♂, 13 ♀.
 Holte (Sjælland), 5-V-1934, young *Vulpes vulpes*: 1 ♀.
 Kalundborg (Sjælland), 28-I-1949, *Vulpes vulpes*: 1 ♂, 3 ♀.
 Skjelhøje (Jylland), *Mustela erminea*, J. Mogensen: 1 ♀ (in Tring Collection).

Viborg (Jylland), 5-X-1934, *Vulpes vulpes*, J. Mogensen: 2 ♀ (in Tring Collection).

Chaetopsylla trichosa Kohaut, 1903.

Skovshoved (Sjælland), 27-X-1939, *Meles meles*: 6 ♂, 22 ♀.

Skægkær (Jylland), 10-III-1938, *Meles meles*, C. M. Poulsen: 2 ♂, 3 ♀.

Family **Hystrichopsyllidae**.

Subfamily **Hystrichopsyllinae**.

Hystrichopsylla talpae (Curtis), 1826.

Aalborg (Jylland), 9-IX-1887, in mull in garden, R. W. Schlick: 1 ♀.

Bistrup Enge, near Holte (Sjælland), 19-III-1916, from the nest of *Talpa europaea*, J. P. Kryger: 3 ♀.

Brede (Sjælland), 18-IX-1892, C. Engelhart: 1 ♂, 1 ♀.

Dyrehaven (Sjælland), 5-IV-1914, from the nest of *Talpa europaea*, E. Rosenberg: 1 ♂, 4 ♀; IV-1927, from the nest of *Talpa europaea*, A. West: 4 ♀; 6-IV-1928, from the nest of *Talpa europaea*, A. West: 1 ♂.

Eremitagen (Sjælland), 9-IV-1911, from the nest of *Talpa europaea*, A. West: 1 ♀.

Esbjerg (Jylland), 25-X-1897, E. A. Løvendal: 1 ♂, 1 ♀.

Furesø (Sjælland), 19-III-1911, from the nest of *Talpa europaea*, A. West: 2 ♀.

Hillerød (Sjælland), V-1911, from the nest of *Talpa europaea*, J. P. Johansen, 2 ♂, 2 ♀.

Køge (Sjælland), 8-IV-1917, mousenest, R. W. Schlick: 2 ♀.

Langebæk Vesterskov (Sjælland), 21-VIII-1893, mousenest: F. Meinert: 1 ♂, 2 ♀.

Lundbybakker (Jylland), 13-IX-1887, in a sandpit, R. W. Schlick: 1 ♀.

Lysemose (Lolland), 3-VIII-1874, from the nest of *Lasius fuliginosus*, R. W. Schlick: 1 ♂, 2 ♀.

Mølleaaen (Sjælland), 12-IX-1870, sieved from old straw, R. W. Schlick; 1 ♀.

Skørping (Jylland), 25-X-1936, *Apodemus flavicollis*: 1 ♂.

Sorø (Sjælland), *Talpa europaea*: 1 ♂.

Suserup (Sjælland), 27-VIII-1943, *Apodemus flavicollis*: 1 ♀.

Svendborg (Fyn), 30-X-1931, in a nest, probably of *Arvicola terrestris*, O. Christiani: 5 ♀.

Tiim (Jylland), 1930: 1 ♀.

Without locality: *Microtus agrestis*, F. Meinert: 1 ♀; *Sorex araneus*, R. W. Schlick: 1 ♂; A. West: 1 ♀.

Typhloceras poppei Wagner, 1903.

Without locality, 1-I-1894, from the nest of *Apodemus sylvaticus*: 1 ♂, 1 ♀.

Subfamily *Rhadinopsyllinae*.

Rectofrontia pentacantha (Rothschild), 1897.

Bistrup Enge, near Holte (Sjælland), 19-III-1916, from the nest of *Talpa europaea*, J. P. Kryger: 1 ♀; 16-IX-1917, from the nest of *Talpa europaea*, K. L. Henriksen: 1 ♀; 20-III-1920, from the nest of *Talpa europaea*, J. P. Kryger, 1 ♂, 1 ♀.

Hillerød (Sjælland), V-1911, from the nest of *Talpa europaea*, J. P. Johansen: 1 ♀.

Odsherred (Sjælland), X-1934, *Mustela erminea*, A. Ditlevsen: 3 ♂, 2 ♀.

Subfamily *Ctenophthalminae*.

Palaeopsylla soricis soricis (Dale), 1878.

Avernakø, 3-VII-1947, *Sorex araneus*, E. Ursin: 1 ♂.

Bistrup Enge, near Holte (Sjælland), 19-III-1916, from the nest of *Talpa europaea*, J. P. Kryger: 1 ♂.

Ryget (Sjælland), 15-XI-1919, *Sorex* sp., 3 ♂, 1 ♀.

Palaeopsylla kohauti Dampf, 1911.

Bistrup Enge, near Holte (Sjælland), 16-IX-1917, from the nest of *Talpa europaea*, K. L. Henriksen: 2 ♂.

Bølling Sø, near Ingesvang (Jylland), VIII-1921, *Talpa europaea*, R. H. Stamm: 2 ♂, 1 ♀.

Lolland, 3-VIII-1916, *Talpa europaea*, T. Bartholin: 2 ♂.

Lyngby (Sjælland), 1905, *Talpa europaea*, A. Ditlevsen: 1 ♂.

Viborg (Jylland), 25-VI-1896, *Talpa europaea*, 1 ♂, 1 ♀.

Doratopsylla dasycnemus dasycnemus (Rothschild), 1897.

Ryget (Sjælland), 15-XI-1919, *Sorex* sp., 2 ♂.

Ctenophthalmus (Ctenophthalmus) agyrtes agyrtes (Heller), 1896.

Aalborg (Jylland), 3-IX-1885, *Sicista betulina*, H. Winge: 3 ♂, 6 ♀.

Amager, 23-III-1910, J. P. Kryger & A. Bøving: 1 ♀.

Avernakø, 1-VII-1947, *Arvicola terrestris*, E. Ursin: 3 ♂, 3 ♀; 2-VII-1947, *Mus musculus*, E. Ursin: 1 ♂, 1 ♀.

Birkholm, S. of Fyn, 25-VI-1947, *Arvicola terrestris*, E. Ursin: 2 ♂, 14 ♀; 26-VI-1947, *Arvicola terrestris*, E. Ursin: 15 ♂, 11 ♀; 27-VI-1947, *Arvicola terrestris*, E. Ursin: 6 ♂, 3 ♀.

- Bistrup Enge, near Holte (Sjælland), 19-III-1916, from the nest of *Talpa europaea*, J. P. Kryger: 5 ♂, 7 ♀; 16-IX-1917, from the nest of *Talpa europaea*, K. L. Henriksen: 1 ♂, 2 ♀; 20-III-1920, from the nest of *Talpa europaea*, J. P. Kryger: 8 ♂, 21 ♀.
- Bjørnø, 7-VII-1947, *Apodemus sylvaticus*, E. Ursin: 1 ♀; 8-VII-1947, *Mus musculus*, E. Ursin: 1 ♂; 9-VII-1947, *Apodemus sylvaticus*, E. Ursin: 1 ♂.
- Boserup, near Roskilde (Sjælland), III-1934, in wrack washed ashore, J. P. Kryger: 1 ♂.
- Bregninge (Taasinge), 11-VII-1947, *Microtus agrestis*, E. Ursin: 1 ♂, 1 ♀.
- Brovst (Jylland), 6-V-1920, *Mus musculus*, M. Thomsen: 1 ♂.
- Donse (Sjælland), 22-IV-1900, *Arvicola terrestris*, R. W. Schlick: 2 ♀.
- Dyrehaven (Sjælland), 17-IX-1882, sieved from Polyporus dust, R. W. Schlick: 13 ♂, 12 ♀; 10-IV-1932, nest in a hole of a tree, V. Hansen: 2 ♂.
- Ermitagen (Sjælland), 9-IV-1911, from the nest of *Talpa europaea*, A. West: 2 ♂, 5 ♀.
- Faaborg (Fyn), 28-XII-1895, *Mustela erminea*, C. S. Larsen: 1 ♀.
- Ganløse Ore (Sjælland), 24-I-1935, *Clethrionomys glareolus*, 1 ♂, 4 ♀.
- Hellerup (Sjælland), 13-V-1937, *Mus musculus*, N. L. Wolf: 1 ♀.
- Holte (Sjælland), 9-IV-1917, mousenest in old hay: 1 ♀; VIII-1928, from a rat, J. P. Kryger: 3 ♂, 2 ♀.
- Hunderup (Fyn), 16-VII-1907, N. P. Jørgensen: 1 ♀; 31-VII-1906, in wrack washed ashore, N. P. Jørgensen: 1 ♂, 1 ♀.
- Jyllinge Holme, near Roskilde (Sjælland), III-1927, *Microtus agrestis*, K. Nielsen: 36 ♂, 58 ♀.
- Kaasmose, 28-III-1936, *Rattus norvegicus*, E. Rosenberg: 9 ♂, 10 ♀.
- København (Sjælland), 21-II-1868, *Arvicola terrestris*, R. W. Schlick: 1 ♂, 1 ♀.
- Korshavn (Avernakø), 2-VII-1947, *Mus musculus*, E. Ursin: 1 ♂; 2-VII-1947, *Clethrionomys glareolus*, E. Ursin: 8 ♀; 4-VII-1947, *Clethrionomys glareolus*, E. Ursin: 1 ♀.
- Langebæk Vesterskov (Sjælland), 21-VIII-1893, mousenest, F. Meinert: 2 ♂.
- Liselund (Møen), VI-1936, *Apodemus sylvaticus*, S. L. Tuxen: 1 ♂.
- Lolland, 3-VIII-1916, *Talpa europaea*, T. Bartholin: 1 ♂, 1 ♀.
- Nørholm Skov (Jylland), 20-III-1916, from the nest of *Talpa europaea*, J. P. Kryger: 1 ♀.
- Ommel (Ærø), 23-VI-1947, *Mus musculus*, E. Ursin: 1 ♂.
- Peterslund (Mors), 15-X-1943, on a vole, S. Nielsen: 1 ♀.

- Rudehegn (Sjælland), 26-IV-1910, mousenest, E. Suenson: 1 ♀.
 Skjelhøje (Jylland), 1-VII-1933, *Arvicola terrestris*, J. Mogensen:
 1 ♂ (in Tring Collection).
 Sorø (Sjælland), *Talpa europaea*: 2 ♂, 1 ♀.
 Taastrup (Sjælland), 27-II-1940, *Arvicola terrestris*, M. Degerbøl:
 2 ♂.
 Utterslev (Sjælland), VI-1895, mousenest, S. Jensen: 3 ♀.
 Without locality: 9-VIII-1881, *Talpa europaea*, H. J. Hansen:
 1 ♂, 1 ♀; 28-VIII-1927, nest of common vole, C. Steenberg: 1 ♀;
 R. W. Schlick: 11 ♂, 9 ♀.

Ctenophthalmus (Ctenophthalmus) bisocdentatus Kole-
 nati, 1863.

- Bistrup Enge, near Holte (Sjælland), 6-III-1911, from the nest
 of *Talpa europaea*, E. Suenson: 1 ♀; 19-III-1916, from the nest
 of *Talpa europaea*, J. P. Kryger: 9 ♂, 8 ♀; 16-IX-1917, from the
 nest of *Talpa europaea*, K. L. Henriksen: 1 ♀; 20-III-1920, from
 the nest of *Talpa europaea*, J. P. Kryger: 10 ♂, 21 ♀.
 Boserup, near Roskilde (Sjælland), 17-IV-1915, from the nest of
Talpa europaea, J. P. Kryger: 1 ♀.
 Holte (Sjælland), 2-IV-1916, from the nest of *Talpa europaea*,
 J. P. Kryger: 10 ♂, 28 ♀.
 København (Sjælland), 5-VI-1910, *Talpa europaea*, J. P. Kryger:
 1 ♂, 2 ♀.
 Rudehegn (Sjælland), 2-IV-1916, from the nest of *Talpa europaea*,
 J. P. Kryger: 2 ♂, 3 ♀.
 Sorø (Sjælland), *Talpa europaea*: 3 ♂, 3 ♀.
 Tisvilde Hegn (Sjælland), 20-IV-1919, from the nest of *Talpa*
europaea: 1 ♀.
 Without locality: R. W. Schlick: 2 ♂, 3 ♀.

Ctenophthalmus (Euctenophthalmus) uncinatus (Wagner),
 1898.

- Bistrup Enge, near Holte (Sjælland), 19-III-1916, from the nest
 of *Talpa europaea*, J. P. Kryger: 2 ♀; 20-III-1920, from the
 nest of *Talpa europaea*, J. P. Kryger: 1 ♀.
 Bregninge (Taasinge), 11-VII-1947, *Microtus agrestis*, E. Ursin:
 1 ♂, 1 ♀.
 Holte (Sjælland), 2-IV-1916, from the nest of *Talpa europaea*,
 J. P. Kryger: 1 ♂, 1 ♀.
 Hunderup (Fyn), 31-VII-1906, in wrack washed ashore, N. P.
 Jørgensen: 1 ♂, 3 ♀.
 Langebæk Vesterskov (Sjælland), 21-VIII-1893, mousenest, F.
 Meinert: 2 ♀.

- Lysemose (Lolland), 3-VIII-1874, free, R. W. Schlick: 1 ♂, 2 ♀.
 Rudehegn (Sjælland), 2-IV-1916, from the nest of *Talpa europaea*,
 J. P. Kryger: 1 ♀.
 Ryget (Sjælland), 15-XI-1919, *Clethrionomys glareolus*: 1 ♂.

Family **Ischnopsyllidae**.

Subfamily **Ischnopsyllinae**.

Ischnopsyllus hexactenus (Kolenati), 1856.

Kronborg (Sjælland), *Plecotus auritus*, Bergsøe: 1 ♀.

Ischnopsyllus elongatus (Curtis), 1832.

Høje Sandbjerg (Sjælland), 21-VII-1919, *Vespertilio murinus*, R.
 Hørring: 1 ♀; 9-VIII-1919, *Nyctalus noctula*, R. Hørring: 2 ♂.

Ischnopsyllus intermedius (Rothschild), 1898.

Christianshavn (Sjælland), 3-II-1857, *Myotis dasycneme*, R. Con-
 radsen: 1 ♂.

Søby (Ærø), summer 1903, *Eptesicus serotinus*: 2 ♂, 4 ♀.

Ischnopsyllus simplex simplex Rothschild, 1906, or **I. s. mysticus** Jordan, 1942.*)

Dyrehaven (Sjælland), 8-VIII-1897, from a bat, R. W. Schlick:
 1 ♀.

Ischnopsyllus octactenus (Kolenati), 1856.

Dyrehaven (Sjælland), 11-XI-1932, *Pipistrellus pipistrellus*, R.
 Hørring: 1 ♀.

Frederiksberg (Sjælland), 1-VIII-1913, *Vespertilio murinus*, A. V.
 S. Norgaard: 1 ♀.

Helsingør (Sjælland), 6-VIII-1917, *Pipistrellus pipistrellus*, R.
 Hørring: 2 ♂, 9 ♀.

Høje Sandbjerg (Sjælland), 24-VII-1919, *Pipistrellus pipistrellus*,
 R. Hørring: 1 ♂, 2 ♀; 13-VIII-1919, *Pipistrellus pipistrellus*,
 R. Hørring: 4 ♀.

Taastrup (Sjælland), from the nest of *Delichon urbica*, R. W.
 Schlick: 1 ♀.

Tranekjær (Langeland), 1895, *Pipistrellus pipistrellus*, R. W.
 Schlick: 34 ♂, 80 ♀.

Without locality: *Pipistrellus pipistrellus*, R. W. Schlick: 1 ♂;
Myotis mystacinus, R. W. Schlick: 1 ♀.

*) It is not yet known which of these two subspecies occurs in Denmark, since only one female has been collected thus far and the females of these two subspecies are indistinguishable.

Ischnopsyllus variabilis (Wagner), 1898.

Jægerspris (Sjælland), 1-VII-1880, E. A. Løvendal; 1 ♀.

Ischnopsyllus obscurus (Wagner), 1898.

København (Sjælland), 28-VIII-1924, *Vespertilio murinus*, C. Madsen: 1 ♀.

Rudeskov (Sjælland), 30-VI-1918, *Vespertilio murinus*, R. Hørring: 1 ♂.

Nycteridopsylla eusarca Dampf, 1908.

Tranekjær (Langeland), 1895, *Pipistrellus pipistrellus*, R. W. Schlick: 3 ♂, 2 ♀.

Nycteridopsylla longiceps Rothschild, 1908.

Fuglsang (Lolland), 27-III-1940, *Barbastella barbastellus*; 1 ♂.

Tranekjær (Langeland), 1895, *Pipistrellus pipistrellus*, R. W. Schlick: 1 ♂.

Family **Leptopsyllidae**.Subfamily **Leptopsyllinae**.**Leptopsylla segnis** (Schönherr), 1811.

Avernakø, 2-VII-1947, *Mus musculus*, E. Ursin: 4 ♂, 4 ♀.

Korshavn (Avernakø), 2-VII-1947, *Mus musculus*, E. Ursin: 3 ♀.

Odense (Fyn), X-1891, *Mus musculus*, N. P. Jørgensen: 2 ♂, 3 ♀.

Viborg (Jylland), 1894, *Mus musculus*, H. C. C. Mortensen: 12 ♂, 20 ♀.

Without locality: *Mus musculus*, R. W. Schlick: 9 ♂, 13 ♀; *Mus musculus*, R. Conradsen: 3 ♀; *Mus musculus*: 2 ♀.

Peromyscopsylla silvatica silvatica (Meinert), 1896.

Frijsenborg (Jylland), IX-1884, mousenest in tree-stump in a wood, E. A. Løvendal: 2 ♀.*)

Family **Ceratophyllidae**.Subfamily **Ceratophyllinae**.**Ceratophyllus gallinae gallinae** (Schrank), 1803.

Amager (West coast of —), 30-IV-1908, *Charadrius alexandrinus*, R. H. Stamm: 1 ♀.

Bellahøj (Sjælland), 25-IX-1915, from the nest of *Sturnus vulgaris*, J. P. Kryger: 3 ♂, 3 ♀.

*) These are the two specimens which Meinert mentioned in the description of the species; since no holotype was designated and neither of the two specimens was labelled as such, I have selected one of the two females as a lectotype.

- Birkum (Fyn), 26-II-1910, in chicken-nest, A. V. S. Norgaard: 17 ♂, 32 ♀.
- Blaavands Huk (Jylland), 21-III-1916, *Sturnus vulgaris*: 1 ♀.
- Charlottenlund (Sjælland), 1-IV-1925, from the nest of *Passer domesticus*: 2 ♀; 20-II-1928, from the nest of *Sturnus vulgaris*, O. Schaltz: 1 ♀; III-1930, in nesting-box, O. Schaltz: 7 ♂, 19 ♀; 1-IV-1931, in nesting-box, O. Schaltz: 172 ♂, 228 ♀.
- Dyrehaven (Sjælland), 10-IV-1932, nest in a hole of a tree, V. Hansen: 40 ♂, 59 ♀; 29-III-1948, *Sciurus vulgaris*: 1 ♀; *Musci-capa striata*, C. Drewsen: 2 ♂, 5 ♀.
- Fole Kirke (Jylland), 7-VII-1928, *Pipistrellus pipistrellus*, H. Lange: 2 ♀.
- Fruens Bøge, near Odense (Fyn), 27-X-1889, N. P. Jørgensen: 1 ♂.
- Hareskov (Sjælland), 23-VI-?, from the nest of *Fringilla coelebs*, J. P. Kryger: 2 ♂, 1 ♀.
- Hellerup (Sjælland), 10-V-1928, free in a garden, Møller: 3 ♂, 1 ♀.
- Hjelm Fyr (East of Jylland), 8-V-1924, *Phylloscopus trochilus*, R. Hørring: 1 ♀.
- Jylland, *Actitis hypoleucis*, Fischer: 1 ♀.
- København (Sjælland), 12-IX-1948, in nesting-box (probably of *Parus coeruleus*), S. L. Tuxen: 5 ♂, 12 ♀.
- Lejre (Sjælland), 22-VI-1924, from the nest of *Columba livia*, E. Rosenberg: 1 ♂, 1 ♀.
- Lekkende (Sjælland), IV-1878, from the nest of *Passer domesticus*, R. W. Schlick: many ♂ and ♀.
- Lolland, 8-VII-1916, from the nest of *Fringilla coelebs*: 19 ♂, 22 ♀; VIII-1916, from the nest of *Turdus* sp.: 15 ♂, 19 ♀.
- Lyngby Mose (Sjælland), 11-IV-1875, free, R. W. Schlick: 1 ♂, 1 ♀; 1939, from the nest of *Parus* sp., C. Wang: 9 ♂, 4 ♀.
- Odsherred (Sjælland), X-1934, *Mustela erminea*, A. Ditlevsen: 1 ♀.
- Østre Flak Fyr (northern Kattegat), 1-IV-1916, *Alauda arvensis*: 1 ♀.
- Randers (Jylland), 17-IV-1894, nesting-box of *Parus* sp., O. Jacobsen: 20 ♂, 4 ♀.
- Slagslunde (Sjælland), 26-VII-1936, pigeonnest and chickenhouse, E. Rosenberg: 3 ♂, 9 ♀.
- Thisted (Jylland), 10-VIII-1949, *Carduelis cannabina*, S. L. Tuxen: 1 ♀.
- Tranekjær (Langeland), IV-1878, from the nest of *Passer domesticus*, R. W. Schlick: 7 ♂, 17 ♀; from the nest of *Delichon urbica* or *Hirundo rustica*, R. W. Schlick: 4 ♂, 5 ♀.
- Utterslev Mose (Sjælland), I-1914, from the nest of *Acrocephalus scirpaceus*, J. P. Kryger: 1 ♂, 1 ♀.

Without locality: 20-IV-1940, nesting-box of *Parus* sp., Danmarks Akvarium: 10 ♂, 7 ♀.

Ceratophyllus fringillae (Walker), 1856.

Hellerup (Sjælland), 22-IV-1926, from the nest of *Passer domesticus*, H. Madsen: 11 ♂, 4 ♀.

Lekkende (Sjælland), IV-1878, from the nest of *Passer domesticus*, R. W. Schlick: many ♂ and ♀.

Peder Bangsvej, København (Sjælland), II-1917, from the nest of *Passer domesticus*, O. Jacobsen: 1 ♂, 3 ♀.

Tranekjær (Langeland), IV-1878, from the nest of *Passer domesticus*, R. W. Schlick: 27 ♂, 16 ♀.

Without locality: under bark of a chestnuttree, E. Rosenberg: 1 ♀.

Ceratophyllus farreni Rothschild, 1905.

Dragør (Amager), 28-V-1952, from the nest of *Delichon urbica*, H. Steffensen: 6 ♂, 4 ♀.

Taastrup (Sjælland), IV-1884, from the nest of *Delichon urbica*, R. W. Schlick: 34 ♂, 58 ♀.

Ceratophyllus rusticus Wagner, 1903.

Amager, 13-VII-1911, *Delichon urbica*, R. Hørring: 1 ♀.

Cathrinedal, near Vanløse (Sjælland), 3-VI-1899, from the nest of *Delichon urbica*, M. R. Christensen: 2 ♀.

Dragør (Amager), 28-V-1952, from the nest of *Delichon urbica*, H. Steffensen: 5 ♂, 15 ♀.

Ceratophyllus hirundinis (Curtis), 1826.

Amager, 13-VII-1911, *Delichon urbica*, R. Hørring: 4 ♂, 5 ♀.

Cathrinedal, near Vanløse (Sjælland), 3-VI-1899, from the nest of *Delichon urbica*, M. R. Christensen: 1 ♀.

Dragør (Amager), 28-V-1952, from the nest of *Delichon urbica*, H. Steffensen: 11 ♂, 15 ♀.

Odense (Fyn), *Delichon urbica*, N. P. Jørgensen: 3 ♀.

Taastrup (Sjælland), IV-1884, from the nest of *Delichon urbica*, R. W. Schlick: 103 ♂, 140 ♀.

Without locality: R. W. Schlick: 3 ♀.

Ceratophyllus styx styx Rothschild, 1900.

Alstrup, near Ullis (Jylland), 26-VII-1914, from the nest of *Riparia riparia*, J. K. Findal: 3 ♀.

Esrom (Sjælland), 7-VIII-1910, from the nest of *Riparia riparia*, C. S. Larsen: 2 ♂, 13 ♀.

Skellund (Jylland), 1-VIII-1908, A. V. S. Norgaard: 1 ♀.

Tvilum (Jylland), 21-VIII-1918, from the nest of *Riparia riparia*, J. K. Findal: 2 ♂, 9 ♀.

Ceratophyllus garei garei Rothschild, 1902.

- Birkholm S. of Fyn, 27-VI-1947, *Arvicola terrestris*, E. Ursin: 1 ♂.
 Bregninge (Taasinge), 12-VII-1947, *Clethrionomys glareolus*, E. Ursin: 1 ♂.
 Hillerød (Sjælland), 20-VI-1931, in a nest (probably of *Parus coeruleus*), S. L. Tuxen: 1 ♀.
 Hillesvig (Lolland), 10-VI-1896, C. S. Larsen: 1 ♂.
 Holte (Sjælland), 5-VI-1906, from the nest of *Turdus* sp., J. P. Kryger: 1 ♀.
 Jons Kapel (Bornholm), 29-VII-1929, free, S. L. Tuxen: 1 ♀.
 Køge Aas (Sjælland), 14-IV-1918, bird's nest in a hollow tree, E. Rosenberg: 2 ♂, 2 ♀.
 Lolland, 8-VII-1916, from the nest of *Fringilla coelebs*: 1 ♂, 1 ♀.
 Lyngbymose (Sjælland), 13-IV-1893, R. W. Schlick: 2 ♂, 4 ♀.
 Lyngbysø (Sjælland), sieved, E. A. Løvendal: 2 ♀.
 Rørvig (Sjælland), 11-VII-1931, knocked down from a Pinus, R. Hørring: 1 ♂.
 Tisvilde (Sjælland), VII-1886, R. W. Schlick: 1 ♀.
 Without locality: R. W. Schlick: 1 ♀.

Ceratophyllus columbae (Gervais), 1844.

- Hjelm Fyr (East of Jylland), 8-V-1924, *Phylloscopus trochilus*, R. Hørring: 1 ♀.
 København (Sjælland), 20-III-1935: 1 ♀.
 Without locality: 6-III-1913, on pigeons, E. Olsen: 1 ♂, 2 ♀.

Dasypyllus gallinulae gallinulae (Dale), 1878.

- Horns Revs Fyr (West of Jylland), X-1924, *Turdus ericetorum*: 1 ♂.

Monopsyllus sciurorum sciurorum (Schrank), 1803.

- Bremersvold (Lolland), 8-VII-1916, *Sciurus vulgaris*, J. P. Kryger: 11 ♂, 11 ♀.
 Dyrehaven (Sjælland), 20-III-1932, bird's nest in a hollow oak, E. Rosenberg: 1 ♂, 6 ♀; 10-IV-1932, nest in a hole of a tree, V. Hansen: 1 ♂, 2 ♀; 20-IV-1940, *Sciurus vulgaris*: 1 ♂, 1 ♀; 29-III-1948, *Sciurus vulgaris*: 3 ♂, 3 ♀.
 Færgemarken (Lolland), 3-VIII-1896, *Sciurus vulgaris*, C. S. Larsen: 23 ♂, 22 ♀.
 Glorup (Fyn), 6-VI-1891, *Sciurus vulgaris*: 2 ♂, 5 ♀.
 Horsens (Jylland), 28-VII-1918, *Sciurus vulgaris*, K. Stephensen: 5 ♂, 4 ♀.
 Knabstrup (Sjælland), 18-X-1893, *Sciurus vulgaris*: 2 ♂, 3 ♀.
 Kolding (Jylland), 10-X-1935: 4 ♂.

- Rønne (Bornholm), 7-IX-1931, *Sciurus vulgaris*: 1 ♂, 4 ♀.
 Ryget (Sjælland), 14-VIII-1938: 1 ♀.
 Skjelhøje (Jylland), *Sciurus vulgaris*, J. Mogensen: 1 ♂, 1 ♀ (in
 Tring Collection).
 Vejers, Oksbøl (Jylland), 4-I-1935, *Sciurus vulgaris*, P. Thaarup:
 1 ♂, 3 ♀.
 Vængehus (Lolland), 17-VIII-1916, *Sciurus vulgaris*, T. Bartholin:
 2 ♂, 9 ♀.

Nosopsyllus fasciatus (Bosc), 1800.

- Alslev (Jylland), 20-III-1936, *Mus musculus*, N. Bolwig: 1 ♀.
 Bjørnø, 4-VII-1947, *Microtus agrestis*, E. Ursin: 1 ♀; 6-VII-1947,
Apodemus sylvaticus, E. Ursin: 1 ♀; 7-VII-1947, *Apodemus sylva-*
ticus, E. Ursin: 1 ♂, 1 ♀; 8-VII-1947, *Apodemus sylvaticus*, E.
 Ursin: 1 ♀; 9-VII-1947, *Apodemus sylvaticus*, E. Ursin: 1 ♂, 2 ♀.
 Hellerup (Sjælland), 8-VII-1919, *Rattus norvegicus*, K. Stephen-
 sen: 3 ♂, 13 ♀; 13-V-1937, *Mus musculus*, N. L. Wolff: 2 ♀.
 Holte (Sjælland), VIII-1928, from a rat, J. P. Kryger: 1 ♀.
 København (Sjælland), 1-V-1948, from rats, H. Madsen: 1 ♂, 6 ♀;
Rattus norvegicus, R. W. Schlick: 3 ♀.
 Korsør (Sjælland), 24-V-1924, *Rattus rattus*, E. B. Hoffmeyer:
 2 ♂, 1 ♀.
 Viborg (Jylland), *Rattus norvegicus*, Gad: 1 ♀.
 Without locality: *Mus musculus*, 2 ♀; R. W. Schlick: 1 ♂.

Megabothris turbidus (Rothschild), 1909.

- Bregninge (Taasinge), 12-VII-1947, *Clethrionomys glareolus*, E.
 Ursin: 1 ♂, 1 ♀.
 Faaborg (Fyn), 28-XII-1895, *Mustela erminea*, C. S. Larsen: 1 ♀.
 Fruens Bøge, near Odense (Fyn), 21-III-1897, N. P. Jørgensen:
 1 ♂.
 Geelskov (Sjælland), 11-III-1878: 13 ♀.
 Holluf, near Odense (Fyn), 30-VIII-1903, N. P. Jørgensen: 1 ♂.
 Krageskov, near Odense (Fyn), 3-V-1896, sieved, N. P. Jørgensen:
 1 ♂.
 Lysemose (Lolland), 25-II-1883, free, R. W. Schlick: 1 ♀.
 Odense (Fyn), 24-II-1897, sieved, N. P. Jørgensen: 1 ♂.
 Strødam, near Hillerød (Sjælland), 6-VII-1932, in a decayed tree
 stump, S. L. Tuxen: 1 ♀.
 Tørning, near Haderslev (Jylland), 8-X-1920, from a young mouse,
 J. K. Findal: 2 ♀.
 Without locality: 1-I-1894, from the nest of *Apodemus sylvaticus*:
 1 ♂.

Megabothris walkeri (Rothschild), 1902.

- Birkholm S. of Fyn, 25-VI-1947, *Arvicola terrestris*, E. Ursin: 1 ♀.
 Damhusmosen (Sjælland), 10-IV-1873 & 15-III-1880, R. W. Schlick:
 1 ♂, 3 ♀; 5-III-1911, in wrack floating on water, A. West: 1 ♀.
 Holstebro (Jylland), 24-VII-1940, *Mustela nivalis*, C. Overgaard:
 1 ♀.
 Holte (Sjælland), VIII-1928, from a rat, J. P. Kryger: 3 ♂, 1 ♀.
 Hunderup (Fyn), 7-IV-1897, N. P. Jørgensen: 1 ♀.
 Lysemose (Lolland), 3-IX-1874, from the nest of *Lasius fuliginosus*, R. W. Schlick: 1 ♀.
 Lyngbysø (Sjælland), sieved, E. A. Løvendal: 2 ♀.
 Randers (Jylland), in wrack washed ashore, R. W. Schlick: 1 ♀.
 Rudehegn (Sjælland), 26-IV-1910, mousenest, E. Suenson: 1 ♂, 2 ♀.
 Utterlev (Sjælland), VI-1895, mousenest, S. Jensen: 1 ♂, 4 ♀.
 Without locality: *Microtus agrestis*, R. W. Schlick: 2 ♀.

Paraceras melis melis (Walker), 1856.

- Frederiksdal (Sjælland), 5-VII-1914, from a burrow of *Vulpes vulpes*: 2 ♀.
 Færgegaarden (Lolland), 16-VII-1916, *Meles meles*, T. Bartholin:
 2 ♀.
 Geelskov (Sjælland), 11-IV-1933, *Meles meles*, A. Jørgensen: 1 ♂.
 Hillesvig (Lolland), 25-VI-1896, *Meles meles*, C. S. Larsen: 1 ♀.
 Høje Sandbjerg (Sjælland), 23-VII-1919, *Meles meles*, R. Hørring:
 several ♂ and ♀.
 Mørkøv (Sjælland), 22-III-1949, *Meles meles*, P. Valentin Jensen:
 several ♂ and ♀.
 Risinge (Fyn), 13-VII-1901, *Meles meles*, C. S. Larsen: 1 ♀.
 Skovshoved (Sjælland), 27-X-1939, *Meles meles*: 3 ♂, 30 ♀.
 Slotshegnet, Jægerspris (Sjælland), 2-VI-1932, *Vulpes vulpes*, A.
 Windeballe: 1 ♀.
 Without locality: *Meles meles*, R. Conradsen: 6 ♀; *Meles meles*:
 4 ♀.

Host-flea Index

(* denotes accidental occurrence).

Class *Mammalia*.

Order *Insectivora*.

Talpa europaea Linnaeus

Hystriochopsylla talpae (Curtis)

Rectofrontia pentacantha (Rothschild)

- Palaeopsylla kohauti* Dampf
 **Palaeopsylla soricis soricis* (Dale)
Ctenophthalmus agyrtes agyrtes (Heller)
Ctenophthalmus bisoctodentatus Kolenati
Ctenophthalmus uncinatus (Wagner)
Sorex araneus Linnaeus
Hystrichopsylla talpae (Curtis)
Palaeopsylla soricis soricis (Dale)
Sorex sp.
Palaeopsylla soricis soricis (Dale)
Doratopsylla dasyncnemus (Rothschild)
Erinaceus europaeus Linnaeus
Archaeopsylla erinacei erinacei (Bouché)
 **Pulex irritans* Linnaeus

Order Chiroptera.

- Myotis dasyncneme* (Boie)
Ischnopsyllus intermedius (Rothschild)
Myotis mystacinus (Kuhl)
Ischnopsyllus octactenus (Kolenati)
Plecotus auritus (Linnaeus)
Ischnopsyllus hexactenus (Kolenati)
Pipistrellus pipistrellus (Schreber)
Ischnopsyllus octactenus (Kolenati)
Nycteridopsylla eusarca Dampf
Nycteridopsylla longiceps Rothschild
 **Ceratophyllus gallinae gallinae* (Schrank)
Nyctalus noctula (Schreber)
Ischnopsyllus elongatus (Curtis)
Vespertilio murinus Linnaeus
Ischnopsyllus elongatus (Curtis)
Ischnopsyllus octactenus (Kolenati)
Ischnopsyllus obscurus (Wagner)
Eptesicus serotinus (Schreber)
Ischnopsyllus intermedius (Rothschild)
Barbastella barbastellus (Schreber)
Nycteridopsylla longiceps Rothschild
 "Bat"
Ischnopsyllus simplex ssp.

Order **Primates.***Homo sapiens* Linnaeus*Pulex irritans* LinnaeusOrder **Rodentia.***Sciurus vulgaris* Linnaeus*Monopsyllus sciurorum sciurorum* (Schrank)**Ceratophyllus gallinae gallinae* (Schrank)*Sicista betulina* (Pallas)*Ctenophthalmus agyrtes agyrtes* (Heller)*Clethrionomys glareolus* (Schreber)*Ctenophthalmus agyrtes agyrtes* (Heller)*Ctenophthalmus uncinatus* (Wagner)*Megabothris turbidus* (Rothschild)**Ceratophyllus garei garei* Rothschild*Arvicola terrestris* (Linnaeus)*Hystrichopsylla talpae* (Curtis)*Ctenophthalmus agyrtes agyrtes* (Heller)*Megabothris walkeri* (Rothschild)**Ceratophyllus garei garei* Rothschild*Microtus agrestis* (Linnaeus)*Hystrichopsylla talpae* (Curtis)*Ctenophthalmus agyrtes agyrtes* (Heller)*Ctenophthalmus uncinatus* (Wagner)*Nosopsyllus fasciatus* (Bosc)*Megabothris walkeri* (Rothschild)*Rattus rattus* (Linnaeus)*Nosopsyllus fasciatus* (Bosc)*Rattus norvegicus* (Berkenhout)*Ctenophthalmus agyrtes agyrtes* (Heller)*Nosopsyllus fasciatus* (Bosc)

"Rats"

Nosopsyllus fasciatus (Bosc)*Megabothris walkeri* (Rothschild)*Mus musculus* Linnaeus*Ctenophthalmus agyrtes agyrtes* (Heller)*Leptopsylla segnis* (Schönherr)*Nosopsyllus fasciatus* (Bosc)

- Apodemus sylvaticus* (Linnaeus)
 Typhloceras poppei Wagner
 Ctenophthalmus agyrtes agyrtes (Heller)
 Nosopsyllus fasciatus (Bosc)
 Megabothris turbidus (Rothschild)
Apodemus flavicollis (Melchior)
 Hystrihopsylla talpae (Curtis)
 "Mice"
 Hystrihopsylla talpae (Curtis)
 Ctenophthalmus agyrtes agyrtes (Heller)
 Ctenophthalmus uncinatus (Wagner)
 Peromyscopsylla silvatica silvatica (Meinert)
 Megabothris turbidus (Rothschild)
 Megabothris walkeri (Rothschild)

Order **Carnivora.**

- Canis familiaris* Linnaeus
 Ctenocephalides canis (Curtis)
 Ctenocephalides felis felis (Bouché)
Vulpes vulpes (Linnaeus)
 Chaetopsylla globiceps (Taschenberg)
 Paraceras melis melis (Walker)
Martes martes (Linnaeus)
 * *Archaeopsylla erinacei erinacei* (Bouché)
Mustela erminea Linnaeus
 * *Chaetopsylla globiceps* (Taschenberg)
 Ctenophthalmus agyrtes agyrtes (Heller)
 Rectofrontia pentacantha (Rothschild)
 Megabothris turbidus (Rothschild)
 * *Ceratophyllus gallinae gallinae* (Schrank)
Mustela nivalis Linnaeus
 Megabothris walkeri (Rothschild)
Meles meles (Linnaeus)
 Chaetopsylla trichosa Kohaut
 Paraceras melis melis (Walker)
Felis catus Linnaeus
 Ctenocephalides felis felis (Bouché)

Class *Aves*.Order **Galliformes**.*Gallus domesticus**Ceratophyllus gallinae gallinae* (Schrank)Order **Charadriiformes**.*Charadrius alexandrinus* Linnaeus* *Pulex irritans* Linnaeus*Ceratophyllus gallinae gallinae* (Schrank)*Actitis hypoleucos* (Linnaeus)*Ceratophyllus gallinae gallinae* (Schrank)Order **Columbiformes**.*Columba oenas* Linnaeus*Ceratophyllus gallinae gallinae* (Schrank)

"Turtledove"

Hectopsylla psittaci von Frauenfeld

"Pigeons"

Ceratophyllus columbae (Gervais)*Ceratophyllus gallinae gallinae* (Schrank)Order **Passeriformes**.*Alauda arvensis* Linnaeus*Ceratophyllus gallinae gallinae* (Schrank)*Delichon urbica* (Linnaeus)*Ceratophyllus farreni* Rothschild*Ceratophyllus rusticus* Wagner*Ceratophyllus hirundinis* (Curtis)*Ceratophyllus gallinae gallinae* (Schrank)* *Ischnopsyllus octactenus* (Kolenati)*Riparia riparia* (Linnaeus)*Ceratophyllus styx styx* Rothschild*Parus caeruleus* Linnaeus*Ceratophyllus gallinae gallinae* (Schrank)*Ceratophyllus garei garei* Rothschild*Parus* sp.*Ceratophyllus gallinae gallinae* (Schrank)*Ceratophyllus fringillae* (Walker)

- Turdus ericetorum* Turton
Dasypsyllus gallinulae gallinulae (Dale)
Turdus sp.
Ceratophyllus gallinae gallinae (Schrank)
Ceratophyllus garei garei Rothschild
Phylloscopus trochilus (Linnaeus)
Ceratophyllus gallinae gallinae (Schrank)
Ceratophyllus columbae (Gervais)
Acrocephalus scirpaceus (Hermann)
Ceratophyllus gallinae gallinae (Schrank)
Muscicapa striata (Pallas)
Ceratophyllus gallinae gallinae (Schrank)
Sturnus vulgaris Linnaeus
Ceratophyllus gallinae gallinae (Schrank)
Passer domesticus (Linnaeus)
Ceratophyllus gallinae gallinae (Schrank)
Ceratophyllus fringillae (Walker)
Carduelis cannabina (Linnaeus)
Ceratophyllus gallinae gallinae (Schrank)
Fringilla coelebs Linnaeus
Ceratophyllus gallinae gallinae (Schrank)
Ceratophyllus garei garei Rothschild.

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