THE 3rd DANISH EXPEDITION TO CENTRAL ASIA

Zoological Results 27.

FORMICIDAE (INSECTA) FROM AFGHANISTAN

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I am grateful to Mr. NIELS HAARLØV and to Dr. S. L. TUXEN of the Zoological Museum, Copenhagen for the opportunity of examining a collection of Formicidae from Afghanistan. The largest part of this was made by Mr. HAARLØV himself in the north, west and centre from May to August, 1948 and the rest by Dr. K. PALUDAN in the east and south. In addition to the several hundred specimens taken during this expedition, I have also been able to examine about a hundred mounted specimens taken in the north, west and east during the course of an expedition from West Germany in 1956. I am greatly indebted to Dr. H. G. AMSEL of Karlsruhe for sending me this material which was collected by him with the assistance of Drs. S. WILKE and J. DELERÉ. The total includes some 43 species of which a few do not appear to have been previously described.

It has been difficult to find good comparative named material in Britain and I have been greatly helped by Dr. I. H. H. YARROW of the British Museum in being permitted to examine the type collection there. I am also very thankful to Prof. G. C. VARLEY and his colleagues for permission to examine portions of the Crawley collection in the Oxford University Museum. In sorting out the Afghanistan specimens I have used existing names when there has seemed to be a close enough approximation and only described as new those species that differ from described forms in marked and easily perceived features. Some errors will have been made through difficulties in interpreting some of the older descriptions but these should be easily corrected when further knowledge becomes available. Uncertainty of determination in several instances underlines the increasing need for critical studies of many of the more important genera and species groups. I have followed Wilson and Brown (1953) in avoiding the use of

subspecific names but it should be noted that many of the forms represented in this collection were first described as subspecies or varieties. In such cases, where the forms concerned seem to be clearly distinct morphologically from the species to which they have been linked, they are treated here as independant species. I am not aware of any previous published records of Afghanistan ants and Chapman and Capco (1951) do not include any records from that country in their check list of the ants of Asia.

Topographical features and collecting area.

Afghanistan is bordered by Iran to the west, Pakistan to the south-east, China to the north-east and Russian Turkestan to the north. A large central area is occupied by the Koh-i-Baba mountains which are linked by the Hindu Kush to the huge mountain masses of Tibet, Kashmir and N. India. The country to the south of the Koh-i-Baba is approximately bisected by the Helmand river which flows from the eastern end of the range into a large area of semi-desert in the south west. To the north of the Koh-i-Baba a similar area of desert-like steppe merges into that of the Kara Kum of Russian Turkestan. The country as a whole is of high elevation with the only land below 500 m. restricted to the extreme north. The summer rainfall is very low and the landscape dry and barren except in the north east and along the river valleys where much of the collecting was actually done. The localities listed below are representative of most of the country except that few collections appear to have been made south and east of the Helmand river. The following information has been largely extracted from notes kindly supplied by Mr. HAARLØV.

North Afghanistan.

Andkhui ..... 350 m. steppe; collections by H. G. AMSEL, 1 sp.
Polichromi ..... 700 m. steppe; – – – – , 5 spp.
Istalif ..... 1900 m. riverside meadows; collections by N. HAARLØV, 6 spp.
Anderab ..... 2000 m. west fringe of Nuristan Mts. by N. HAARLØV, 4 spp.

East Afghanistan.

Kabul ..... 1700 m. capital of Afghanistan; collections by J. DELERÉ 1 sp.
Gulbahar ..... 1700 m. Artemisia steppe; collections by H. G. AMSEL, 2 spp.
Wama Nuristan ..... 1400 m. wooded valley; collections by K. PALUDAN, 2 spp.

Pashki Nuristan ..... 2300 m. forested mountains, collections by K. PALUDAN, 1 sp.
Paghman ..... 2000 m. riverside meadows; collections by N. HAARLØV, 15 spp.

West Afghanistan.

Aderaskand ..... 900 m. dry steppe; collections by N. HAARLØV, 2 spp.
Farah ..... 700 m. dry steppe; collections by N. HAARLØV, 2 spp.
Herat ..... 1000 m. main town and environs in NW. Afghanistan; collections by N. HAARLØV, G. AMSEL and S. WILKE, 14 spp.

South Afghanistan.

Hamun-i-Sabari Seistan .... 800 m.; semi-desert subject to periodic flooding by river Helmand; collections by K. PALUDAN, 1 sp.
Baqrabad Seistan ..... 800 m. semi-desert subject to periodic flooding by river Farah; collections by K. PALUDAN, 1 sp.
Girisk ..... 850 m. borders of Helmand river; collections by N. HAARLØV, 2 spp.
Pirzada ..... 900 m. steppe south of Koh-i-Baba; collections by N. HAARLØV, 11 spp.
Kajkai ..... 1000 m. borders of Helmand river; collections by N. HAARLØV, 4 spp.

Central Afghanistan (Koh-i-Baba mountains)

Panjao ..... 2500 m. collections by N. HAARLØV; 6 spp.
Tarapas ..... 3000 m. – – – ; 4 spp.
Puistagoli ..... 3500 m. – – – ; 6 spp.
Kotal Pass ..... 4000 m. – – – ; 4 spp.
Shirparek ..... 4000 m. – – – ; 4 spp.
Marrak ..... 4500 m. – – – ; 1 sp.
Surta ..... 4600 m. – – – ; 2 spp.

List of species	General Geographic Range (A)	Distribution and altitude range in Afghanistan (B)
Myrmicinae:		
Myrmica tibetana Mayr	H.	E. 1 loc. 2300 m.
Myrmica aimonis-sabaudiae Menozzi	H.	E. 1 loc. 2000 m.
Aphaenogaster (Attomyrma) smythiesi Forel ..	H.	E. 1 loc. 2000 m.
Aphaenogaster (Attomyrma) haarlovi Sp. Nov.	L.	E. 1 loc. 2000 m.
Aphaenogaster (Deromyrma) rhaphiidiceps Mayr	C.	E. 1 loc. 2000 m.
Messor himalayanus Forel	H.	E. 4 locs. 1500–4000 m.
Messor reticuliventris Karawaiev	C.	W.N.E. 4 locs. 1000–2500 m.
Messor orientalis ~~Ruzsky~~	C.	N. 1 loc. 2000 m.

List of species	General Geographic Range (A)	Distribution and altitude range in Afghanistan (B)
Messor meridionalis André	S.ME.	S.W.E. 3 locs. 900–1400 m.
Messor semirufus André	S.ME.	S.W. 2 locs. 900–1000 m.
Pheidole arenarum Ruzsky	S.ME.C.	W.C.N.E. 5 locs. 900–4000 m.
Solenopsis fugax Latreille	E.	W. 1 loc. 900 m.
Monomorium (Xeromyrmex) abeillei André	ME.	W. 1 loc. 1000 m.
Monomorium (Xeromyrmex) indicum Forel	I.	S.W. 2 locs. 900–1000 m.
Monomorium (Xeromyrmex) sp. ?	?	N. 1 loc. 700 m.
Monomorium (Xeromyrmex) barbatulum Mayr	C.	S.E. 2 locs. 1000–2000 m.
Monomorium (Parholcomyrmex) gracillimum Sm.	C.I.ME.	S.W. 2 locs. 900–1000 m.
Monomorium (Monomorium) flavum Sp. Nov.	L.	N. 1 loc. 1900 m.
Gremtogaster (Acrocoelia) subdentata Mayr	C.	W. 2 locs. 700–1000 m.
Gremtogaster (Acrocoelia) schmidti Mayr	S.ME.	N. 1 loc. 1900 m.
Leptothorax pallidus Sp. Nov.	L.	C. 1 loc. 3500 m.
Leptothorax cornibrevis Sp. Nov.	L.	E. 1 loc. 2000 m.
Tetramorium striativentre Mayr	C.	W.N. 2 locs. 700–2500 m.
Dolichoderinae:		
Tapinoma simrothi Krausse	M.C.	W.C.N.E. 8 locs. 700–2500 m.
Formicinae:		
Cataglyphis (Cataglyphis) setipes Forel	I.	S.W. 6 locs. 800–1900 m.
Cataglyphis (Monocambus) emeryi Karawaiev	C.	W.C. 7 locs. 700–4000 m.
Proformica deserta Kuznetzov-Ugamskij	C.	N. 2 locs. 350–1700 m.
Formica sanguinea Latreille	E.	W.C.E. 4 locs. 1000–3500 m.
Formica clara Forel	C.ME.H.	C. E. 7 locs. 2000–4500 m.
Formica subpilosa Ruzsky	S.C.ME.	S.W. 4 locs. 800–1000 m.
Formica bipilosa Karawaiev	C.	N. 1 loc. 700 m.
Lasius niger L.	E.	C. 1 loc. 4000 m.
Lasius flavescens. Forel	C.	C. 1 loc. 4000 m.
Lasius (Chthonolasius) rabaudi Bondroit	E.	C. 2 locs. 4000 m.
Plagiolepis pygmaea Latreille	M.	W.C. 4 locs. 1000–4500 m.
Acantholepis frauenfeldi Mayr	S.ME.	W.E. 2 locs. 1000–2000 m.
Polyrachis (Myrmhopla) simplex Mayr	I.	S. 1 loc. 900 m.
Camponotus (Orthonotomyrmex) interjectus Mayr	C.	N. 1 loc. 1900 m.
Camponotus (Tanaemyrmex) turkestanus André	C.	E. 1 loc. 1700 m.
Camponotus (Tanaemyrmex) turkestanicus Emery	C.	C.W.N. 2 locs. 700–1000 m.
Camponotus (Tanaemyrmex) oasium Forel	ME.	S.W. 2 locs. 900–1000 m.
Camponotus (Tanaemyrmex) sanctus Forel	S.	E. 1 loc. 2000 m.
Camponotus (Tanaemyrmex) fedtschenkoi Mayr	C.	C.E. 4 locs. 2000–4000 m.
Camponotus (Tanaemyrmex) samius Forel?	S.	W. 1 loc. 1000 m.

KEY: (A) C – Central Asia; E – Eurosiberia; H – Himalayas; I – India; M – Mediterranean; ME – Middle East; S – South-east Europe.
(B) N – North; E – East; S – South; W – West; C – Centre.

The fauna shows interesting contrasts in altitude range with the boreal genera *Attomyrma*, *Myrmica*, *Leptothorax* and *Lasius* confined to mountain areas 2000 m or more above sea level and the more temperate fauna

including the genera *Monomorium*, *Crematogaster*, *Acantholepis* and *Polyrachis* mainly found below this altitude. There are similar contrasts between certain species of the same genus; thus *Messor himalayanus*, *Formica clara* and *Tanaemyrmex Fedtschenkoi* occurred above 1500 m while *Messor meridionalis*, *Formica subpilosa* and *Tanaemyrmex oasium* were apparently restricted to areas below this level. At the same time other, mostly commoner, species including *Pheidole arenarum*, *Tapinoma simrothi*, *Plagiolepis pygmaea* and the wide ranging *Formica sanguinea* were taken over a large altitude range which overlapped that of the apparently contrasted faunas above.

This altitude distribution is determined not only by the climatic adaptation of the species concerned but at least as much by the geographical situation of the country. Thus the species list for the Brooke Dolan expedition to W. China and Tibet (Eidmann, 1941) shows very little correspondence with that for Afghanistan with less than half the subgenera and none of the species common to the two areas. A similar list for an expedition to Nanga Parbat in Kashmir (Eidmann, 1942) shows a much closer correspondence with nearly all the subgenera and several species also occurring in Afghanistan. Similarly the ants of Daghestan in S. Russia (Kuznetzov-Ugamskij, 1929) include eleven species found in Afghanistan. By contrast a provinsional list of Turkish ants (Donisthorpe, 1950) includes a large number of Mediterranean and common European species not apparently found in Afghanistan apart from three wide ranging European species, namely, *F. sanguinea*, *L. rabaudi* and *S. fugax*.

Over half the Afghanistan species are Turkmenian, Himalayan or local and the majority of these were taken in the North or east of the country. Most of the Middle Eastern and Indian species such as *M. semirufus*, *M. indicum*, *C. setipes*, *T. oasium* and *P. simplex* were found in the south and west, mingling with the predominantly N. Asiatic fauna at the western extremity of the Koh-i-Baba range which probably acts both as a physical and a climatic barrier between the two main faunal groups. The present list of *Formicidae* cannot of course be regarded as exhaustive but it is probably at least representative of the area and shows much the same zoogeographical composition as has been found by previous authors studying other Hymenoptera from Afghanistan in this series. Thus Maa (1954) investigating the Xylocopine bees, stated that the fauna belonged essentially to the Turkmenian subregion with invasive elements in the southwest, while Richards (1951) described eight species of Bombidae of which two are also found in S.E. Europe, two are Himalayan and the remainder Central Asian or local.

Description of species.

Myrmicinae.

Myrmica tibetana Mayr, 1890 (Forel, 1902; Weber, 1948).

6 ☿☿, 1 ♀, 6/IV/48, Pashki Nuristan, leg. K. Paludan.

This species was described by Mayr from N. Tibet. Its general appearance is similar to *M. smythiesi* Forel from which it differs in having a more shallow meso-epinotal impression and by the copious oblique hairs on the antennae and legs. The colour is dark ochreous brown. The head, thorax and petiole have longitudinal striae which run for a short distance between the epinotal spines in the ☿. The frontal triangle and gaster are smooth. Length of ☿: 4–4.5 mm of ♀: 5.5 mm.
Range: Tibet.

Myrmica aimonis-sabaudiae Menozzi (Weber, 1948) *Fig. 1.*

6 ☿☿, 4 ♀♀, 9 ♂♂, VII/48, Paghman, leg. Haarløv.

This species is very similar to *M. rugosa* Mayr but, according to the description of the worker given by Menozzi in Weber (1948), there are slight but distinct differences in the sculpture, the funiculus segments are shorter and the mesoepinotal furrow is deeper. The present specimens show the differences enumerated by Menozzi as compared with named examples of *M. rugosa* in the British Museum. Accordingly I have referred them to Menozzi's species rather than to the latter although only a critical review of this group will show whether these somewhat trivial differences validate a specific distinction. Unfortunately ♂♂ which may provide more critical differences, have not been described for either species. The ♂♂ in the present series have an antennal conformation linking them to *M. bergi* Ruzsky of S.E. Europe and Turkestan rather than to *M. ruginodis* Nyl. and similar species as suggested (Weber, 1948) for *M. rugosa* and its varieties. ♂–length 5 mm, body colour brown to dark brown, gaster somewhat lighter; space between the Mayrian furrows brilliant; frontal triangle and gaster smooth; petiole with fine striae on sides; rest of body longitudinally striate. All appendages and body surface with outstanding hairs. Petiole smoothly rounded above, anteriorly slightly concave. Third antennal segment × $2^1/_2$ as long as broad; scape straight, as long as three following antennal segments.

♀ — length 5.5 mm—6.0 mm, ☿ — length 5—5.5 mm. Colour blackish brown. Head and mesonotum longitudinally striate, more coarsely rugulose

in the ☿; pronotum transversely rugulose and epinotum transversely striate. The ☿ has fine indistinct striae between the spines which are coarse, slightly divergent and about equal in length to the distance between their tips. Frontal triangle and gaster smooth. Antennal segments short but distinctly longer than wide; scape exceeding occipital margin, evenly curved at base and thickening distally. Appendages and upper surface of body with long outstanding hairs.
Range: KASHMIR (Eidmann 1942).

Aphaenogaster (Deromyrma) rhaphiidiceps MAYR, 1877. (ANDRÉ, 1881).

1 ☿, 8/VII/48, Paghman, leg. Haarløv.

This single specimen corresponds closely with André's description. The elongated subconical head narrows markedly behind. The petiole is long and slender as are the antennae which terminate in a thin elongated four segmented club. The body colour is yellowish red with the head darker. The head and epinotum above are feebly sculptured but the general appearance is highly polished. According to André (1881), however, the tibial spurs are missing on the mid and hind legs. In the present specimen these are present, although much reduced. The body and appendages moreover are somewhat more hairy than André indicates. This subgenus contains very few species and only one, *A. (D) rhaphiidiceps* has so far been described from Central Asia and the general correspondence of the Afghan specimen is sufficient to assign it with some confidence to that species despite the slight discrepancies alluded to above.
Range: Turkestan.

Aphaenogaster (Attomyrma) smythiesi FOREL, 1902 *Fig. 2, 3.*

3 ☿☿, 8/VII/48, Paghman, leg. Haarløv.

These differ from examples in the Crawley collection from the Himalayas in being rather smaller, more highly polished, less sculptured and in having the mesonotal prominence less exaggerated. The body colour is also darker. These differences probably represent a normal allometric variation of the species and do not appear to justify a nomenclatorial distinction. *A. smythiesi* subsp. *brevicornis* Menozzi, listed by EIDMANN (1942) from W. China, may refer to this form but I have seen no description.
Range: Himalayas.

Aphaenogaster (Attomyrma) haarlovi Sp. N. *Fig. 4, 5.*

6 ☿☿, 2 ♂♂, 12/VII/48, Paghman, leg. Haarløv.

This distinctive species has the epinotal spines in the ☿ reduced to coarse ridged tuberosities; in the ♂ these appear as distinct vertical outgrowths. ♂ — Length 4.5 mm. Head and thorax dark brownish black, gaster, petiole and appendages paler brown. Gaster and mesonotum shining; head and scutellum coarsely sculptured. Mandibles dentate. Epinotum with two prominent vertically directed tuberosities. Hind coxae with flange-like spur outgrowth at proximal end. Upper surface of thorax with long hairs; appendages clothed with fine oblique hairs, Antennal scape straight, as long as four following segments; second and third funiculus segments elongate, clearly longer than first.

☿ — Length 4.8—5.2 mm; dark brownish black, posterior segments of gaster paler and legs and mandibles yellowish brown. Gaster smooth and shining; head and thorax coarsely longitudinally striate except for posterior third of head which is coarsely reticulate and epinotum above which is laterally striate. Epinotal spines reduced to very short coarse ridged tuberosities. Frons and frontal triangle very narrow. Antennal segments elongate. Body with scattered long hairs, appendages thickly clothed in oblique hairs.

Type and two cotype ☿☿ and one allotype ♂ in Zoological Museum, Copenhagen. Three cotype ☿☿ and one ♂ in my collection.

Messor.

The first two species discussed below have usually been treated as subspecies or varieties of *M. barbarus* L. to which they are related in sculpture and pilosity characters. The remaining species in this genus below are more akin to *M. structor* Latr. Since they are all clearly distinct from either of these two S. European species in a variety of characters, I have treated them here as independant species.

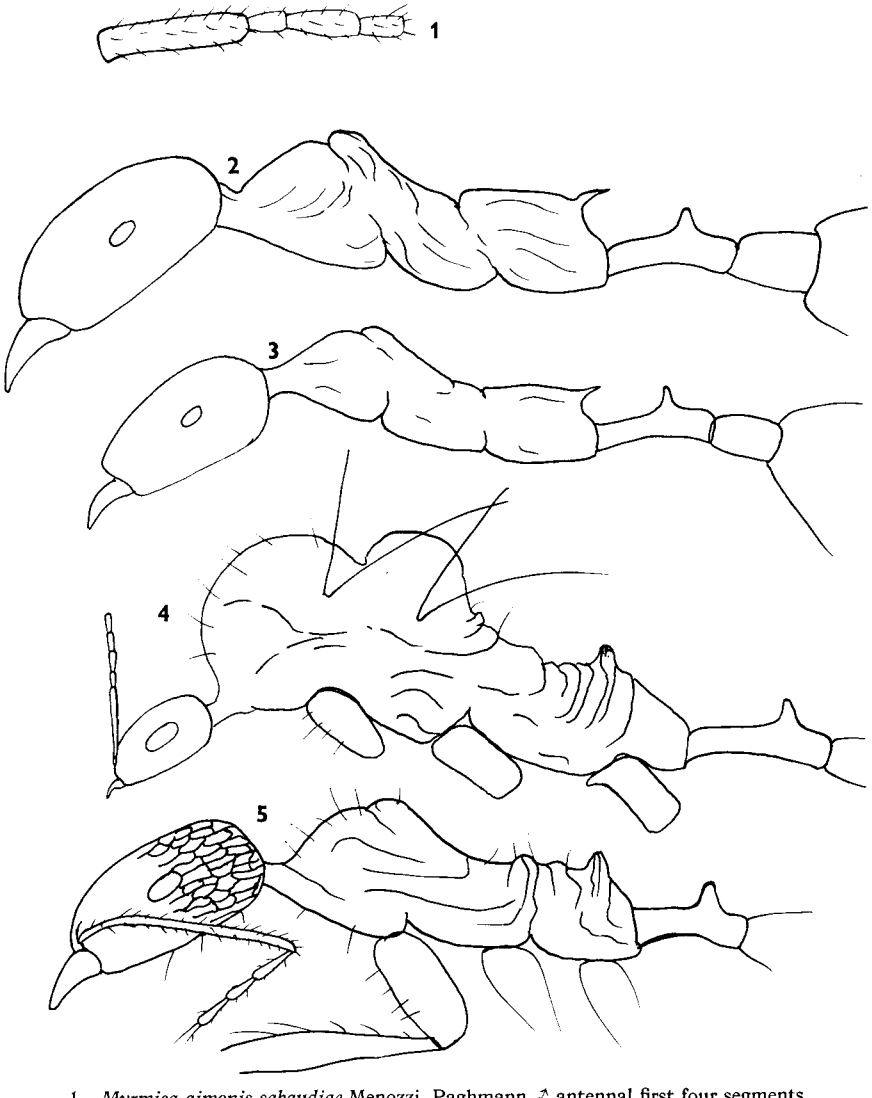
Messor meridionalis ANDRÉ, 1881. *(Aphaenogaster barbara* var. *meridionalis* ANDRÉ, 1881. *M. barbarus meridionalis* EMERY, 1908).

Many ☿☿, Pirzada, Herat, V–VI/48, leg. Haarløv; Herat, IV/56, leg. Amsel; Wama Nuristan, IV/48, leg. Paludan.

This differs from *M. barbarus* L. as usually conceived in having the epinotum distinctly biangulate and the head and gaster darker than the thorax which is more or less dark reddish brown; the subcephalic hairs are

more developed and approach the 'psammophore' condition. Length: 4—9 mm.

Range: Balkans, S. Russia, Greece, Asia Minor, Central Asia.



1. *Myrmica aimonis-sabaudiae* Menozzi, Paghmann ♂ antennal first four segments.
2. *Aphaenogaster (Attomyrma) smythiesi* Forel, Simla, ☿ profile.
3. *Aphaenogaster (Attomyrma) smythiesi* Forel, Paghman, ☿ profile.
4. *Aphaenogaster (Attomyrma) haarlovi* Sp. N. Paghman, ♂ profile.
5. *Aphaenogaster (Attomyrma) haarlovi* Sp. N. Paghman, ☿ profile.

Messor semirufus ANDRÉ, 1881.
(*Aphaenogaster barbara* var. *semirufa* ANDRÉ, *M. barbarus semirufus* EMERY, 1908).

Several ☿☿, Pirzada, Herat, V–VI/48, leg. Haarløv.

This species has the head and thorax entirely clear, bright red. The Afghan examples differ also from the similar *M. meridionalis* above in having the clypeus slightly but distinctly emarginate in front and in the coarser sculpture of the frons: the longitudinal striae continue across the median area which is less highly polished than in *M. meridionalis*.
Range: Persia, Palestine, Syria, Turkey.

Messor himalayanus FOREL, 1902.
(*Stenamma (M.) barbarum* r. *himalayanum* FOREL, 1902; *Messor himalayanus* BINGHAM, 1903).

Numerous ☿☿, 2 ♂♂, Puistagoli, Istalif, Paghman, Kotal Pass, Tarapas, VII–VIII/48, leg. Haarløv; Wama Nuristan, IV/48 leg. Paludan.

FOREL described this as a race of *M. barbarus* L. but the denser pilosity suggests a close affinity with *M. structor* Latr. while the sculpture and slightly longer antennal segments are more akin to *M. rugosus* ANDRÉ. The ☿ body colour is dark reddish black; the head and thorax are coarsely sculptured with shining interspaces. The epinotum is distinctly angled. Length: 4—9 mm. The ♂ is very hairy and has the sides of the thorax coarsely sculptured with the mesonotum above and scutellum brilliant. Length: 8.5 mm.
Range: Himalayas.

Messor reticuliventris KARAWAIEV, 1909.
(*M. barbarus* subsp. *reticuliventris* KARAWAIEV, 1909).

Numerous ☿☿, VI–/VIII/48, Herat, Panjao, Paghman, Istalif, leg. Haarløv.

This is immediately distinguishable from *M. structor* and allied species by the fine reticulate microsculpture which extends over the whole body including the gaster. The general appearance is matt. The Herat specimens which include two separate nest series are considerably darker than those from the other localities and have the whole body dusky with a slight reddish tinge confined to the sides of the thorax and the mandibles and appendages brown. The Panjao, Paghman and Istalif examples have the whole body and appendages evenly reddish brown but there appear to be

no other differences that would warrant a nomenclatorial distinction. The appendages, head and body are clothed in abundant outstanding hairs. The epinotum is bluntly angled. The head is longitudinally striate; the thorax has fine lateral striae above, slightly coarser and longitudinal at sides. The larger ☿☿ have the head wider than long with the occipital lobes slightly produced. Length: 3.5—10 mm.
Range: Turkestan.

Messor orientalis EMERY, 1898.
(*Stenamma structor* var. *orientalis* EMERY, 1898. *M. barbarus structor* var. *orientalis* EMERY, 1908).

1 ☿, 29/VIII/48, Anderab, leg. Haarløv.

This species differs from the European *M. structor* Latr. in the finer, denser sculpture, reddish body colour, biangulate epinotum and slightly more elongate antennal segments 3 to 5. The single ☿ taken is of small size but otherwise resembles named examples from Syria in the Crawley collection.
Range: S. Russia, Central Asia, Middle East.

Monomorium (Xeromyrmex) abeillei ANDRÉ, 1881.

1 ☿, Herat, VIII/48, leg. Haarløv.

The single ☿ corresponds closely with examples in the British Museum, having the characteristic longitudinal furrow on the epinotum and sparse long hairs over the body.
Range: Syria.

Monomorium (Xeromyrmex) indicum FOREL, 1902.
(*Monomorium salomonis* subsp. *indicum* FOREL, 1902; *Monomorium indicum* BINGHAM, 1903).

Several ☿☿, Pirzada, Kajkai, VII/48, leg. Haarløv.

This was described by FOREL as a race of *M. salomonis* L. It is however, distinctly larger, more sculptured and differs in head shape. I have followed BINGHAM (1903) in treating it as a separate species. The finely striated head narrows posteriorly; length: 3.8—4.2 mm.
Range: India.

Monomorium (Xeromyrmex) sp.?

1 ♂, Polichromi, 28/VII/56, leg. Amsel.

This has the large genital valves of *M. salomonis* L. The specimen however is considerably more hairy, the head and thorax more shining and the femora paler than indicated by ANDRÉ (1881) for that species. Length: 6 mm.

Monomorium (Xeromyrmex) bartatulum MAYR, 1877 (ANDRÉ 1881).

2 ☿☿, Kajkai, Paghman, VII/48, leg. Haarløv.

This species is very distinctive with its large eyes and the long curved subcephalic "psammophore" hairs. EMERY (1921) places this in the subgenus *Xeromyrmex* but the rounded emarginate head, shining body, long petiole and general appearance is more reminiscent of the subgenus *Parholcomyrmex* in which, however, the eyes are much smaller.
Range: Turkestan.

Monomorium (parholcomyrmex) gracillimum SMITH, 1861 (ANDRÉ 1881).

7 ☿☿, Pirzada, VI/48, leg. Haarløv.

The Afghan examples have the body colour bright ochreous yellow but otherwise compare well with somewhat darker examples of *M. gracillimum* from other areas.
Range: Central Asia, India, Middle East.

Monomorium (Monomorium) flavum Sp. N. *Fig. 6.*

Several ☿☿, Istalif, 10/VII/48, leg. Haarløv.

These resemble *M. minutum* MAYR in general form but are completely pale yellow. They may be the same as the tiny yellow *Monomorium* observed by WEBER (1952) in Bagdad. Since I have seen no description that appears to apply to this form, I describe it here as new.

☿☿ — Length: 1.4—1.6 mm, monomorphic. Antennae 12 segmented with three jointed club; ninth segment somewhat larger than preceding. Colour clear pale yellow; body surface smooth with scattered long hairs. Epinotum unarmed. Meso-epinotal furrow deeply impressed. Petiole and postpetiole quandrangular from above with postpetiole slightly wider than long; petiole in profile bluntly triangular, sloping steeply forward from the

rounded angular crest. Appendages with short subdecumbent hairs. Front clypeal borders smooth.

Types and cotypes in Zoological Museum, Copenhagen; cotypes in my collection.

Leptothorax pallidus Sp. N. *Fig. 7.*

Several ☿☿, Puistagoli, VII/48, leg. Haarløv.

These are entirely pale yellow. They differ from *L. luteus* FOREL of S. Europe in the greater development of appendage hairs, smoother body sculpture, more angled petiole, shorter epinotal spines and absence of deeper colour. The petiole shape, narrower head and appendage hairs also distinguish them from *L. bulgaricus* FOREL. That species however, has a number of varieties and races, descriptions of which I have not seen, but since the typical form is clearly different, I have treated the Afghanistan specimens here as a new species.

☿☿ — Length: 2.3—2.5 mm. Body colour and appendages entirely yellow. Sculpture restricted to superficial rugosities almost obsolete. Body with scattered erect hairs; appendages with short subdecumbent hairs. Antennae 12 segmented with scape barely reaching occipital margin. Back of thorax without sutural impression. From above petiole rectilinear, twice as long as wide, postpetiole quadrangular. In profile, petiole high, distinctly angled, sloping steeply forward with only very slight concavity of anterior face. Epinotal spines short, about a third as long as the distance between their tips, subvertical.

Type and cotypes in Zoological Museum, Copenhagen; cotypes in my collection.

Leptothorax cornibrevis Sp. N. *Fig. 8.*

4 ☿☿, Paghman, VII/48, leg. Haarløv.

These resemble the above species in colour but have the epinotal spines extremely reduced.

☿☿ — Length: 2 mm. Body and appendages pale yellow; head and thorax faintly rugose, shining. Body with scattered erect hairs, appendages with scattered subdecumbent hairs. Epinotal spines reduced to minute pointed tubercules. Petiole oval from above, rather low and thick in profile with long sloping anterior face. Antennae 12 segmented; back of thorax without sutural impression.

Type in Zoological Museum, Copenhagen. Cotypes in my collection.

Solenopsis fugax Latreille, 1798. *Fig. 9.*

7 ☿☿, Aderaskand, VII/48, leg. Haarløv.

These differ from European *S. fugax* in having the clypeal teeth more prominent and slightly incurved and the meso-epinotal furrow more distinct. The number of eye facets varies from three to five. The length varies from 1.8—2.3 mm. It is possible that this form is specifically distinct from *S. fugax* but it seems best to refer it to that rather variable species until further revision becomes possible. The specimens do not key out to any of those described from S. Europe by BERNARD (1946) but seem to come fairly close to *S. nicaeensis* BERNARD.
Range: Europe and West Asia.

Pheidole arenarum RUZSKY, 1905.
(*P. pallidula* var. *arenarum* RUZSKY, 1905).

Numerous ☿☿, 6 ♀♀, Paghman, Pirzada, Kotal Pass, Anderab, Aderaskand, VII–VIII/48, leg. Haarløv; Herat, V/56, leg. Amsel; Kabul, VII/56, leg. Deleré.

This was first described as a variety of *P. pallidula* L. The species is distinguished by the marked prolongation of the head behind the eyes and the much deeper emargination between the occipital lobes. The ♀♀ have the body colour pale ochreous except for the thoracic sutures, the clypeal border and a patch on the ocellar region which are darker.
Range: Central Asia.

Crematogaster (Acrocoelia) subdentata MAYR, 1877 (ANDRÉ 1881).

12 ☿☿, 1 ♂, Farah, Herat, VI–VII/48, leg. Haarløv.

The epinotal spines in this species are reduced to small blunt tubercules. The scapes and tibiae have long standing hairs. The body colour of the ☿ is pale reddish testaceous with the gaster slightly darker. The small ♂, length: 3.5 mm, has long appendage hairs as in the ☿.
Range: Caucasus, Persia, Turkestan.

Crematogaster (Acrocoelia) schmidti MAYR, 1852.

6 ☿☿, 1 ♀, Istalif, VII/48, leg. Haarløv.

The ♀ is brownish testaceous; the ☿☿ are pale reddish with the posterior of the gaster darker. The epinotal spines are strong but less developed than

in *C. scutellaris* Ol. and allied European species. The appendage hairs are short but more erect and more numerous than in that species.
Range: S.E. Europe, Caucasus.

Tetramorium striativentre MAYR, 1877.
(*T. caespitum* var. *striativentre* MAYR, 1880, ANDRÉ 1881. *T. striativentre* RUZSKY, 1905).

2 ☿☿, Panjao, VI/48, leg. Haarløv; 1 ♀, Polichromi, V/56, leg. Amsel.

This species is characterised by the gaster which has the whole upper surface finely longitudinally striate giving a silky appearance. The petiole and postpetiole are coarsely longitudinally rugose. The ♀ is relatively small, length: 4.3 mm with the gaster much less extended than in *T. caespitum* L. and similar species. The wings have scattered very short curved hairs rather as in *Myrmecina*.
Range: Turkestan.

Dolichoderinae.

Tapinoma simrothi KRAUSSE (BERNARD 1950), *Fig. 10.*

Numerous ☿☿, 2 ♀♀, Panjao, Paghman, Pirzada, Kajkai, Istalif, Anderab, Farah, Herat, V–VIII/48, leg. Haarløv; Herat, V/56, leg. Wilke.

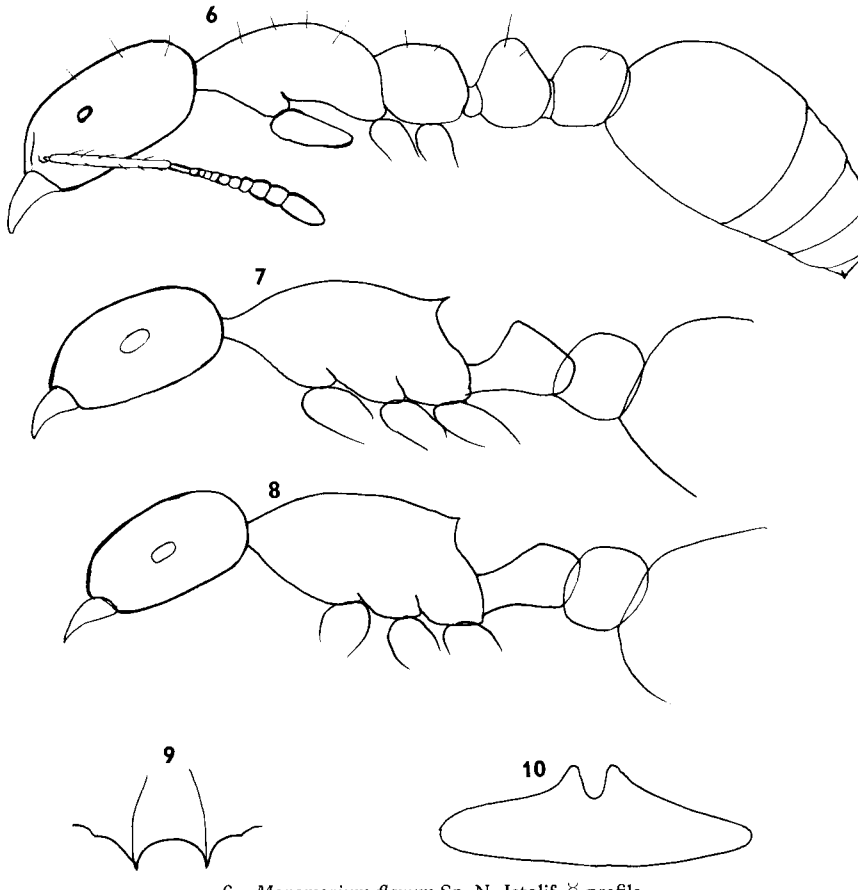
This is evidently one of the commonest species in West and South Afghanistan below 2000 m. The clypeal border is more deeply cleft than in *T. erraticum* L. and *T. nigerrimum* Nyl. of Europe. This species occurs in local abundance in North Africa and the Mediterranean but according to BERNARD (1950) has probably invaded these areas from the Middle East and Central Asia. The colour varies from brown to black and the body is covered in greyish pubescence. Length of ☿: 2.5–4 mm, ♀: 5.5 mm.
Range: Turkestan, Asia Minor, N. Africa, Mediterranean.

Formicinae.

Cataglyphis setipes FOREL, 1894.
(*Cataglyphis viaticus* var. *setipes* FOREL, 1894: *C. bicolor* st. *setipes*. SANTSCHII, 1921).

Numerous ☿☿, Pirzada, Istalif, Girisk, Herat, V–VIII/48, leg. Haarløv, Baqrabad, Seistan, Hamum-i-Sabari Seistan, leg. Paludan. Herat, V/56, leg. Amsel.

When describing this form FOREL pointed out that it differed from the similar species of the Mediterranean area by the thickened appendage hairs



6. *Monomorium flavum* Sp. N. Istalif, ☿ profile.
7. *Leptothorax pallidus* Sp. N. Puistagoli, ☿ profile.
8. *Leptothorax cornibrevis* Sp. N. Paghman, ☿ profile.
9. *Solenopsis fugax* Latr., Aderaskand, ☿ clypeus, front border.
10. *Tapinoma simrothi* Krausse, Panjao, ☿ clypeus.

which on the tibiae were almost as long and strong as the coarse bristles of the inner tibial face. Since this is a consistent and distinctive morphological difference there seems no reason not to regard *C. setipes* as anything other than a good independant species of Indian origin overlapping with *C. bicolor* and similar species in the Middle East. It appears to be the only ant taken during the Danish expedition in the rather saline desert basin of the south west fed by the river Helmand.

Range: N.W. and Central India, Central Asia.

Cataglyphis (Monocambus) emeryi KARAWAIEV, 1909. (SANTSCHI, 1921), *Fig. 14, 15.*

Numerous ☿☿, 2 ♀♀, Shirparek, Kotal Pass, Puistagoli, Panjao, Herat, V–VIII/48, leg. Haarløv; Herat, IV–V/56, leg. Amsel.

This species resembles *C. cursor* Fonsc. of S. Europe in general form but the body surface is more matt and the antennal segments are shorter. SANTSCHI (1921) keys out this species as having the second funiculus segment × 2 as long as broad in contradistinction to *C. cursor* which is stated to have this segment × 3 as long as broad. This proportion varies allometrically among different individuals of the two species with the larger individuals having relatively longer antennal segments. In fact the mean ratio in measured examples of *C. cursor* from France is $\times 2^1/_2$, while in some of the larger individuals of *C. emeryi* the ratio approaches $\times 2^1/_4$. In view of the medley of inadequately described forms in this subgenus, the distinction given by SANTSCHI is not very satisfactory and without a critical revision of this group it is not possible to make a determination with any degree of confidence. The colour of the Afghan examples is variable from brown to dark bronze or reddish black; the legs and antennae are lighter or darker testaceous. Length: 4–9 mm.
Range: Turkestan.

Proformica deserta KUZNETZOV-UGAMSKIJ, 1926 (1928), *Fig. 11, 12, 13.*

10 ☿☿, 1 ♂, Gulbahar, Andkhui, V–VI/56, leg. Amsel.

This species as described by KUZNETZOV-UGAMSKIJ has two outstanding characteristics which together appear to differentiate it sharply from all others described in this genus. The epinotal spiracle is large and elongated oval in shape as in *Cataglyphis* and the proportions of the segments of the maxillary palps are also *Cataglyphis*-like with the third segment as long as the fifth and sixth together and only slightly longer than the fourth. Another species *P. epinotalis* KUZNETZOV-UGAMSKIJ also has similar *Cataglyphis*-like maxillary palps but this has the usual small round epinotal spiracle characteristic for *Proformica*. The body surface of *P. deserta* is highly polished with the gaster very finely sculptured; the colour is brownish black with the appendages lighter. There are long standing hairs over the body and sparse decumbent hairs on the tibiae. These features are all in accord with the author's description but there are two discrepancies. The length is given as 3.3 mm whereas the Afghan specimens range from 3.5–4 mm; the first funiculus segment is said to be as long or longer than

the second plus third segments. In the Afghan specimens this is clearly shorter with the ratio 13 : 15 (in *P. nasuta* Nyl. from France the ratio is 13 : 11). The other features however are so distinctive that it is scarcely likely that the Afghan specimens could be ascribed to a different species and it is more probable that KUZNETZOV-UGAMSKIJ described the species from exceptionally small examples with allometrically shortened funiculus segments.

The ♂ has the general appearance suggested by descriptions of *P. nasuta* Nyl.; the body surface is highly polished with the head and thorax thickly covered in long outstanding hairs. Similar hairs on the gaster are restricted to the ventral surface. The external surface genitalia are prominent and directed vertically downwards as in other members of the genus. The thoracic profile is similar to that described for *P. nasuta*. The ultimate funiculus segment is dorsoventrally flattened so that in side view it appears distinctly tapered. Length: 6 mm.

Range: The only recorded locality outside Afghanistan is west of the Amu Darya in Russian Turkestan.

Formica sanguinea Latr.

11 ☿☿, 3 ♀♀, Puistagoli, Paghman, Herat, Tarapas, VII–VIII/48, leg. Haarløv.

According to KUZNETZOV-UGAMSKIJ (1929) the Turkestan forms of this species including the varieties "*clarior*" and "*arenicola*" do not have the "slave-making" habit but, as in Europe, the ♀♀ are dependant on ☿☿ of the *F. fusca* group for staring fresh colonies. One of Afghan ♀ from PAGHMAN had been tubed with 4 ☿☿ of *F. clara* discussed below, no doubt from an incipient mixed colony. The three ♀♀ are all distinctly smaller than those I have from W. European localities but neither they nor the ☿☿ exhibit any distinctive morphological differences from those of Europe.

Range: Entire Europe and N. Asia including Himalayas.

Formica clara FOREL, 1884, *Fig. 16, 19.*
(*Formica (Serviformica) rufibarbis* var. *clara* FOREL, 1886).

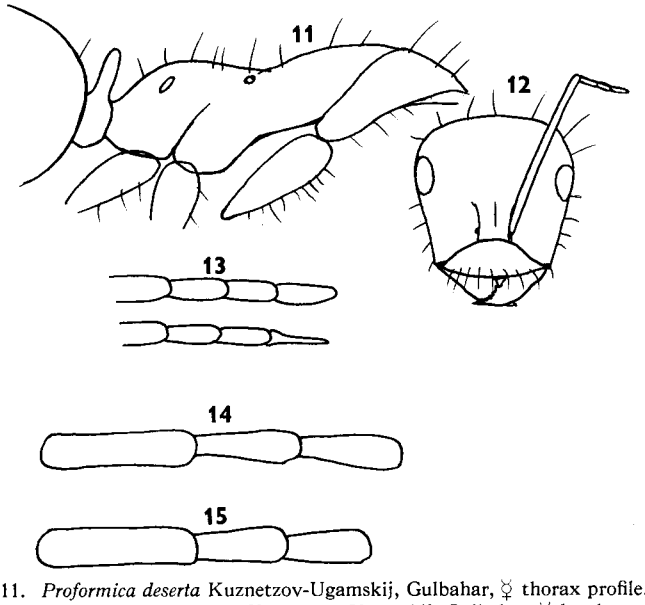
Numerous ☿☿, 2 ♀♀, Puistagoli, Paghman, Panjao, Anderab, Surta, Tarapas, Kotal Pass, VII–VIII/48, leg. Haarløv.

This was described as a variety of *F. rufibarbis* Fab. but has rather more resemblance to *F. cunicularia* Latr. and has clear differences from either. I have treated this as a good species since there is evidence of geographical overlap with *F. rufibarbis* in the Himalayas, S. Russia and Persia. The relationship with *F. cunicularia* need further investigation however.

EIDMAN (1942) states that *F. glebaria* var. *rubescens* which is a synonym for the redder forms of *F. cunicularia* is the only representative of this group in the Himalayas. FOREL (1894) however lists both "*glebaria*" and "var. *clara*" from this region and it is probable that there has been some confusion between them.

The Afghan ☿☿ have the thorax entirely yellowish red; the head is similarly coloured but in some examples the ocellar region is faintly darkened. There are occasional short yellow bristles on the thorax but these never approach the condition of typical *F. rufibarbis*. The ♀ is also pale with the head, thorax and first gaster segment light red, while the thorax has light infuscate bands as in the palest examples of *F. rufibarbis* but less clearly defined. The thoracic hairs in the ♀ are restricted to the pronotum and mesonotum as in *F. cunicularia*. In both castes the frontal triangle is approximately equilateral and not wider than high as in *F. cunicularia*. The body surface is covered in long thick pubescence which is much thicker than in either *F. rufibarbis* or *F. cunicularia* and the antennal segments are relatively shorter than in those species.

Range: S. Russia, Central Asia, Himalayas, Syria, Persia, W. China.



11. *Proformica deserta* Kuznetzov-Ugamskij, Gulbahar, ☿ thorax profile.
12. *Proformica deserta* Kuznetzov-Ugamskij, Gulbahar, ☿ head.
13. *Proformica deserta* Kuznetzov-Ugamskij, Gulbahar, ♂ antennal tip from above and in side view.
14. *Cataglyphis (Monocambus) curror* Fonsc. Pyrenées, ☿ first three funiculus segments.
15. *Cataglyphis (Monocambus) emeryi* Karawaiev, Herat, ☿ first three funiculus segments.

Formica subpilosa RUZSKY, 1902, *Fig. 17, 20.*
(*F. Serviformica rufibarbis* var. *subpilosa* RUZSKY, 1902. KARAWAIEV, 1909: STITZ, 1939).

7 ☿☿, 2 ♀♀, 1 ♂, Kajkai, Girisk, Herat, Pirzada, VI/48, leg. Haarløv.

This species, like the preceding, was described as a variety of *F. rufibarbis* Fab. from which it differs distinctively in a number of ways. The two species moreover overlap geographically and KUZNETZOV-UGAMSKIJ (1929) records them from the same locality in Daghestan, S. Russia. The ☿ has the head, thorax, scale and gaster covered dorsally with short upright greyish bristles which are more numerous and at the same time slightly shorter than in *F. rufibarbis*. The ☿ and ♀ have the frontal triangle wider than high unlike *F. rufibarbis* and in all castes the pubescence is thicker and the body colour lighter than in that species. The ♂ is also distinguished by the scale which is rounded in outline without emargination and without bristles. The scape, mandibles, legs and scale are yellowish brown with the head, thorax and gaster darker above. The ♀ is distinguished from *F. clara* which it resembles in colour, by the more elongate antennal segments and the more abundant thoracic bristles which extend over the epinotum.
Range: S.E. Europe, S. Russia, Syria, Central Asia.

Formica bipilosa KARAWAIEV, 1926, *Fig. 18.*
(*F. cinerea* var. *bipilosa* KARAWAIEV, 1926; KUZNETZOV-UGAMSKIJ, 1929).

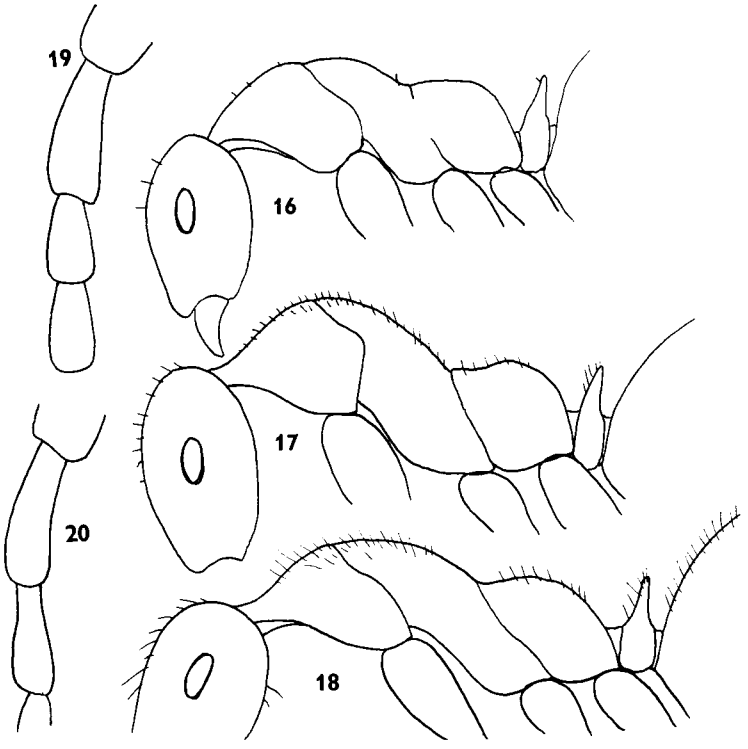
14 ☿☿, 9 ♂♂, Polichromi, 28/V/56, leg. Amsel.

This species is distinguished from *F. cinerea* MAYR by its pale red colour and pilosity. The body hairs are longer but somewhat sparser than in *F. cinerea* and the subcephalic hairs which are abundant in that species and other described red colour forms including var. *cinereo-rufibarbis* FOREL and var. *imitans* RUZSKY, are reduced in the present species to one or two long hairs on the basal portion of the head towards each side in both ☿ and ♂. In some of the Afghan examples these are abraded or present only on one side but when present their position is characteristic. In the ☿, the head, thorax, scale, antennal scape and legs are pale red with the head and thorax above sometimes faintly infuscate. The gaster has thick long greyish pubescence which is shorter and sparser on the head and thorax. The ♂ has the antennal scape, legs, gaster and mandibles pale ochreous with the head, funiculous more or less of thorax and scale above dark grey. The whole body has long adpressed pale pubescence. The head, thorax

and scale above have standing hairs; the gaster is bare above but has long hairs on the underside. The wings are infuscate and short not reaching beyond the gaster. The scale is feebly emarginate with rounded corners as in *F. cinerea.*
Range: S. Russia.

Lasius niger L.

This common Eurasian species is not represented in the collections under review. However WILSON (1955) refers to this species from Shirparek in the Central Afghanistan mountains withour citing the collector. According to WILSON *op. cit.* the specimens fall well within the range of European *L. niger* in appendage proportions and other features.



16. *Formica clara* Forel, Tarapas, ☿ profile.
17. *Formica subpilosa* Ruzsky, Kajkai, ☿ profile.
18. *Formica bipilosa* Karawaiev, Polichromi, ☿ profile.
19. *Formica clara* Forel, Paghman, ♀ first three funiculus segments.
20. *Formica subpilosa* Ruzsky, Pirzada, ♀ first three funiculus segments.

Lasius flavescens FOREL, 1903.
(*L. niger* var. *flavescens* FOREL, 1903; *nec.* WILSON, 1955).

4 ☿☿, Tarapas, 23/VII/48, leg. Haarløv.

Forel described this as a variety of *L. niger* from Bokhara in Russian Turkestan. WILSON (1955) tentatively placed it in synonymy with *L. niger* after examining a single damaged specimen. It may be that the Tarapas examples belong to a new species but the general description is very like that for *flavescens* FOREL. The colour is pale yellowish brown and the appendages and body are very hairy. The Tarapas examples are distinguished from any other described species by the relatively short maxillary palp segments and the shape of the eye.

☿ — Length 2.5–2.8 mm colour uniformly pale yellowish brown. Pilosity dense with 40 to 50 hairs projecting above the thoracic outline when seen in side view; appendage seta count i.e. number of hairs standing beyond scape plus front tibia viewed in the plane of flexion, 51. Head width 0.73 –0.92 mm. Scape index 100. Ultimate maxillary palp 0.127–0.138 mm. Eye length, 0.192–0.215 mm. Eye width, 0.169–0.183 mm. Pronotal width, 0.53–0.56 mm. Shape of clypeus and mandibular dentition as in *L. niger* L.

This species is clearly distinguished from *L. niger* by the shorter more rounded eye, the relatively much shorter maxillary palps, the uniform pale colour and the more abundant body hairs.
Range: Turkestan.

Lasius (Chthonolasius) rabaudi Bodroit, 1918; (WILSON, 1955).

4 ☿☿, Shirparek, 7/VIII/48, leg. Haarløv.

The general size of these specimens is small, length 3–3.5 mm. Scapes, tibiae and body are clothed in abundant standing hairs. The funiculus segments are slightly but distinctly longer than broad; the petiole is high and somewhat rectangular in outline and the antennal scape somewhat flattened. These combined features place the specimens with *L. rabaudi* rather than with the similar *L. umbratus* Nyl.
Range: Europe, Japan.

Acantholepis frauenfeldi MAYR, 1855.

Several ☿☿, Paghman, Herat, VI/48, leg. Haarløv; Herat, IV/56, leg. Wilke.

There appear to be two distinct populations here from Paghman and from Herat respectively. The Paghman specimens have the characteristic boldly bidentate petiolar scale of *A. frauenfeldi* as usually described.

The colour is darker than that characteristic for most Mediterranean localities but there are reddish testaceous patches on the thorax. I have seen similar dark ☿☿ from Turkey and Arabia labelled "var *nigra*" in the British Museum but the majority of examples of this species there have both the head and thorax more or less clear yellowish red. The Herat specimens differ in being more uniformly dark while the petiole angles are much reduced and in some examples the petiole is entirely smooth without angles. These correspond with the description of var. *integra* FOREL from the Himalayas but there is not sufficient information given to distinguish these varieties clearly and assess their taxonomic value.
Range: Central Asia, Mediterranean, North Africa.

Plagiolepsis pygmaea LATREILLE, 1798.

Several ☿☿, Panjao, Shirparek, Marrak, Herat, VII–VIII/48, leg. Haarløv; Herat, IV/56, leg. Wilke.

These have the head slightly emarginate as supposed to be characteristic for *P. vindobonensis* LOMNICKI but the majority of the specimens are paler than the description given in STITZ (1939) while the proportions of the funiculus segments are similar to those given for *P. pygmaea op. cit.* The antennae are thickly clothed with short semi-decumbent hairs which appear denser than specimens I have from France which they otherwise closely resemble.
Range: S. Europe, Central Asia.

Camponotus (Orthonotomyrmex) interjectus MAYR, 1877 (ANDRÉ 1881).

1 ☿, Istalif, 10/VII/48, leg. Haarløv.

This small ☿ is much like *C. lateralis* Ol. of S. Europe. According to the description given by ANDRÉ (1881) after MAYR, it is only possible to distinguish the two species clearly in the larger examples. The Afghan specimen is slightly more hairy than *C. lateralis* from France in my possession and since it is more likely to be an Asiatic than an European form I have referred it to *C. interjectus* rather than *C. lateralis*. According to KUZNETZOV-UGAMSKIJ (1929). *C. interjectus* is a common species in the S. Russian steppes.
Range: Turkestan.

Camponotus (Tanaemyrmex).

This subgenus includes a large number of similar species and poorly defined forms ranging over the whole temperate and subtropical zones. I

have mainly used the keys provided by EMERY (1908) in sorting out the six species represented here. I have not however followed this author in regarding them as subspecies of *C. maculatus* which is clearly only one of many independant geographically overlapping species in this large group.

Camponotus (Tanaemyrmex) turkestanus ANDRÉ, 1881, *Fig. 21, 26.*
(*C. sylvaticus* var. *turkestanus* ANDRÉ), 1881; *C. maculatus* subsp. *turkestanus*, EMERY, 1908).

1 ♀, 6 ♂♂, Gulbahar, VI/56, leg. Amsel.

Only the ☿ caste appears to have been described by ANDRÉ and EMERY. This species was first noted by MAYR, 1880. It was described as a completely pale yellowish form related to *C. sylvaticus* Ol. EMERY gave it more definition by examining the pilosity characters. These and the pale colour closely fit the Afghanistan specimens. Both the ♀, length 12 mm, and the ♂♂, length 8 mm are relatively small and pale. The ♀ has the yellow colour predominating on the head, thorax and most of the gaster; the appendages are entirely reddish yellow. The ♂♂ vary but have the darker areas more or less restricted to the mesonotum above, the back of the head and the gaster excluding the genitalia. The cheeks and appendages lack standing hairs. A row of oblique bristles is present on the inner face of the mid and hind tibiae and there are one or two long subcephalic hairs. The body is diffusely sculptured with shining interspaces. The wings are pale with yellowish stigmata and veins.
Range: Turkestan.

Camponotus (Tanaemyrmex) turkestanicus EMERY, 1908.
(*C. maculatus* subsp. *turkestanicus*, EMERY, 1908), *Fig. 27.*

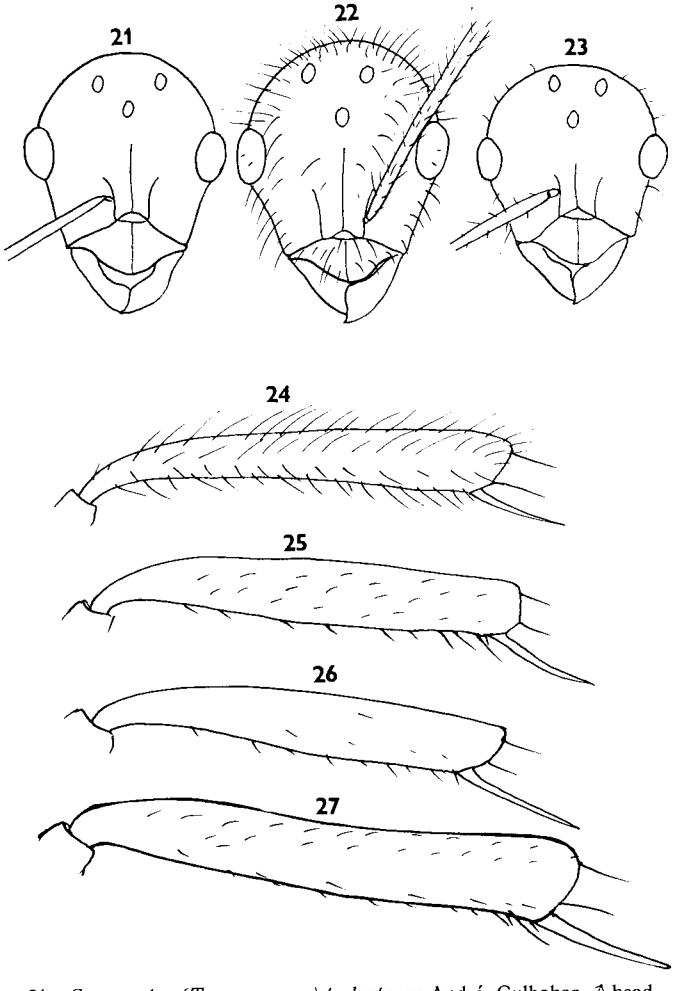
2 ♀♀, 1 ♂, Polichromi, Herat, V/56, leg. Amsel.

This species is characterised by the numerous long subcephalic hairs which are curved anteriorly in a manner reminiscent of the "psammophore" hairs of some of the desert species of *Messor* and *Monomorium*. The appendages have very short curved semidecumbent hairs but lack the row of bristles on the hind tibiae. The head is bare above. The head, thorax and appendages are reddish in the ♀ and the ♂ also has much of the thorax as well as the appendages reddish. The body surface is shining with scattered large punctures and fine laterally striate microsculpture. The mid and hind tibiae are laterally compressed and chanelled rather as in the much darker *C. compressus* Fab. ♀ length: 16 mm.
Range: Turkestan.

Camponotus (Tanaemyrmex) oasium FOREL, 1890.

(*C. compressus* subsp. *thoracica* var. *oasium* Forel, 1890), *C. maculatus* subsp. *thoracicus* var. *oasium*, Emery, 1908).
Several ☿☿, V–VII/48, Herat, Pirzada, leg. Haarløv.

These examples appear to have the generalised colour description given by MAYR (1880) for examples of *C. variegatus* SMITH from East Persia and



21. *Camponotus (Tanaemyrmex) turkestanus* André, Gulbahar, ♂ head.
22. *Camponotus (Tanaemyrmex) fedtschenkoi* Mayr, Puistagoli, ♂ head.
23. *Camponotus (Tanaemyrmex)* sp. ? Herat, ♂ head.
24. *Camponotus (Tanaemyrmex) fedtschenkoi* Mayr, Puistagoli, ♀ mid tibia.
25. *Camponotus (Tanaemyrmex) sanctus* Forel, Paghman, ♀ mid tibia.
26. *Camponotus (Tanaemyrmex) turkestanus* André, Gulbahar, ♀ mid tibia.
27. *Camponotus (Tanaemyrmex) turkestanicus* Emery, Herat, ♀ mid tibia.

Turkey. ANDRÉ (1881) also gives a similar description and both authors give the Middle East as part of the range of that species. However, examples of *C. variegatus* in the British Museum from India differ considerably in pilosity characters from the Afghanistan specimens which key out to *C. thoracicus* Fab. according to EMERY (1908). Named examples of *C. thoracicus* in the British Museum have a rather different colour pattern with the dark areas darker and the appendages lighter than the Afghanistan specimens which correspond well with the description of "var. *oasium*" FOREL. I have accordingly referred them to this form which seems best regarded as a distinct species pending a critical revision of this group.

The scapes, tibiae and metatarsi are light to dark brown with the funiculi and femora yellowish. The larger ☿☿ have the yellow area on the gaster extending over most of the first segment and the sides of the second segment. The head is more or less dark reddish brown with the thorax reddish infuscate above. The smaller ☿☿ are much paler with the thorax and appendages almost entirely yellowish. The subcephalic hairs are reduced to one or two at most in the larger ☿☿; there are no cheek hairs or appendage hairs except for the usual row of scattered oblique bristles on the inner face of the mid and hind tibiae. Scattered long hairs arise dorsally over the gaster, scale and thorax. The mid and hind tibiae are somewhat flattened. Length: 7–12 mm, scape length in largest ☿☿ 3 mm or over.
Range: N. Africa, Middle East.

Camponotus (Tanaemyrmex) sanctus FOREL. *Fig. 25.*
(*C. compressus* subsp. *sancta* FOREL, *C. maculatus* subsp. *sanctus*, EMERY, 1908).

1 ♀, Paghman, VII/48, leg. Haarløv.

This is very similar to *C. thoracicus* in general characters but keys to *C. sanctus* according to EMERY (1908) in its smaller size and shorter appendages. The scape length of the Afghan ♀ is 2.7 mm i.e. shorter than that of *C. oasium* ☿☿ of similar overall length. The body colour is dark with the yellowish areas restricted to the scale, femora and tarsi and the specimen is evidently darker than the type but may be similar to the dark form var. "*cypriaca*" FOREL described from Cyprus.
Range: Balkans and Middle East.

Camponotus (Tanaemyrmex) fedtschenkoi MAYR, 1880. *Fig. 22, 24.*

Numerous ☿☿, ♀♀, ♂♂, Puistagoli, Paghman, Kotal Pass, Shirparek, VI–VIII/48, leg. Haarløv.

ANDRÉ (1881) dismisses this as a minor variety of *C. sylvaticus* Ol. However as MAYR's original description shows, this is a very distinctive species. It is characterised by abundant semi-erect hairs over the whole body and on all appendages in all castes. The head and thorax have scattered coarse, shallow punctures. The tibiae are not compressed. The body is somewhat shining with fine reticulate microsculpture throughout. Length of ☿☿ 4.5–9.5 mm; the smallest are entirely pale yellow, the largest have the head reddish black and the thorax and gaster posteriorly more or less reddish infuscate. The ♀♀, length 12 mm, have the head and thorax reddish infuscate to black with the gaster yellowish brown. The legs and antennae are reddish yellow with the femora darker in some specimens. The wing veins and stigma are yellowish brown. The ♂♂, length 8–9 mm, are dark ochreous to dense black except for the yellow tarsi and funiculi.
Range: Turkestan.

Camponotus (Tanaemyrmex) sp. ?. *Fig. 23.*

1 ♂, Herat, leg. Wilke.

This single ♂ is small, length 6.5 mm, and dark with only the funiculus and tarsi pale and the petiole and rest of the appendages brownish testaceous. The scapes and tibiae have scattered short semi-erect hairs and scattered long hairs are present over the body including the cheeks; the subcephalic hairs are numerous and long. The pilosity however, is far less dense than in *C. fedtschenkoi* above. RUZSKY describes a variety "var. *mayri*" of that species which is said to be darker and less hairy. According to EMERY (1908), the specimen would key to *C. fedtschenkoi* unless the rather fine tibial hairs were taken to represent the usual row of bristles. In that case the specimen would key to *C. samius* FOREL or one of its varieties from Greece and the Balkans.

Polyrachis (Myrmhopla) simplex MAYR, 1862.

2 ☿☿, 1 ♀, Pirzada, V–VI/48, leg. Haarløv.

This is a common Indian species. According to FOREL (1928), it has spread westward as far as Syria in the Middle East.
Range: India, Burma, Middle East.

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