Notes on the Danish species of the Genus *Tinea* L. (Lep., Tineidae) and selection of a neotype of *Tinea pellionella* L.

By Bent W. Rasmussen.

Since C. S. Larsen in 1916 published his "Fortegnelse over Danmarks Microlepidoptera" and the supplement in 1926 nothing has been published about the examination of the genus *Tinea* in Denmark and since C. S. Larsen wrote his catalogue without a previous examination of the genitalia of the species a revision might be in place.

In his paper "Genitalien der Palæarktischen Tineiden" 1957, dr. G. Petersen splits the big genus *Tinea* L.; for example the *granellus-cloacellus* group is placed in a separate genus *Nemapogon* Schrk. The genus *Tinea* L. consists now of *T. pellionella* L., *leonhardi* Pet., *lanella* P. & M., *turicensis* Müll.-Rutz, *pallescentella* Stt., *bothniella* Svenson, *columbariella* Wck., *basifasciella* Rag., *semifulvella* Haw., and *trinotella* Thnbg.

This paper concerns exclusively the Danish species of the genus *Tinea: T. pellionella* L., *turicensis* Müll.-Rutz, *pallescentella* Stt., *columbariella* Wck., *semifulvella* Haw., and *trinotella* Thnbg.

By courtesy of dr. phil. S. L. Tuxen the Tineid material in the Zoological Museum of Copenhagen has been placed at my disposal. I wish to thank dr. G. Petersen, Deutsches Entomologisches Institut, Berlin; Mr. W. T. Tams, London; dr. Karl-Johan Hedquist and dr. Bertil Kullenberg, Sweden for kind assistance in searching for the type of *Tinea pellionella* L. Also I am very grateful to dr. F. Keyser, Naturhistorisches Museum, Basel and Mr. J. D. Bradley, British Museum (N.H.), London for lending me type-material.

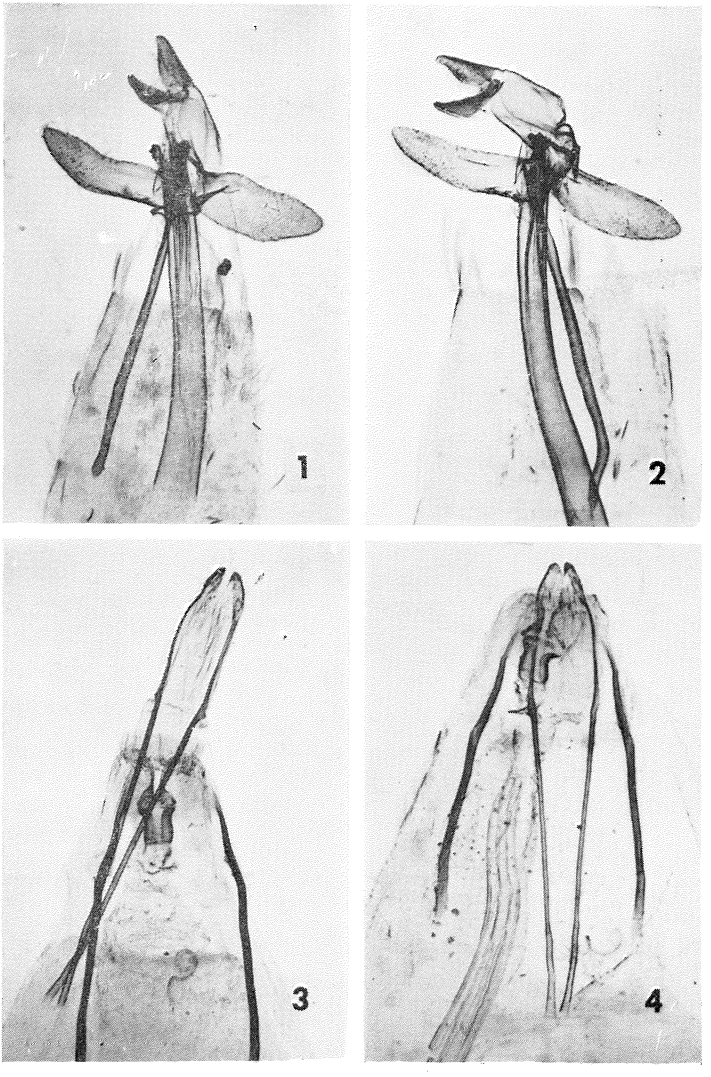
The slides I have made are all undyed and mounted in a modified Berlese fluid. The photomicrographs are made by Reichert microscopes "Biozet" and "Zetopan" equipped with rotating phase-condensor, ordinary optic and phase-optic, and Reichert cameras "Remica II" 24×36, "Kam B" 9×12 cm and Zeiss

"Universal camera" 9×12 cm. Ordinary negative-positive process is used. The photomicrographs, figures 19, 21 and 22 are taken with a polaroid camera in connexion with a modified Reichert "Kam VBX" made by H. Struers Chemiske Laboratorium, Copenhagen, and I wish to express my thanks to Mr. Johansen and Mr. Skov of that firm. Without their assistance it would not have been possible to take the photomicrographs.

Tinea pellionella L. 1758.

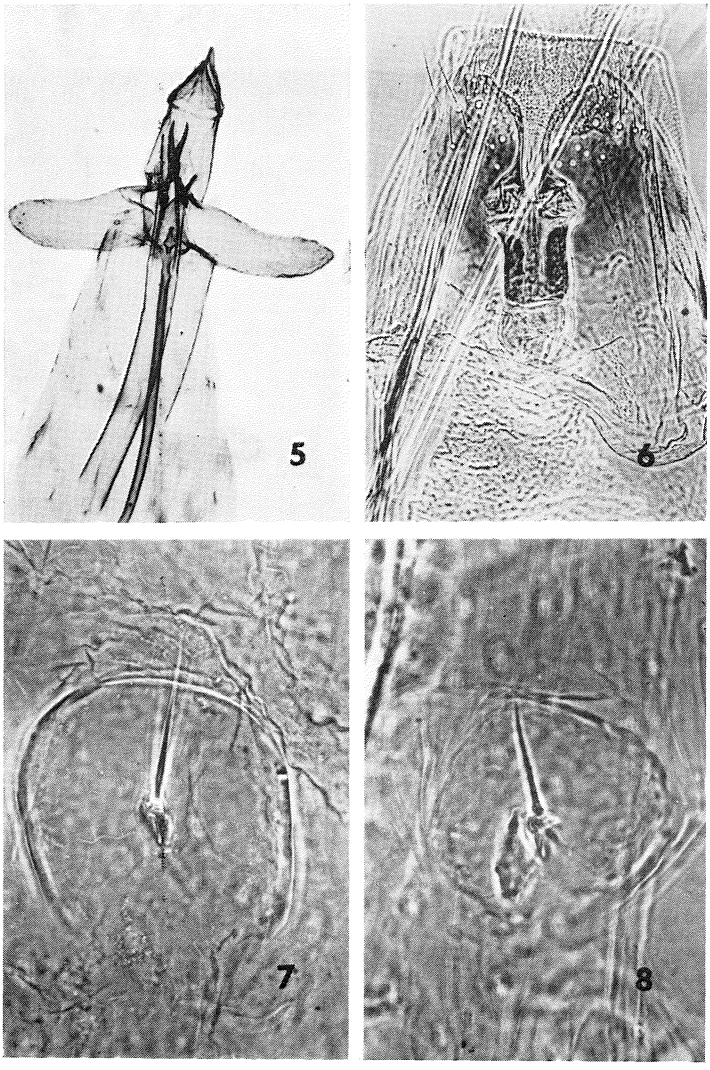
G. Petersen writes in his paper 1957: "Typus: Linn. Soc. London". The type was not studied and my inquiry in London gave the result that *T. pellionella* L. has not been recorded in any list dealing with the types in Linn. Soc. and a very careful search for it gave no result either. Later I have searched for it in Sweden: Riksmuseet, Stockholm and Zoologiska Institutionen, Uppsala, again without success. As the type of *T. pellionella* L. must be regarded as lost and as F. N. Pierce in 1935 is the first one to give a picture of the genitalia of *T. pellionella* L., I suggest that one of his specimens be selected neotype. The late F. N. Pierce's collection has been divided between The City of Liverpool Museums and The British Museum (N.H.), so that the specimens themselves are in Liverpool and only the slides are in The British Museum (N.H.), and unfortunately the specimens and the slides are not labelled in accordance with each other. However, in this case the only way to determine the moths is by examination of the genitalia, so I think that it must be sufficient to base a neotype selection on the genitalia alone. F. N. Pierce has a series consisting of three males and two females on the same slide (the low-power micrographs figs. 1—5) and I have selected a male **Neotype** (Slide F. N. Pierce No. 3222 pellionella. Coll. British Museum (N.H.).

♂♂: Uncus, gnathos, tegumen, saccus, valvae, and aedoeagus are very much alike in *pellionella* L., *leonhardi* Pet., *lanella* P. & M., and *turicensis* Müll.-Rutz. *T. pellionella* L., *leonhardi* Pet., and *lanella* P. & M. have two strong cornuti, *pellionella* L. has besides some small spines in vesica, (figs. 13—16), *leonhardi* Pet. has strong spines, and *lanella* P. & M. has two combshaped ones. Petersen (1957) attaches systematic importance to the anellus lobes, however I cannot agree as I have found the scale of variation too great. The teeth of the anellus lobes should be strong-

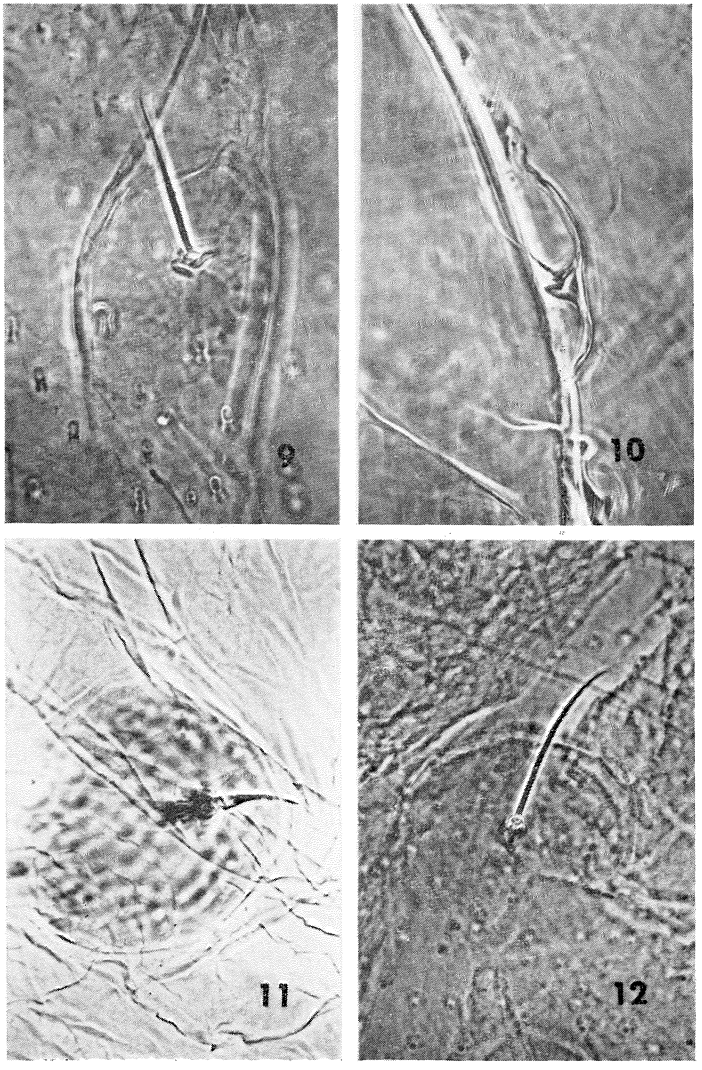


Tinea pellionella L. Para-neotypes 40 : 1. F. N. Pierce No. 3222 ♂♂♂♀♀. British Museum (N.H.). Figures 1—2. ♂ Genitalia. Figures 3—4. ♀ Papillae anales, ductus bursae.

PLATE II.

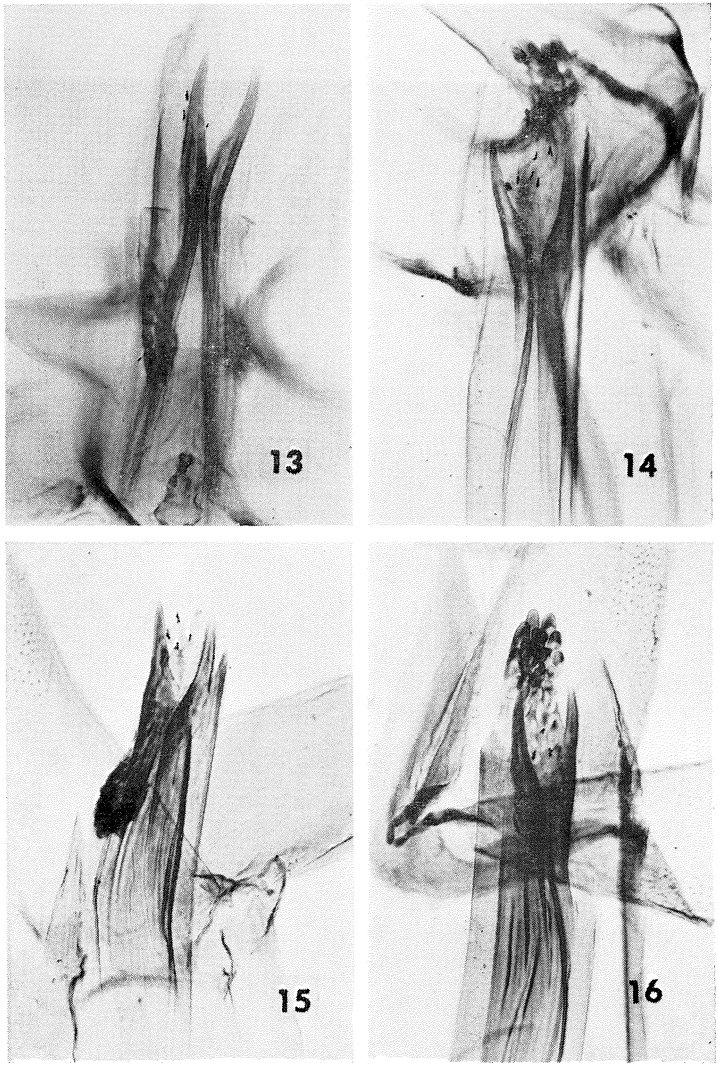


Tinea pellionella L. Figure 5. Genitalia 40 : 1. Neotype. F. N. Pierce No. 3222. Figure 6. ♀ Lamella antevaginalis, antrum, ductus bursae 100 : 1. Para-neotypes, F. N. Pierce No. 3222. Figures 7—8. ♀ Signa 300 : 1. B. W. R. No. 2014, Kerteminde 1953 W. H.

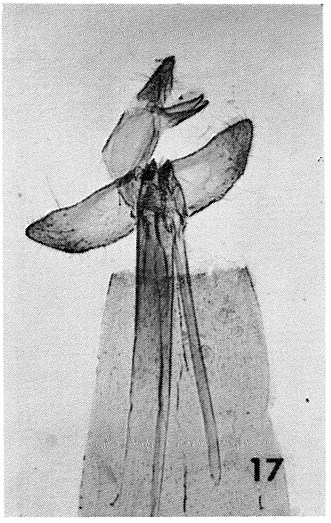


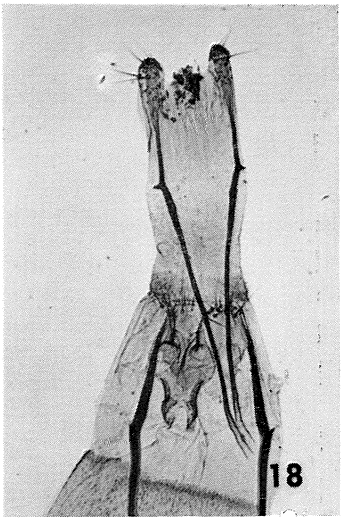
Tinea pellionella L. ♀ Signa 300 : 1. Figures 9—11. Para-neotypes Figures 9 and 11, ventral. Figure 10, lateral. F. N. Pierce No. 3222. Figure 12. B. W. R. No. 2119, Horsens.

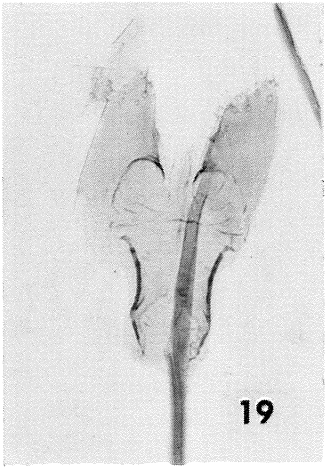
PLATE IV.



Tinea pellionella L. ♂ Anellus, aedoeagus, cornuti 150 : 1. Figures 13—14. F. N. Pierce No. 3222. Figure 15. B. W. R. No. 1988, Frederikshavn 6-XI-1955. Figure 16. B.W.R. No. 1986, Frederikshavn 6-XI-1955.

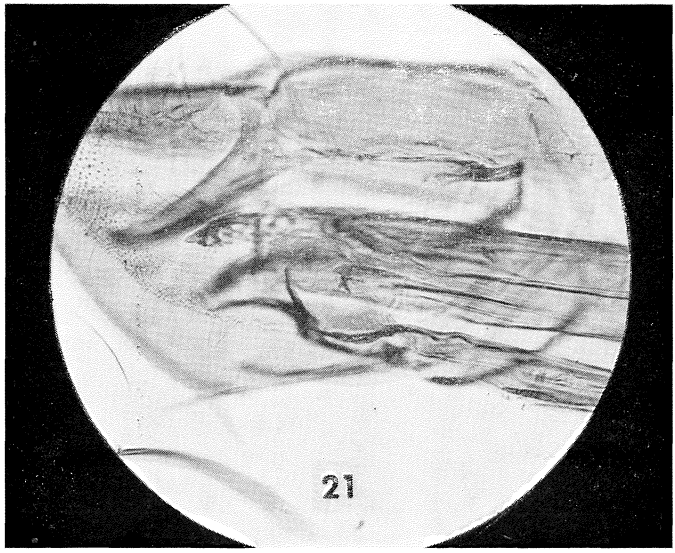


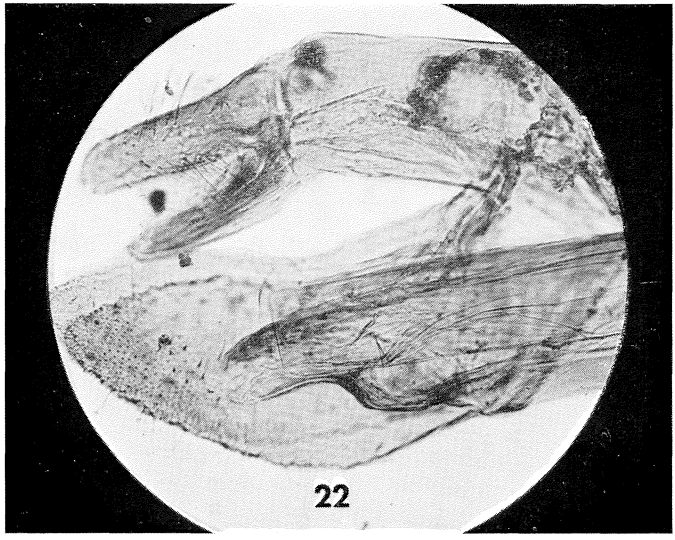




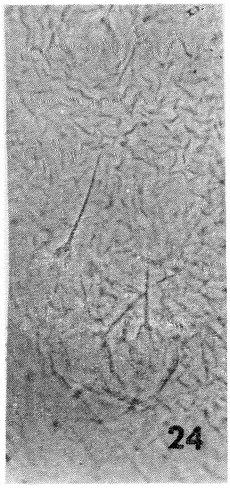
Tinea turicensis Müll.-Rutz. Figure 17. ♂ Genitalia 40 : 1. B. W. R. No. 2012, Faaborg 21-VII-1915. Figure 18. ♀ Papillae analis, ductus bursae 40 : 1. B. W. R. No. 2116, Faaborg 4-VII-1899. Figure 19. ♀ Lamella antevaginalis, antrum 160 : 1, paratype, Petersen No. 1745, Zürich 11-VII-1918. Nat. Hist. Mus. Basel. Figure 20. ♀ Lamella antevaginalis, antrum, ductus bursae 100 : 1. B. W. R. No. 2116.

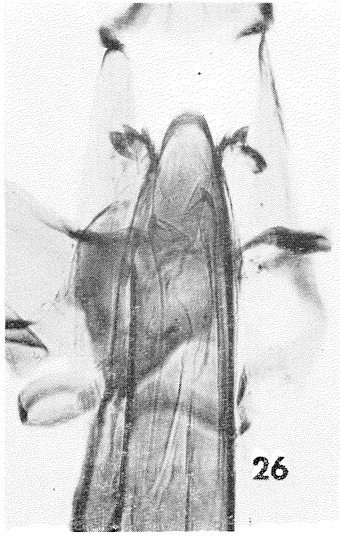
PLATE VI.

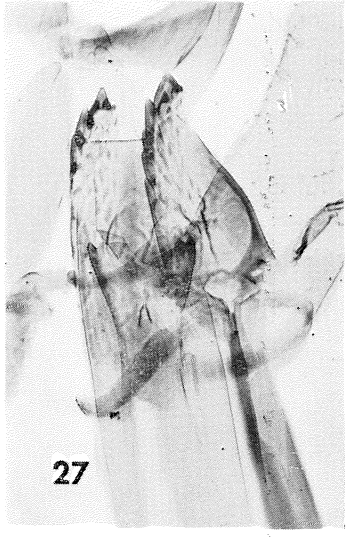




Tinea turicensis Müll.-Rutz. ♂ Uncus, gnathos, tegumen, aedoeagus and cornuti 160 : 1. Figure 21. Lectotype, M. 28, Zürich. Nat. Hist. Mus. Basel. Figure 22. Paratype, M. 29, Zürich. Nat. Hist. Mus. Basel.

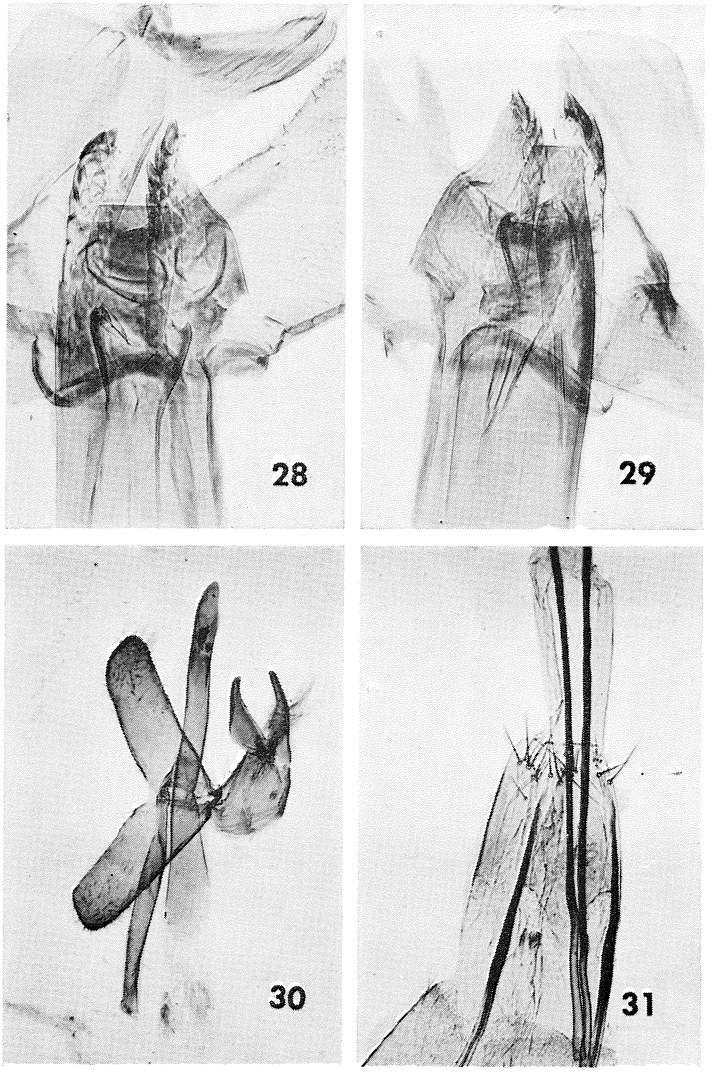






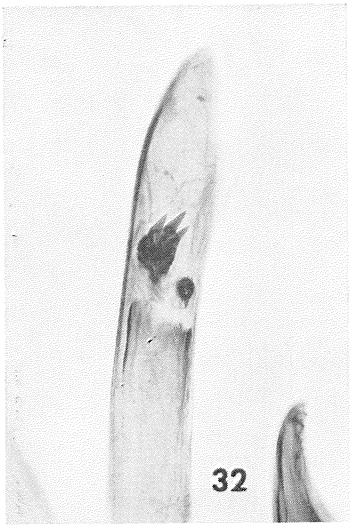
Tinea turicensis Müll.-Rutz. Figure 23. ♀ Paratype. Signum 400:1. Petersen No. 1745. Figure 24. ♀ Signum 300:1, B. W. R. No. 2101, Frederiksværk. Figure 25. ♀ Signum 600:1. B. W. R. No. 2101. Figure 26. ♂ Anellus, cornuti 150:1. F. N. Pierce No. 3204, British Museum (N.H.). Figure 27. ♂ Anellus, cornuti 150:1. B. W. R. No. 2111, Faaborg 12-VII-1916.

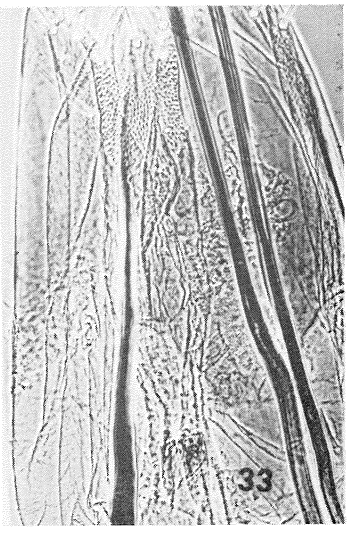
PLATE VIII.

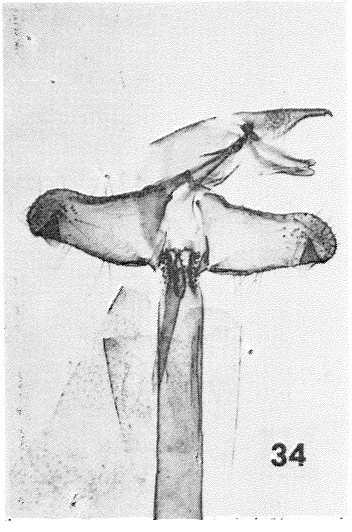


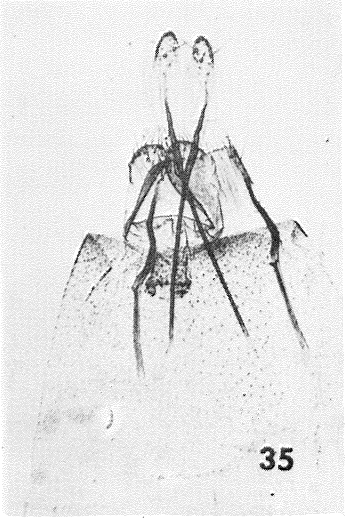
Tinea turicensis Müll.-Rutz. ♂ Anellus, cornuti 150 : 1. Figure 28. B. W. R. No. 2103, Nysted 13-VII-1943. Figure 29. B. W. R. No. 2110, Rislebæk 12-VII-1921.

Tinea pallescentella Stt. 40 : 1. Figure 30. ♂ Genitalia. B. W. R. No. 1954, Odense 26-I-1925. Figure 31. ♀ Papillae analis, ductus bursae. B. W. R. No. 2008, Odense 8-I-1925.





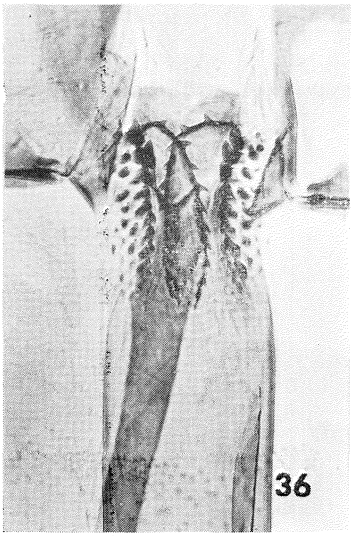


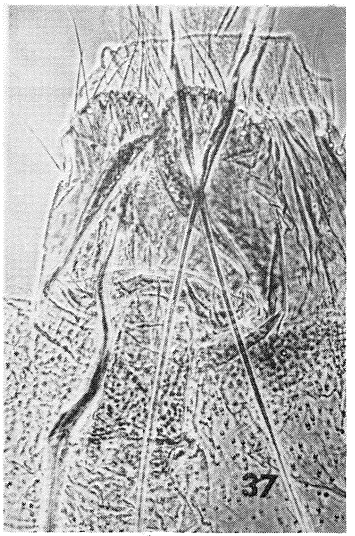


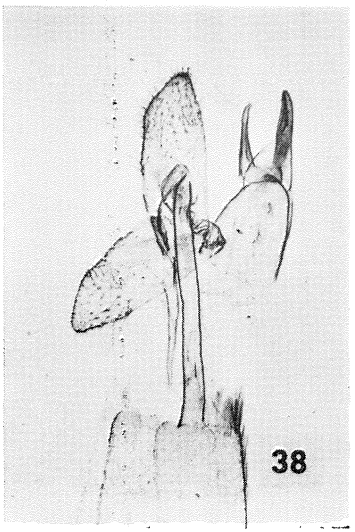
Tinea pallescentella Stt. Figure 32. ♂ Aedoeagus cornuti 150 : 1. B. W. R. No. 1954. Figure 33. ♀ Lamella antevaginalis, antrum, ductus bursae 100 : 1. B. W. R. No. 2008.

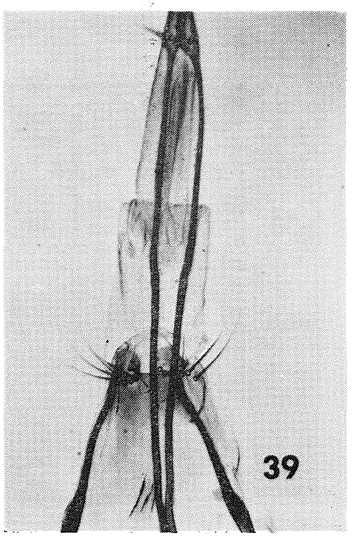
Tinea columbarietla Wck. 40 : 1. Figure 34. ♂ Genitalia, B. W. R. No. 2112, Faaborg 5-VII-1912. Figure 35. ♀ Papillae analis, ductus bursae. B. W. R. No. 2007, Weimar, Deutschland 8-VI-1912.

PLATE X.



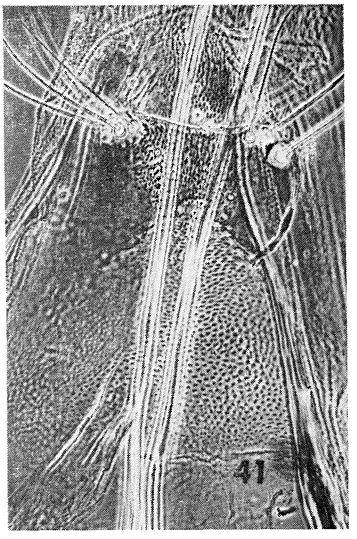


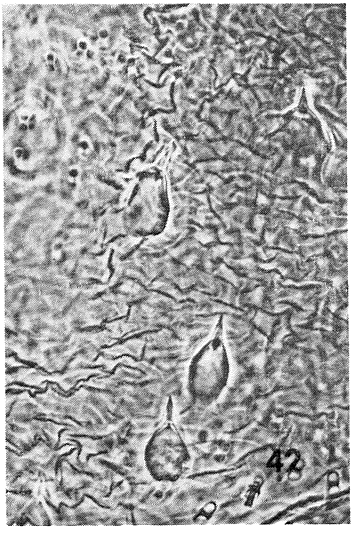




Tinea columbariella Wck. Figure 36. ♂ Anellus, aedoeagus, cornuti 150 : 1. B. W. R. No. 2112. Figure 37. ♀ Lamella antevaginalis, antrum, ductus bursae 100 : 1. B. W. R. No. 2007.

Tinea semifulvella Haw. 40 : 1. Figure 38. ♂ Genitalia. B. W. R. No. 2229, Lolland 9-VII-1916. Figure 39. ♀ Papillae anales, ductus bursae. B. W. R. No. 2230, Jægersborg 23-VI-1949.

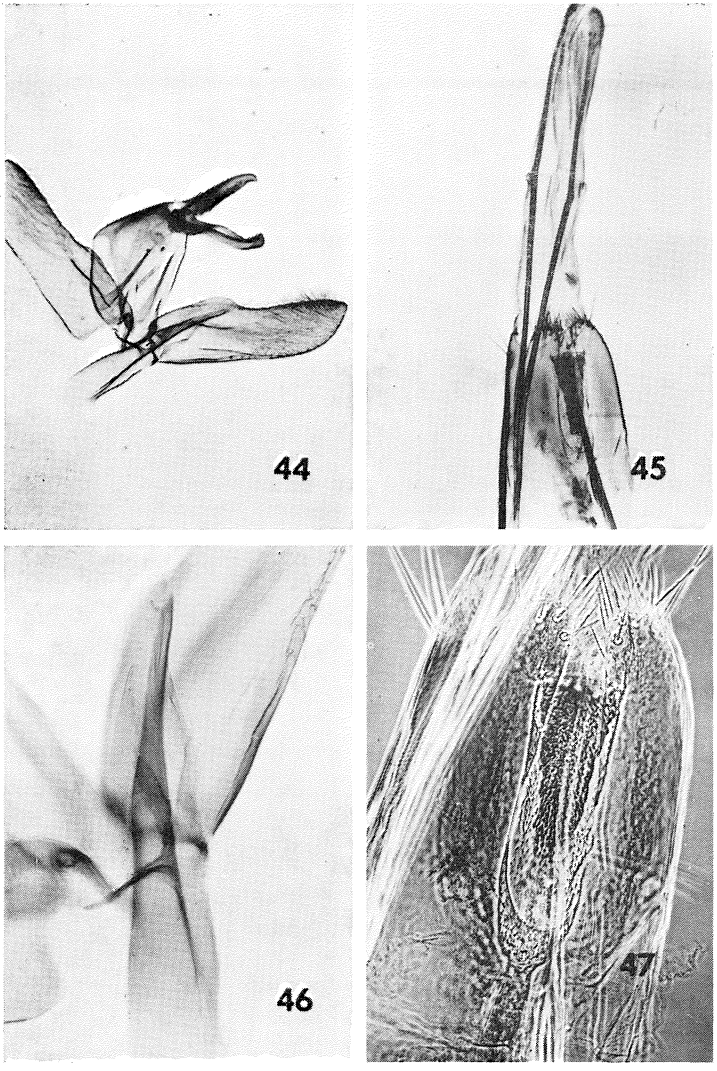




Tinea semifulvella Haw. Figure 40. ♂ Aedoeagus, anellus, cornuti 100 : 1. B. W. R. No. 2229. Figure 41. ♀ Lamella antevaginalis, ductus bursae 100 : 1. B. W. R. No. 2230. Figure 42. ♀ Signa 300 : 1. B. W. R. No. 2230.

Tinae trinotella Thnbg. Figure 43. ♀ Signum 300 : 1. B. W. R. No. 2231, Lyngbak, 12-VIII-1915.

PLATE XII.



Tinea trinotella Thnbg. Figure 44. ♂ Genitalia 40 : 1. B. W. R. No. 1950, Gentofte sø 30-V-1957. Figure 45. ♀ Papillae analis, ductus bursae 40 : 1. B. W. R. No. 1950. Figure 47. ♀ Lamella antevaginalis, antrum, ductus bursae 100 : 1. B. W. R. No. 2231.

est in *pellionella* L. and *turicensis* Müll.-Rutz, smaller in *leonhardi* Pet. and smallest in *lanella* P. & M.

♀♀: Lamella antevaginalis with a deep incision, antrum strongly sclerotized, ductus bursae folded (fig. 6). The signa, usually two, are very variable (figs. 7—12) but, they are always consisting of a plate with a fine spine, the base of which may be more or less strongly sclerotized.

T. pellionella L. is not uncommon indoors in all parts of Denmark.

Tinea turicensis Müll.-Rutz 1920.

I found this species, which is not previously recorded from Denmark, when arranging my own collection and I identified it as *T. metonella* P. & M. which, however, is a synonym of *T. turicensis* Müll.-Rutz (Petersen 1957) but, going through the literature this was not immediately evident (Müller-Rutz 1920, F. N. Pierce 1935, Corbert and Tams 1943) as the pictures (all drawings) were of a very different quality, and the scale used was much too small for a sure determination, especially regarding the females, but an examination of the types from Müller-Rutz's and F. N. Pierce's collections solved the problems, and the slides are shown here, figures 19, 21, 22, 23 and 26. To find the signa in bursa it is necessary to use a high magnification and if possible phase-contrast.

♂♂: In aedoeagus there are only two weak cornuti.

♀♀: Lamella antevaginalis with a wide incision, antrum longer and not so strongly sclerotized as in *pellionella* L. Ductus bursae folded (fig. 20). The number of signa varies here too, there is no plate, and the spine itself and the base is much weaker than in *pellionella* L.

By examination of the collection in the Zoological Museum I found that more than half of the "pellionella" belonged to *turicensis* Müll.-Rutz, and also in other collections the species were mixed in the same way. *Turicensis* Müll.-Rutz is now recorded from all Denmark and is just as common as *T. pellionella* L.

Tinea pallescentella Stt. 1851.

♂♂: Cornuti is a group of teeth of different size with a basal connexiou (fig. 32).

♀♀: Lamella antevaginalis with a deep incision (fig. 33). An-

trum densely covered with small teeth. Ductus bursae with an enlargement beyond the antrum. Signa are small weak spines.

T. pallescentella Stt. is recorded from the island of Fyn (Odense) and the island of Lolland (Nakskov).

Tinea columbariella Wck. 1877.

♂♂: Saccus is short, the valves have two patches inside (fig. 34). The cornuti are two curved lines of sharp teeth (fig. 36).

♀♀: Lamella antevaginalis with a triangular incision, antrum is strongly sclerotized (fig. 35). There is no signum.

T. columbariella Wck. is not common, only recorded from the islands: Bornholm, Sjælland, Lolland and Fyn.

Tinea semifulvella Haw. 1828.

♂♂: Saccus and aedoeagus are short (fig. 38). Vesica with many small teeth (fig. 40).

♀♀: Lamella antevaginalis with no incision. Antrum only weakly sclerotized (fig. 41). Bursa has many signa (fig. 42).

T. semifulvella Haw. is common in the whole country.

Tinea trinotella Thnbg. 1794.

Benander (1946) has shown by examination of the types in Thunberg's collection that *T. lapella* Haw. is a synonym of *T. trinotella* Thnbg. *T. trinotella* Thnbg. has priority.

♂♂: The genitalia are of the same type as *T. semifulvella* but vesica without teeth (fig. 46).

♀♀: Lamella antevaginalis with a deep incision. Antrum with some small teeth (fig. 47). In bursa there are some weak signa like those of *T. turicensis* Müll.-Rutz and *T. pallescentella* Stt. (fig. 43).

T. trinotella Thnbg. is recorded from the whole country.

Summary.

Revision of the Danish species of the genus *Tinea* L. Selection of a neotype of *Tinea pellionella* L. *Tinea turicensis* Müll.-Ruts new to the fauna. Photomicrographs of the genitalia of both sexes of all Danish species.

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Anmeldelse.

North Atlantic biota and their history. Editors: Áskell Löve and Doris Löve. London (Pergamon Press) 1964, 430 pp. Pris: 5 £ indb.

I Sommeren 1962 blev der holdt et Symposium i Reykjavik over ovenstaaende Emne, og denne Bog er et Referat af dette Symposium. Den indeholder 26 Afhandlinger af Deltagerne samt en "Introduction" og en "Conclusion" af Áskell Löve.

Det maa strax siges, at det er en smuk Bog, vel trykt, og en højst interessant og værdifuld Bog. De to Udgivere, der naturligvis var Symposiets Igangsættere (NATO, der kan bruges til alt, har betalt baade Symposiet og Bogen), er selv Botanikere, med Speciale i Plantecytologi, og det har maaske nok givet Bogen lidt Slagside. Dens Tanke var at belyse fra saa mange Sider som muligt Spørgsmaalet om Nordatlantens Dyrs og Planters Indvandringshistorie, deres nuværende Udbredelse som Resultat af de før, under og efter Istiden herskende Forhold, og Afhandlingerne er derfor af geologisk, oceanografisk, klimatologisk, økologisk, botanisk og zoologisk Art. At det blev holdt i Reykjavik bragte Island i Centrum af det hele, hvad det jo geografisk ogsaa er; men Canada, Grønland, og især Skandinavien er Genstand for en stor Del af Afhandlingerne.

Zoologisk er Bogen ikke værdifuld. Af de 26 Afhandlinger er tre zoologiske, af Carl H. Lindroth, der fremhæver sine ogsaa tidligere fremsatte Synspunkter, af Henrik Waldén, Göteborg, der giver nogle Betragtninger over Mollusk-Faunaen, der dog ikke hviler paa Selvsyn (det fik han først under Symposiet), og af P. Omodeo, Siena, der skriver om Oligochæterne