aangericht. Deze wijze van optreden doet natuurlijk denken aan die van *Anthrenus*-soorten. Aantasting van chocolade schijnt in de literatuur nog niet vermeld te zijn.

3. Lyctiden. *Trogoxylon aequale* Woll., een kevertje van 2½ mm lengte, werd in 1953 een paar maal in aantal gevonden in Derris-wortels uit de Belgische Congo, waarvan het hout soms voor een groot deel tot poeder verteerd was. Dit is weer een nieuw geval van het merkwaardige feit, dat er verschillende soorten in dit materiaal kunnen broeden ondanks het gehalte aan rotenon. Steeds zijn het Bostrychiden en Lyctiden. Tot nu toe zijn er volgens de gegevens van het Instituut voor de Tropen al 6 soorten in Holland aangetroffen.

Een tweede kleine Lyctide, *Lyctoxylon japonum* Reitt., werd gevonden in een monster rotan van Nieuw-Guinea. Aantasting van rotan in Borneo en Celebes was vooral bekend door de soort *Dinoderus minutus* F., een kleine Bostrychide, die ook in bamboe leeft en afkomt op allerlei materiaal met een voldoende zetmeelgehalte.

On Some Ant Types of Fabricius

by

J. G. BETREM

During my stay at Copenhagen in 1953, I studied a small part of the ant material then present in the Zoological Museum of the University. This moment was extremely favourable because the personal collection of FABRICIUS belonging to the Zoological Museum at Kiel was in the Copenhagen museum at that time.

Not only the type specimens of species described by FABRICIUS were studied but also specimens of species already known at his time.

It is a pity that this is too rarely done because it can elucidate the conception of the species of older authors, which is very important for more than one reason. In the first place it may tell us what was meant by the author of a species of which the type is lost, secondly it may help us with the selection of a lectotype.

I wish to express my sincere thanks to Mr Sv. G. LARSSON and Dr. S. L. TUXEN for their help and valuable advices during my studies at the museum.

Formica rufa Linnaeus sensu Fabricius.

In the collection of the museum at Kiel are three workers representing three different species.

1. An almost entirely black worker; scale reddish, just as the base of the abdomen. It is a specimen of *Camponotus herculeanus* Linnaeus sensu auctorum. The placing of this specimen most probably does not originate from FABRICIUS, but the insect will have been misplaced later.
2. Only the head and a part of the thorax is present. It is a small specimen of *Camponotus ligniperdus* Latr. 1802.
3. Only the head (which has been pierced by the pin) and a small part of the pronotum are present. This is a specimen of *F. polyctena* Först. or *F. piniphila* Schenck. Probably it is the last mentioned species.

It is therefore certain that *Formica rufa* sensu Fabricius is consisting of various

species; without any doubt the same will apply to the *Formica rufa* of all authors of the eighteenth century. *Formica rufa* Linnaeus 1758 seems to consist of the species of the *Formica rufa*-group and allied species as well as *Camponotus ligniperdus*. NYLANDER[1]) states that the Linnean diagnosis of *Formica rufa* refers to *C. ligniperdus*. The biological data, however, *e.g.* the nests, which are mentioned by LINNAEUS, refer without any doubt to true *Formica*-species of the *rufa*-group and allied forms of later authors.

The first who recognized that *Formica rufa* sensu Linnaeus is a mixture, was DE GEER who splitted off his "fourmi des prés". Which species this form represents, needs not be discussed here. The second was LATREILLE who separated from this complex his *Formica ligniperda* (: 89—91, Histoire Naturelle des Fourmis, 1802).

Formica fusca Linnaeus sensu Fabricius.

Only one worker is present below the label with this name in the collection of the museum of Kiel. This specimen is heavily damaged. The remnants, however, the head and a part of the thorax, are sufficient to recognize the species with certainty, *viz. Lasius fuliginosus* (Latreille 1798). The head is black and very shining, and the vertex is deeply excised.

Although only this specimen of *Lasius fuliginosus* was found by me under the name of *Formica fusca* in the Fabrician collection, I am convinced that moreover at least one specimen of the real *Formica fusca* auctorum was present there formerly. The authors of the eighteenth century could not yet distinguish the two above mentioned species. LATREILLE was again the first entomologist who separated these two forms.

Formica truncorum Fabricius 1804.

In the collection of the museum at Kiel I found below the label with this name a ☿ in a good condition and a female of which only a wing and a part of the thorax is left; the thorax is entirely red. The head and the thorax of the worker are entirely red too; the abdomen is black except the first tergite. The area frontalis is smooth. The posterior part of the head bears many hairs.

It is thus certain that *Formica truncorum* of the modern myrmecologists is the same as that of FABRICIUS.

Formica obsoleta Linnaeus sensu Fabricius.

In the collection of the museum at Kiel five females of the *Formica rufa*-group stand below the label "obsoleta":

1. An alate ♀ in good condition. Eyes naked; scutellum with a very broad smooth area, only laterally with distinct structure. Abdomen very shining. This is a ♀ of *F. piniphila* Schenck 1852.
2. An alate ♀. Scutellum only with a narrow smooth area in the centre. Abdomen not so shining. This ♀ belongs to *F. polyctena* Förster.
3. An alate ♀, probably *F. polyctena* Först.
4. A dealate ♀, *F. piniphila* Schenck or *F. polyctena* Först.
5. A dealate ♀ of *F. polyctena* Först.

[1]) *Notiser Sällsk. Fauna et Flora Fenn.*, Förh. I, 1848.

Formica rufibarbis Fabricius 1793.

Only one specimen is present in the collection of the museum at Kiel. It is in a bad condition because the head is missing and the thorax has been partly destroyed by insects. The thorax is red with an indistinct dark spot on the pronotum. Pronotum and scutellum with many distinct erect hairs. Legs dark red, tibiae darker without erect hairs on the outerside, innerside with stiff hairs. Scale rounded with hairs along the margin.

There can be no doubt that this is the species generally called "*rufibarbis*" in Europe.

Formica flava Fabr. 1781.

A worker in good condition is preserved in the collection of the museum at Kiel. The abdomen, which has been pierced by a pin, is darker than the rest of the insect.

Head with erect hairs, also on the vertex. Eyes with many facets. Scapus just reaching the hind margin of the head, with densely placed short hairs causing a somewhat woolly appearance, without erect hairs. Thorax dorsally with many long hairs. Posterior edges of propodeum distinct, but strongly rounded. Tibiae without erect hairs, but fine woolly hairs are present; femora dorsally without long hairs. The scale is broader than high, about half the height of the propodeum; upper margin practically straight. The angles are shortly rounded, below these the scale is narrowed.

Formica acervorum Fabr. 1793.

Three workers on three pins stand in the collection of the museum at Kiel, one female stands in the collection of the museum of Copenhagen.

Specimens from Kiel. Scapus distinctly bent but not with right angles near the base. Flagellum 12-jointed. Area frontalis smooth. Thorax with pointed hairs. Spines of propodeum rather long, somewhat bent to each other; between them only a few cross wrinkles. Spur of the tibiae III pectinate.

It seems to me that these specimens belong to *Myrmica laevinodis* Nyl. 1846. Probably they do not belong to the typical material of FABRICIUS, because the head is not distinctly black and the abdomen has no distinct dark band, as mentioned by FABRICIUS in his diagnosis.

Specimen from Copenhagen. On the label is written: "Mus. S. et T.L., Formica acervorum". The discocubital cell is only divided in the apical half. Area frontalis smooth, with indications of stripes. This specimen is probably *Myrmica schencki* Em. 1895 according to the scapus.

This can neither be the type, because FABRICIUS has not described an alate ant.

Deventer, Duymaer van Twiststraat 2.