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REVISION

OF THE

LARGE, STYLATED, FOSSORIAL CRICKETS.

BY

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REVISION

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LARGE, STYLATED, FOSSORIAL CRICKETS.

IN this paper I have brought under review all the palmated Gryllides known to me in nature or by description, with the exception of *Cylindrodes* and the minuter forms. My attention was first drawn to them by observing how distinctly they grouped themselves into two divisions, according as the scooping palm was armed with two or with four fingers on the tibia. This seemed to indicate a generic line of demarcation, and the following pages will show the truth of the supposition. I afterwards found that the group had been greatly neglected, and, with the exception of the common European mole cricket, no one species had been well described. Some of the most distinctive features separating the species, such as the size and position of the ocelli, the form of the trochanter, and, in the didactylate species, the form of the sexual abdominal tooth, have been either entirely neglected or but superficially used by entomologists who have written about these insects. There are other accessible characters not used in this memoir, such as the form of the sternum of the terminal abdominal segments in *Gryllotalpa*, and the neuration of the tegmina and form of the basal antennal joints in both genera; these ought to be brought forward in a monograph of the groups. The proportions of many parts have been omitted in my descriptions because they could be easily inferred from the very careful measurements which are given; all measurements are made in millimetres; the shortest possible dimensions of the hind femur have been given, and not its extreme length inclusive of the apical prolongations. The longer measurements, especially of flexible, and, therefore, often distorted parts, such as the wings and the anal cerci, are not always quite so carefully made as the others, since conjecture had occasionally to play its part; the measurements from alcoholic specimens are always exact, and, in any case, the error is but trifling, and the multiplicity of the measurements such as to prevent any general misstatement.

I am especially indebted to the Museum of Comparative Zoölogy and to the Smithsonian Institution for my material. The Essex Institute, the Bos-

ton Society of Natural History and Mr. F. G. Sanborn have lent me a few specimens, and many friends, whose names will appear below, have enriched my own collection. I cannot omit to make special reference to my esteemed friend, Mr. P. R. Uhler, who has generously placed in my hands his whole extensive collection of Orthoptera.

With the exception of the essays upon *Gryllotalpa vulgaris* (for which see Fischer's Orthoptera Europæa) the following references comprise all the descriptions of species I have found of this group of Gryllides.

1731. CATESBY, in his Natural History of the Carolinas, figures a species of mole cricket, which Burmeister has referred to *Gryllotalpa borealis*, but which is undoubtedly my *G. Columbia*.
1803. LATREILLE, in his Histoire Naturelle des Crustacés et des Insectes, describes very briefly *G. didactyla* nov. sp., my *Scapteriscus didactylus*.
- 1805-21. PALISOT DE BEAUVOIS, in his Insects of Africa and America, describes and figures *G. Africana* nov. sp., my *G. Africana*.
- 1809-13. SAVIGNY, in his Illustrations of the Insects of Egypt, figures a new species of *Gryllotalpa*, afterwards named *Cophita* by De Haan (but not described). I have described it from Savigny's illustrations under De Haan's name.
- 1830-4. PERTY, in his Delectus Animalium articulorum, describes and figures three species of mole crickets, —

Gryllotalpa oxydactyla nov. sp. = *Scapteriscus oxydactylus*.
 " *tetradactyla* " = " *didactylus*.
 " *hexadactyla* " = " *hexadactylus*.

1838. BURMEISTER, in his Handbuch der Entomologie, gives short diagnoses of all the species of mole crickets known to him, ten in number, of which six are considered new; they are divided for the first time into two groups, the tetradactylate and didactylate species; the former are again subdivided into two groups according to the presence or absence of spines on the shafts of the hind tibiæ. His species are as follows:—

A. a. *Gryllotalpa vulgaris* Linn., = *Gryllotalpa vulgaris*.
 " *orientalis* nov. sp., = " *Africana*.
 " *hirsuta* " = " *hirsuta*.
 b. " *minuta* " = " *minuta*.
 " *borealis* " = " *borealis*.
 " *hexadactyla* Perty, = " *hexadactyla*.
 B. " *oxydactyla* " = *Scapteriscus oxydactylus*.
 " *Mexicana* nov. sp., = " *Mexicanus*.
 " *didactylus* Latr., = " *didactylus*.
 " *variegata* nov. sp., = " *variegatus*.

1839. SERVILLE, in his general work on Orthoptera,¹ divides the species as Burmeister had done, adding that the tibiæ of the didactylate group are not so broad as those of the tetradactylate. In his first division he describes

Gryllotalpa vulgaris L., = *Gryllotalpa vulgaris*.
 " *Africana* Pal. de Beauv., = " *Africana*.
 " *nitidula* nov. sp., = " *nitidula*.
 " *hexadactyla* Perty, = " *hexadactyla*.
 " *brevipennis* nov. sp., = " *borealis*.

¹ SERVILLE's proof copy of this work was shown to me in Paris by M. Lucas, of the Jardin des Plantes. The signatures bore the impress of the printer's stamp as follows: "Imprimerie de Fain. Rue Racine No. 2, 2^e auteur." In the middle of the stamp were written the dates at which the impressions were sent to the author. These showed that the whole work was printed in 1838, between the 20th of July and the 20th of December. The title-page also bore the printed date 1838. If the Journals of that day had been as abundant and critical as those of the present time, we might find that the portion of Burmeister's Handbuch der Entomologie which treats of the Orthoptera, and which is dated 1838, did not really appear until early in 1839. If this supposition—at best a very doubtful one—proved true, a material revolution would follow in the nomenclature of Orthoptera.

In his second division he describes, —

<i>Gryllotalpa oxydactyla</i> Perty,	=	<i>Scapteriscus oxydactylus</i> .
“ <i>didactyla</i> Latr.,	=	“ <i>didactylus</i> .
“ <i>parvipennis</i> nov. sp.,	=	“ <i>variegatus</i> .

1840. BURMEISTER, in Germar's Zeitschrift, gives a detailed comparison of his own and Serville's work, in which he states that the species, with corresponding names in the two works, are identical, and further that

<i>Gryllotalpa africana</i> Serv.,	=	<i>Gryllotalpa orientalis</i> Burm.
“ <i>brevipennis</i> Serv.,	=	“ <i>borealis</i> Burm.
“ <i>parvipennis</i> Serv.,	=	“ <i>variegata</i> Burm.

1842. ERICHSON, in an article on the Insect Fauna of Van Dieman's Land in the Archiv für Naturgeschichte, describes *Gryllotalpa australis* nov. sp. from N. Holland, which I have redescribed under the same name.
1842. DE HAAN, in his Review of the Orthoptera of the Leyden Museum, divides the so called subgenus *Gryllotalpa* by a synoptical table, and describes *G. hirsuta* Burm., and *G. longipennis* nov. sp., which I have redescribed from his and Burmeister's descriptions under the same names. He also gives the name, "*Cophtus* nov. sp.," to the species figured by Savigny, but accompanies it by no description (see above). The table given by De Haan was evidently prepared without examination of specimens of many of the species included in it, as it is erroneous in several particulars. He also figures *G. orientalis* Burm., my *Gryllotalpa fossor*.
1856. GUÉRIN, in De Sagra's Cuba, describes and figures *G. hexadactyla* Perty. I have redescribed it under the same name.
1859. DE SAUSSURE published his Orthoptera Nova Americana in Guérin's Revue et Magazin de Zoologie; he describes *Gryllotalpa Azteca* nov. sp., and mentions characters by which the species is separable from *G. hexadactyla* Perty. As his description agrees in every particular with the characters of specimens I have received from Mexico, and which I can in no way distinguish from *G. hexadactyla* Perty, I am inclined to consider *G. Azteca* as a synonym of Perty's species.
1861. DE SAUSSURE continued his diagnoses of North American Orthoptera in Guérin's Revue, and describes *Gryllotalpa Chiliensis* nov. sp., a species which I have not seen, but have redescribed from his diagnosis.
1862. SCHAUM, in Peter's Reise nach Mozambique, remarks that under the name of *G. Africana* Palisot de Beauv. should be placed the specimens in the Berlin Museum which had been separated under the MS. names of *G. Inda* and *G. Capensis*. His species is probably my *G. Africana*.
1862. The AUTHOR, in his Materials for a Monograph of the North American Orthoptera, in the Boston Journal of Natural History, enumerates two species of mole crickets from New England: — *G. borealis* Burm., now redescribed under the same name; and *G. longipennis* nov. sp., a name preoccupied by De Haan for an East Indian species, and therefore redescribed in this memoir under the name of *G. Columbia*. It is doubtful whether Harris's specimen of this species came from New England; its etiquette bears no locality whatever.

With the following exceptions, I have been able to examine specimens of all the species described by authors: *Gryllotalpa Cophta* Savigny, De Haan; *G. hirsuta* Burm., De Haan; *G. variegata* Burm. (*parvipennis* Serv.); *G. longipennis* De Haan; *G. Chiliensis* de Sauss.

As stated in my prefatory remarks, the mole crickets, which have but two dactyls on the fore tibia, should be separated from those which have four. The latter may retain their ancient name, since it was first applied to one of them — the European species. To the former the generic term *Scapteriscus*¹ may be applied.

¹ The little digger, a diminutive from σκάπτω.

For the sake of clearness the distinctions between these two genera are presented in a table, side by side, and are followed by the descriptions of the species in each genus.

GRYLLOTALPA.

1. Posterior margin of the sternum of the eighth abdominal segment of ♂ entire.
2. Mesosternal ridge prominent, and almost equally so throughout.
3. Fore trochanter of medium size or small, seldom exceeding half the length of the tibial dactyls, cultrate or lenticular.
4. Tibial dactyls four, the upper two movable, the lower two immovable.
5. Hind femora never equalling the prothorax in length.
6. First joint of hind tarsi unarmed or obscurely spined at the tip.
7. The length of all the hind tarsal joints together seldom, and then but little, exceeding half the width of the pronotum.
8. Terminal three fourths of the hind tarsal claws naked.
9. Tegmina covering half of the abdomen or less (except in *G. longipennis*).
10. Nervures of the dorsal portions of the tegmina in the ♀ distant and rather irregular (except in *G. australis*).
11. Anal cerci exceeding the pronotum in length.
12. Ninth and sometimes eighth abdominal segments furnished above with two transverse lateral rows of long hairs directed inwards (except in *G. australis* ♂ and perhaps in *G. Cophla*).

SCAPTERISCUS.

1. Posterior margin of the sternum of the eighth abdominal segment of ♂ produced into a stout, prominent, central tooth.
2. Mesosternal ridge not prominent, except on posterior half of the segment; sometimes limited to the posterior half, or even obsolescent.
3. Fore trochanter large, the free portion equalling the tibial dactyls in length (scarcely so long in *S. oxydactylus*), about as large at tip as at base.
4. Tibial dactyls two, movable.
5. Hind femora more than equalling the prothorax in length (except in *S. Mexicanus*, where they are about equal, and in *S. abbreviatus*, where they are shorter,—but this is owing to the unusual length of the pronotum).
6. First joint of hind tarsi terminating at the tip on either side in a sharp stout spine, the inner the longer.
7. The length of all the hind tarsal joints together equalling the width of the pronotum. (It is scarcely so in *S. Agassizii*.)
8. Terminal third of the hind tarsal claws naked.
9. Tegmina covering two thirds of the abdomen or more (except in *S. abbreviatus* and *S. variegatus*).
10. Nervures of the dorsal portions of the tegmina in the ♀ approximate and regular.
11. Anal cerci not so long as the pronotum (except in *S. oxydactylus*).
12. None of the terminal abdominal segments furnished above with rows of long hairs.

SCAPTERISCUS.

- | | |
|--|---------------------|
| 1. Tegmina covering half of the abdomen or less, | 2 |
| 1. " " more than half of the abdomen, | 3 |
| 2. " " half of the abdomen, | <i>variegatus.</i> |
| 2. " " less than half of the abdomen, | <i>abbreviatus.</i> |
| 3. Trochanter regularly rounded at the extremity, | 4 |
| 3. " either docked squarely or toothed at the extremity, | 7 |
| 4. Tibial dactyls almost or quite touching at base, | 5 |
| 4. " " distant from each other at base by at least one half the width of one of the dactyls, | 6 |
| 5. Tegmina covering nearly the whole abdomen, | <i>vicinus.</i> |
| 5. " " not more than two thirds of the abdomen, | <i>Agassizii.</i> |
| 6. Edge of the bare blade on lower border of trochanter straight, | <i>Mexicanus.</i> |
| 6. " " " " " " rounded, | <i>didactylus.</i> |
| 7. Insect large. Trochanter produced at lower outer angle to a sharply pointed tooth, | <i>oxydactylus.</i> |
| 3. Insect small. Trochanter produced at lower outer angle to a blunt triangular tooth, | <i>tenuis.</i> |

Scapteriscus oxydactylus SCUDDER.

PLATE I, FIGS. 2, 21.

Gryllotalpa oxydactyla PERTY, Delect. Anim. Artic., 118, tab. XXIII, fig. 7 (1830-34).

" " BURM., Handb. der Entom., II, 740 (1838).

" " SERV., Orthopt., 308 (1839).

Gryllus (Gryllotalpa) oxydactylus DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Head above fuscous, darker between the ocelli with paler median, submedian and lateral lines; pronotum testaceous, with darker, large, median blotches; abdomen fulvo-testaceous; veins of tegmina dull fulvous; legs uniform testaceous, the upper outer surface of the hind femora with a dark blotch near the tip and an obsolete one near the middle.

Ocelli rather large, oblong obovate, slightly convex; each distant from the adjacent eye by scarcely more than its own shorter diameter, and from the other ocellus by a little more than its longer diameter, directed toward the lower edge of the opposite eye. Posterior edge of the pronotum slightly marginated. Anterior portion of the lower edge of fore femora with a rather deep angulated excision. Fore trochanter not very long but broad, slightly curved outwards at the lower outer angle; the edges are subparallel, the lower straight nearly to the tip, the upper a very little convex, the tip slightly rounded, and the lower angle produced into a small, black, unarmed, triangular tooth, hardly so long as the ocelli, and directed downwards. Foramen of fore tibia protected by a strong projection of the upper edge of the tibia. Tibial dactyls very long and very slender, curved strongly outwards and very slightly downwards, somewhat divergent, separated at their base by a space equal to more than the width of either dactyl; the upper is longer, but scarcely stouter than the lower. Lateral dactyls of tarsi very long and very slender, curved outwards, but otherwise straight. Acicular claws equalling the last tarsal joint in length. Inner hinder three

fourths of the hind tibiae with five very long and slender spines increasing in length outwardly; the tip is also provided with one short spine and two long ones on the inner side, and three short ones on the outer side. Last tarsal joint of hind legs long and slender. The claws of hind legs very long and slender, the shorter outer one equalling in length the terminal tarsal joint. Tegmina in repose reaching beyond the tip of the hind femora, nearly or quite surpassing the tip of the abdomen. Wings in repose extending as far as the tips of the anal cerci. Posterior border of the sternum of the eighth abdominal segment of the ♂ produced into a long prominent tooth, as long as the segment; it narrows rapidly during its basal fifth, and then tapers very slightly to its very obscurely bifid tip; it is a little carinated on its under surface, and at the tip is not so broad as are the anal cerci where they approach it. Anal cerci very long and slender, equalling or surpassing the pronotum in length.

IN MEDITERRANEIS PROV. MINARUM (Perty); BRAZIL (Burmeister, Serville, De Haan).

TABLE OF MEASUREMENTS OF *S. OXYDACTYLUS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length, sternum 8th abd. segm't incl. tooth.
M. C. Z.	Dry.	Tapajos, Brazil,		Thayer Exp.	♂	12 $\frac{1}{4}$	10	25 $\frac{1}{4}$	38	15		6 $\frac{1}{4}$	6	3 $\frac{1}{4}$
"	"	"		"	♀	11 $\frac{3}{4}$	9 $\frac{1}{2}$	27 $\frac{1}{2}$	40	15 $\frac{1}{2}$	15	6	5 $\frac{3}{4}$	
"	Alc.	"		"	♂	15 $\frac{1}{4}$	12 $\frac{1}{2}$	28 $\frac{1}{2}$	39 $\frac{1}{2}$	15 $\frac{1}{2}$	14 $\frac{3}{4}$	6 $\frac{3}{4}$	5 $\frac{1}{2}$	3

Scapteriscus tenuis SCUDDER, nov. sp.

PLATE I, FIG. 7.

Head above brownish fuscous, with pallid median, submedian, and lateral lines, the latter broader than the others and circumventing the eyes; the pronotum and upper surface of the abdomen brownish fuscous, variegated on either side of the median line with pallid blotches; the rest of the body pale testaceous, the hind legs variegated with brownish fuscous; veins of the tegmina testaceous, darker at the humerus.

Ocelli small, obovate, a little convex, each distant from the adjacent eye and from the other ocellus by a space equal to two and a half times its longer diameter, directed toward the upper edge of the base of the opposite antenna. Anterior portion of the lower edge of the fore femora with a slight excision. Fore trochanter long, straight, with a scarcely perceptible outward twist at the lower angle, slightly narrower at tip than at base, upper edge slightly convex, lower edge straight nearly to the tip; extremity docked pretty squarely, the lower angle produced downwards, very slightly forwards, into a bare, unarmed, minute plate, longer than broad, its outer edge rounded,

its lower edge straight, in length scarcely equalling the breadth of the trochanter, and set at a very slight angle with the lower edge of the trochanter; this prominence adds to the square appearance of the tip of the trochanter; lower edge and tip of trochanter, excepting lower angle, armed regularly with stout spines. Tibial dactyls curved outwards but not downwards, parallel, long and slender, especially the lower; they are separated at the base by a space equal to half the width of the lower dactyl. Lateral dactyls of tarsi long and slender, especially the upper; the upper straight, the lower curved very slightly upwards. Acicular claws long and slender, the lower slightly the longer, fully three fourths the length of the smaller tarsal dactyl. Inner hinder two thirds of the hind tibiae with four long and slender spines increasing in length toward the tip of the tibiae; besides these the tip is armed with one short spine and two long ones on the inner side, and three or four shorter ones on the outer side. Last tarsal joint of hind legs unusually narrow, and of the same length as the slightly longer inner claw. Tegmina in repose reaching the middle of the sixth abdominal segment, not attaining the tip of the hind femora. Wings in repose reaching the middle of the anal cerci. Anal cerci about three fourths the length of the pronotum.

BRAZIL.

TABLE OF MEASUREMENTS OF *S. TENUIS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.
					♀	5½	4	9½	15½	6	4½	2½	2½
M. C. Z.	Dry.	Puty, Piahy, Brazil.	O. H. St. John.	Thayer Exp.	♀	5½	4	9½	15½	6	4½	2½	2½

***Scapteriscus Mexicanus* (BURMEISTER) SCUDDER.**

PLATE I, FIGS. 6, 18.

Gryllotalpa Mexicana BURM., Handb. der Entom., II, 740 (1838).*Gryllus (Gryllotalpa) Mexicanus* DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Above fuscous, faintly variegated with testaceous; beneath testaceous; tegmina testaceous, veins blackish fuscous.

Ocelli rather large, oblong obovate, nearly flat, each distant from the adjacent eye by less than its own shorter diameter, and from the other ocellus by less than twice their longer diameter, directed toward the lower edge of the opposite eye. Anterior portion of the lower edge of the fore femora with a deep angular excision. Fore trochanter long and very straight, the lower outer angle a little twisted outwards; it is of equal width throughout, the upper edge and basal half of lower edge perfectly straight, the apical third or more of the lower edge slightly produced downwards into a straight, bare blade, rounded at either extremity and embracing about one fifth of the outer edge of the trochanter, which it barely overreaches; the outer edge of

the trochanter is very slightly rounded. Tibial dactyls long and slender, distant, slightly divergent, separated from each other by a space nearly equal to the width of either dactyl, curved somewhat outwards and the upper slightly downwards, nearly similar, the lower a very little swollen before the middle. Lateral dactyls of tarsi very long and slender, the upper straight, the lower curved slightly upwards, twice the width of the upper, although but little longer. Acicular claws long and slender, very slightly curved, as long as the terminal tarsal joint. Inner hinder two thirds of the hind tibiae with five long and slender spines, not increasing regularly in length toward the tip of the tibiae; the tip also furnished with one long spine and two short ones on the inner side, and three short ones on the outer side. The slightly longer inner claw of the hind tarsi of the same length as the terminal tarsal joint. Tegmina in repose not quite reaching the tip of the abdomen, surpassing somewhat the tip of the hind femora. Wings in repose extending beyond the tips of the anal cerci. Posterior border of the sternum of the eighth abdominal segment of the ♂ produced into a square, prominent tooth, as broad as long, the sides equal, and the tip squarely docked. Anal cerci about three fourths the length of the pronotum.

ALVARADO, MEXICO (Burmeister); MEXICO (De Haan).

TABLE OF MEASUREMENTS OF *S. MEXICANUS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length sternum 8th abd. segment incl. tooth.
S. I.	Dry.	Colima, Mexico.	J. Xantus.	J. Xantus.	♂	9½	7	16½	24	9½	7	5½	3½	2
"	"	"	"	"	♀	10	7½	19	26	10½	6½	5½	4	
"	"	"	"	"	♀	8½	6½	15½	22½	9½	6½	5	3½	
"	"	"	"	"	♀				23			5	3½	

Scapteriscus didactylus (LATREILLE) SCUDDER.

PLATE I, FIGS. 1, 14.

- Gryllotalpa didactyla* LATR., Hist. des Crust. et des Ins., XII, 122 (1803).
 " *tetradactyla* PERTY, Delect. Amin. Artic., 118, tab. XXIII, fig. 8 (1830-34).
 " *didactyla* BURM., Handb. des Entom., II, 740 (1838).
 " " SERV., Orthopt., 309 (1839).
Gryllus (Gryllotalpa) didactylus DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Testaceous, the under surface paler; head and pronotum fuscous, blotched with testaceous; hind femora blotched with fuscous; tegmina testaceous (in one specimen from Costa Rica reddish brown), veins fuscous (in one specimen fulvo-fuscous).

Ocelli rather large, obovate, slightly convex, each distant from the adjacent eye by not more than its own shorter diameter, and from the other ocellus by from one and one half to two times its longer diameter, directed

toward the middle of the lower half of the opposite eye. Anterior portion of the lower edge of the fore femora with a deep angulated excision. Fore trochanter directed perpendicularly forwards, curved very slightly outwards, especially at the lower outer angle, very long, almost spatulate, the upper edge and the basal half of the lower straight, the apical half of the lower slightly convex and bare, the tip broadly rounded and its lower half unarmed. Tibial dactyls barely divergent, separated at base by a space equalling half the width of the lower dactyl, curved pretty strongly outwards, the upper also slightly downwards, long and stout, the lower swollen slightly just beyond the base. Lateral dactyls of tarsi long, pointed, the lower cultrate, the second less than half the size of the first. Acicular claws slender, half as long again as the width of the first lateral dactyl. Inner hinder edge of the terminal two thirds of the hind tibiae with four long, stout spines, one short one and two long ones on the inner edge of the apex, and three short ones on the outer edge of the apex. Terminal tarsal joint high and prominently keeled. Claws of hind tarsi nearly if not quite equalling the terminal tarsal joint in length, the inner slightly the longer. Tegmina very nearly covering the abdomen, surpassing a little the tips of the hind femora. Wings reaching beyond the tips of the anal cerci. Posterior edge of the sternum of the eighth abdominal segment of the ♂ produced into a stout, central tooth equalling half the breadth of the segment at the base, narrowing regularly throughout, so as to be at tip about one fourth the width of the base, as long as the segment itself, docked and obscurely bifid at tip. Anal cerci fully three fourths the length of the pronotum.

CAYENNE, SURINAM (Latreille); IN MEDITERRANEIS PROV. MINARUM (Perty); SOUTH AMERICA (Burmeister); BRAZIL, CAYENNE, SURINAM (Serville, De Haan); PARAGUAY, COSTA RICA.

Immature specimens, probably belonging to this species, have been received by the Museum of Comparative Zoölogy from FORT JEFFERSON, FLORIDA, and from CUBA.

TABLE OF MEASUREMENTS OF *S. DIDACTYLUS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length, sternum of eighth incl. tooth.
M. C. Z.	Dry.	Para, Brazil.	Prof. Agassiz.	Thayer Exp.	♂	10½	8	18	28	11½	9½	5½	3	2½
"	"	Tapajós, Brazil.	Dexter et al.	" "	♂	10	8	17½	27½	11	9	5½	2½	2½
S. H. S.	"	Brazil.		Schaum Coll.	♀	11½	8½	22	29	12		6	4	
"	"	Paraguay.	Capt. Pope.	P. R. Uhler.	♀	8½	6½	15	20			4½	3	
M. C. Z.	"	Manaos, Brazil.	J. C. Fletcher.	J. C. Fletcher.	♂	7½	6	14	21	9		4½	2½	1½
"	"	" "	"	" "	♀	7½	6	14	21½	9½		4½	2½	
S. H. S.	"	Costa Rica.		P. R. Uhler.	♀	7	5½	13½	20	7½	5	4	2½	
E. I.	"	?			♀	11	8	17½	24	11½		5½	3½	

Scapteriscus vicinus SCUDDER, nov. sp.

PLATE I, FIGS. 4, 23.

Above fulvo-testaceous; beneath dull fulvous; the head, pronotum and hind femora blotched with testaceous; tegmina testaceous, veins fuscous or fulvo-fuscous.

Ocelli rather large, obovate, slightly convex, each distant from the adjacent eye by fully its own shorter diameter, and from the other ocellus by from two to two and one half times its longer diameter, directed toward the middle of the lower half of the opposite eye. Pronotum proportionally shorter and stouter than in *S. didactylus*. Anterior portion of the lower edge of the fore femora with a deep angulated excision. Fore trochanter long, curved a little outwards, a little spatulate, the upper edge very slightly convex, the basal half of the lower edge slightly concave, and the outer convex and bare, the extremity broadly rounded, its lower half unarmed. Tibial dactyls parallel, approximate, separated at the base by a scarcely perceptible space, curved pretty strongly outwards, the upper one slightly downwards, long and stout, the lower swollen considerably just beyond the base. Lateral dactyls of tarsi long, pointed, cultrate, the second less than half the size of the first. Acicular claws slender, half as long again as the width of the first lateral dactyl. Inner hinder edge of the terminal two thirds of the hind tibiae with four long, stout spines, one short one and two long ones on the inner edge of the apex, and three short ones on the outer edge of the apex. Terminal tarsal joint high and prominently keeled, usually more so than in *S. didactylus*. Claws of hind tarsi nearly or quite equalling the last tarsal joint in length, the inner slightly the longer. Tegmina very nearly covering the abdomen, surpassing a little the tips of the hind femora. Wings reaching beyond the tips of the anal cerci. Posterior edge of the sternum of the eighth abdominal segment of the ♂ produced into a stout, central tooth, equalling half the breadth of the segment at the base, narrowing regularly throughout, so as to be at tip about one fourth the width of the base, as long as the segment itself, docked and obscurely bifid at tip. Anal cerci about two thirds the length of the pronotum.

SOUTH and CENTRAL AMERICA.

TABLE OF MEASUREMENTS OF *S. VICINUS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length of sternum of 8th segment incl. tooth.
S. H. S.	Dry.	Rio Negro, S.A.		P. R. Uhler.	♂	9½	8	17½	25½	10½	6½	5	3	2
M. C. Z.	Alc.	Piauhy, Brazil.	O. H. St. John.	Thayer Exped.	♀	7½	6¾	15¾	23½	9½	6½	4½	3	
S. H. S.	Dry.	Panama.		J. Akhurst.	♂	10½	9	20	29	11½	8½	6	4	1¾
M. C. Z.	"	Para, Brazil.		Thayer Exped.	♀	8½	7½	15	22	10½		4½	2½	
"	"	Rio Grande.	Capt. Harrington.	Capt. Harrington.	♀	8¾	7¾	17	24½	10½	7	4½	3	
S. H. S.	Spr'd.	Asia. (?)		Schaum Coll.	♂	9½	8	16	24½	10½	6½	4¾	3½	2

Scapteriscus Agassizii SCUDDER, nov. sp.

PLATE I, FIGS. 3, 19.

Testaceous, the under surface paler; pronotum and hind femora blotched with fuscous; veins of tegmina fuscous.

Ocelli large, obovate, a little convex; each distant from the adjoining eye by a little more than its own shorter diameter and from the other ocellus by twice its longer diameter, directed toward the middle of the opposite eye. Pronotum proportionally broader than in *S. didactylus*,—much as in *S. vicinus*. Anterior portion of the lower edge of the fore femora with a deep angulated excision. Fore trochanter directed perpendicularly forwards, curved very slightly outwards, especially at the lower outer angle, very long, almost spatulate, the upper edge and the basal half of the lower edge straight, the apical half of the lower slightly convex and bare, the tip broadly rounded and its lower half unarmed. Tibial dactyls parallel, separated at base by a space not more than equal to one fourth the width of the lower dactyl, curved very strongly outwards and very slightly downwards, long and stout, similar; lateral dactyls of tarsi long, pointed, the first culate, the second lanceolate and fully half as long as the first. Acicular claws slender, pointed, as long as the width of the first lateral dactyl. Inner hinder edge of the terminal two thirds of the hind tibiae with four slender spines, shorter than in *S. didactylus*, one short spine and two long ones on the inner edge of the apex and three short ones on the outer edge of the apex. Terminal tarsal joint high and prominently keeled. Claws of hind tarsi scarcely equalling the length of the terminal tarsal joint, the inner slightly the longer. Tegmina covering about two thirds of the abdomen, scarcely reaching the tip of the hind femora. Wings reaching a little beyond the tip of the abdomen. Posterior edge of the sternum of the eighth abdominal segment of the ♂ produced into a stout central tooth, narrowing along the basal half, the sides of the terminal half parallel, as long as the segment itself and at tip nearly as broad as its length, docked squarely. Anal cerci about two thirds the length of the pronotum.

This species was undoubtedly introduced into Europe from the New World; it is very closely allied to *S. didactylus*, but differs from it in several particulars besides those already enumerated. In *S. Agassizii* the terminal hind tarsal joint is narrower, the hind claws are slenderer and shorter, the impressions on the pronotum deeper, the pronotum itself shorter and stouter, and the hind femora proportionally longer.

In the collection of Baron de Selys of Liège, I saw, in December, 1865, a mole cricket captured in Europe, which Brunner had determined to be *Gryllotalpa didactyla* Latr. It was found at the roots of plants brought from Mexico. Chancing to have with me short descriptions of *S. didactylus* and of *S. Agassizii* which I had prepared six months before, I found that it agreed with the former rather than with the latter species.

SWITZERLAND (introduced from Central America?).

TABLE OF MEASUREMENTS OF *S. AGASSIZII*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length, sternum 8th. abd. segment incl. tooth.
M. C. Z.	Spr'd	Neuchatel, Switz.	Prof. Agassiz.	Prof. Agassiz.	♂	10½	9	17½	25½	10½		5	3½	1¾
"	Dry.	"	"	"	♂	10	8¾	16	25	10½	7½	5	3½	2
"	Ale.	"	"	"	♂	10¼	9¾	17	25	10¾	7½	5	3¾	2
"	Dry.	"	"	"	♀	9	8	15½	25½	10	6	4½	2½	

Scapteriscus variegatus (BURMEISTER) SCUDDER.

Gryllotalpa variegata, BURM., Handb. der Entom., II, 740 (1838).

" *parvipennis*, SERV., Orthopt., 309 (1839).

Gryllus (*Gryllotalpa*) *variegatus* DEHAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zoöl., 237 (1842).

Brownish yellow, variegated with fuscous; abdomen with some irregular spots of a paler yellow.

Anterior portion of the lower edge of fore femora with a deep angulated excision. Fore trochanter large, flattened, the sides parallel, rounded at the extremity. Terminal hind tarsal joint subcompressed. Claws of hind tarsi shorter than the terminal tarsal joint. Tegmina covering about one half of the abdomen. Wings shorter than the body, but one half longer than the elytra (Burmeister), or only surpassing the tegmina by one millimetre (Serville). Length twenty six millimetres.

From the descriptions of Burmeister and Serville.

COLOMBIA (Burmeister, Serville, De Haan).

Scapteriscus abbreviatus SCUDDER, nov. sp.

PLATE I, FIGS. 8, 20.

Above brownish fuscous; largely blotched with pale fulvous, on the thorax with large lateral spots and the commencement of a median line, on the abdomen with an inconspicuous median, a submedian and a larger lateral row of spots; head blackish, a narrow band around the eyes, a broad one between the eyes, median, submedian and lateral stripes pale fulvous; beneath dull fulvous; veins of the tegmina fusco-fulvous, fuscous along the junction of the costal and median areas, and at the union of many veins near the inner border in the ♂.

Ocelli very minute, subrotund, nearly flat, each distant from the adjacent eye by twice its own longer diameter and from the other ocellus by the width of the eye, scarcely if at all deflected. Anterior portion of the lower edge of the fore femora with a slight excision. Fore trochanter long, straight, with the lower outer angle a little twisted outwards, upper and

lower edges nearly parallel, rounded at the extremity, the tip placed a little below the middle, the lower angle rounded regularly, projecting a little, but scarcely beyond the hairy integument, smooth and unarmed from the middle of the extremity to a point on the under edge distant from it a very little more than the width of the trochanter; excepting this smooth space, armed irregularly with slender spines. Tibial dactyls curved a very little outwards, the upper very slightly downwards, separated at base by a space equal to more than half the width of the lower dactyl, slightly divergent, rather long but not slender, the lower as stout as the upper, bluntly rounded at tip. Lateral dactyls of tarsi, especially the upper, long and slender; the upper straight, the lower curved a little upwards. Acicular claws long and slender, the outer slightly the longer, about three fourths the length of the last tarsal joint. Inner hinder two thirds of the hind tibiae with four long and slender spines, increasing in length toward the tip of the tibiae; the tip is also armed with one short spine and two long ones on the inner side and three shorter ones on the outer side. The slightly longer inner claw fully equals the length of the terminal tarsal joint. Tegmina extremely short, in repose reaching the middle of the hind femora. Wings abortive, not exceeding one half the length of the tegmina. Posterior border of the sternum of the eighth abdominal segment of the ♂ produced into a large central tooth, as long as the segment itself, broad at base, narrowing rapidly during the basal third, the sides nearly parallel through the remainder, the apex broadly rounded, as wide at tip as one half its length. Anal cerci about two thirds the length of the pronotum.

PERNAMBUCO, BRAZIL.

TABLE OF MEASUREMENTS OF *S. ABBREVIATUS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper tibial dactyl.	Length, sternum 8th abd segment incl. tooth.
M. C. Z.	Dry.	Pernambuco.	Rev. J.C. Fletcher.	Rev. Mr. Fletcher.	♂	10	7	5½		8	26½	4½	3	2½

base, the immovable ones, especially the lower, triangular. Lateral dactyls of tarsi rather slender, cultrate, the second not more than one third as long as the first. Acicular claws short and blunt, in length equalling the breadth of the second lateral dactyl. Inner hinder edge of the terminal half of hind tibiae with three or four spines, inner edge of apex with three similar ones, outer edge with four shorter ones. Claws of hind legs equal to two thirds the length of the terminal tarsal joint, the inner slightly the longer. Tegmina in repose covering about one half of the abdomen, reaching nearly to the middle of the hind femora (♂), or covering from one half to two thirds of the abdomen, reaching nearly to the tip of the hind femora (♀). Wings not half the length of the tegmina (♂) or reaching nearly to the tip of the anal cerci (♀); veins of the tegmina of the ♀ almost straight, equidistant and regular throughout. Ninth abdominal segment of the ♀ furnished above with longitudinal rows of long rufous hairs, directed inwards, the rows placed nearer to one another than in other species of the genus.

This species is quite a remarkable one; no other species in the genus exhibits sexual variation in the length of the tegmina and wings, and none approach *Scapteriscus*, as this does, in the peculiar character of the neu-ration of the tegmina of the ♀.

NEW HOLLAND (Erichson).

TABLE OF MEASUREMENTS OF *G. AUSTRALIS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
M. C. Z.	Dry.	Melbourne, Austr.	H. Edwards.	H. Edwards.	♂	8½	6½	9½	6			1½	2¼
S. H. S.	"	Australia.		E. Janson.	♀	8½	6¾	13	23½	8		1½	3
M. C. Z.	"	Melbourne, Austr.	H. Edwards.	H. Edwards.	♀	8½	6½	13½	24	8		1¾	2¾
"	"	"	"	"	♂	8	6¼	10½		7½		1½	3
"	"	"	"	"	♂	7½	5¾	9½		7	8	1¾	2¾
"	"	"	"	"	♀	8½	6½	12½	23½	7½		1¾	2
"	"	"	"	"	♀	8½	7	12½	23½	8		1½	3
"	"	"	"	"	♂	8½	6½	10½		7¾	8½	1¾	3
"	"	"	"	"	♂	7½	6	9½		7	7¾	1½	2½
"	"	"	"	"	♂	8½	6½	12		7½		1¾	2¾

Gryllotalpa nitidula SERVILLE.

Gryllotalpa nitidula SERV., Orthopt., 307 (1839).

Gryllus (Gryllotalpa) nitidulus DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zoöl., 237 (1842).

Above smooth and shining, rufo-testaceous; head above brownish ferruginous; pronotum very smooth and shining, brownish ferruginous with a median paler line, enlarged in the middle; tegmina dull colored; abdomen yellowish both above and beneath.

Ocelli subrotund. Trochanter quite small, furnished beneath with hairs,

terminating in a point. Tibial dactyls long, quite slender and pointed, curved outward. Tegmina covering about half of the wings. Length thirty three and a half millimetres.

From the description of Serville.

NEW HOLLAND (Serville, De Haan).

Gryllotalpa Cophta DE HAAN.

Gryllus (Gryllotalpa) Cophtus DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Figured in Savigny, Descr. de l'Égypte, Hist. nat., Orthopt., Pl. 3, figs. 3¹ ♀ and 3² ♀.

Ocelli of medium size, obovate, each distant from the adjacent eye by its own smaller diameter, and from the other ocellus by about twice its longer diameter, directed toward the lower edge of the opposite eye. Fore trochanter probably cultrate (one of Savigny's drawings appears to represent it as lenticular), the upper edge a little concave, the lower strongly convex. The movable and the upper immovable tibial dactyls curved slightly downwards, the lower immovable one triangular. Lateral dactyls of tarsi cultrate and similar, the second somewhat slenderer and more than half the length of the first. Acicular claws pointed, short, equalling the breadth of the second lateral dactyl. Inner hinder edge of terminal half of hind tibiae with four large spines, inner edge of apex with as many more of equal length, outer edge of apex with three or four shorter ones. Claws of the hind tarsi fully three fourths as long as the terminal tarsal joint. Tegmina in repose covering only the first two (?) abdominal segments and reaching the middle of the hind femora. Wings reaching the middle of the seventh abdominal segment. Terminal abdominal segments not figured as furnished with longitudinal rows of hairs. Anal cerci equalling or nearly equalling the length of the pronotum.

Described from Savigny's illustrations.

EGYPT (Savigny).

TABLE OF MEASUREMENTS OF G. COPHTA.

Locality.		Savigny's figures in the Description de l'Égypte, Histoire Naturelle-Orthoptères.	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
Egypt.		Pl. III., Fig. 3 ²	♀	13½	12½	20	9½	13½	2½		
"		Pl. III., Fig. 3 ¹	♀	14	11½	15	23	11½			4½

Gryllotalpa vulgaris LATREILLE.

Gryllus Gryllotalpa LINN., Syst. Nat., I, ii, 693 (1767).
Acheta Gryllotalpa FABR., Entom. Syst., II, 28 (1793).
Gryllotalpa vulgaris LATR., Gen. Crust. et Ins., III, 95 (1807).
Curtilla Gryllotalpa OKEN., Lehrb. d. Nat., III, i, 445 (1815).

Above fuscous, the anterior and posterior edges of pronotum narrowly testaceous; beneath testaceous; veins of tegmina nearly black.

Ocelli very small, subrotund, a little convex, each distant from the adjacent eye by twice its own diameter, and from the other ocellus by a space equal to the width of the eye, directed toward a point midway between the upper edges of the bases of the antennæ. Anterior portion of the lower edge of the fore femora with a rather deep angular excision. Fore trochanter cultrate, upper edge very slightly concave, lower edge strongly convex, and crowded from base to tip with finely pointed spinous hairs, the tip sharply pointed. Movable tibial dactyls long and rather slender, curved outwards and downwards; immovable ones broad at base, somewhat lancet shaped, curved a little outwards and the outer half of the upper slightly downwards. Lateral dactyls of tarsi broad and cultrate, similar, the first more than double the length of the second. Acicular claws short and stouter than usual, scarcely equalling the breadth of the second tarsal dactyl. Inner hinder edge of the terminal half of hind tibiæ with four large spines, inner edge of apex with as many more of equal length, outer edge of apex with four shorter ones. Claws of hind tarsi a little more than one half the length of the terminal tarsal joint, the inner slightly the longer. Tegmina in repose reaching a very little more than half way to the tip of the abdomen, and nearly to the middle of the terminal half of the hind femora. Wings in repose reaching a little beyond the middle of the anal cerci. (One individual, out of more than fifty which I have examined, had wings which scarcely reached the eighth abdominal segment.) Ninth abdominal segment furnished above with long rufous hairs, increasing in length posteriorly, placed in a longitudinal row continuous with the inner edge of the anal cerci. Anal cerci more than equalling the pronotum in length.

I have not thought it necessary to give many measurements of this well known and easily distinguished species. I have a specimen received in a collection from Vermont, but I do not believe it was obtained there.

EUROPE—excepting the most northern portions—and ASIA MINOR as far as the Caucasus (Fischer, Fr.).

TABLE OF MEASUREMENTS OF G. VULGARIS:

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
M. C. Z.	Dry.	Florence.			♀	13½	10½	12½	21	9½	14½	3½	4¾
"	Spr'd.	"			♀	13½	11	19	37½	10½	4	5	
"	Alc.	Neufchatel, Switz.	A. Mayer.	A. Mayer.	♂	13	10½	17	35½	10½	16	3½	4½
"	"	"	"	"	♂	13½	10¾	16½	36½	10½	15½	3½	4¾

Gryllotalpa hirsuta BURMEISTER.

Gryllotalpa hirsuta BURM., Handb. der Entom., II, 739 (1838).

Gryllus (Gryllotalpa) hirsutus DEHAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Dark yellowish, very velutinous.

Inner hinder edge of the terminal portion of the hind tibiæ furnished with a variable number of spines. (Specimens from Padang have four; from Banjermassing, two; from Java, one to five; DEHAAN. From Java, three or four; BURM.) Tegmina very short and convex. Wings nearly abortive (probably both tegmina and wings are much as in *Scapteriscus abbreviatus*). Length thirty five millimeters.

From the descriptions of Burmeister and De Haan.

JAVA (Burm.); PADANG, BANJERMASSING, JAVA (De Haan).

Gryllotalpa Africana PALISOT DE BEAUVOIS.

PLATE I, FIGS. 10, 26, 27.

Gryllotalpa Africana PAL. DEBEAUV., Ins. rec. en Afr. et en Amér., 229, Orthopt., Pl. II c, fig. 6 (1805-21).

" " SERV., Orthopt., 307 (1839).

" *orientalis* BURM., Handb. der Entom., II, 739 (1838).

Gryllus (Gryllotalpa) Africanus DEHAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Testaceous, slightly fuscous above; veins of tegmina fulvous.

Ocelli rather large, obovate, a little globose; each distant from the adjacent eye by at least its own shorter diameter and from the other ocellus by its longer diameter, or in some individuals by even twice as much, directed toward the middle of the lower half of the opposite eye. The anterior portion of the lower edge of the fore femora with a scarcely perceptible excision. Fore trochanter cultrate, the upper edge straight until close to the tip, where it is very slightly upturned, the lower edge strongly convex and regularly furnished with frequent long and slender spines along the whole edge. Tibial dactyls curved outwards, the upper immovable and the movable ones also downwards; the movable ones long and rather slender; the immovable ones nearly triangular at base, the extremity a little produced. First lateral dactyl of tibiæ large, cultrate; second lancet shaped, from one third to one half the length of the first. Acicular claws short, equalling in length the breadth of the second lateral dactyl. Inner hinder edge of the terminal half of hind tibiæ with four large spines, inner edge of apex with as many more of equal length, outer edge of apex with four shorter ones. Claws of hind tarsi about two thirds the length of the terminal tarsal joint, the inner slightly the longer. Tegmina in repose extending rather more than half way to the tip of the abdomen, and a little beyond the tip of the hind femora. Wings reaching to the tip of the anal cerci. Ninth abdominal segment furnished above with longitudinal lateral rows of rufous hairs so long as nearly to meet from opposite sides. Anal cerci much more than equalling the pronotum in length.

TRANQUEBAR, JAVA, CAPE OF GOOD HOPE (Burmeister); CAPE OF GOOD HOPE, SENEGAL, ISLE OF FRANCE, JAVA, NEW HOLLAND (Serville); SENEGAL, CAPE OF GOOD HOPE, SUNDA ISLANDS, JAVA (DeHaan); RE-UNION, CAPE OF GOOD HOPE, SENEGAL, MAURITIUS (Lucas); AFRICA, EAST INDIES, JAVA (Schaum). FORMOSA, CHINA (?), CEYLON, MANILA, ZANZIBAR.

TABLE OF MEASUREMENTS OF G. AFRICANA.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
S. H. S.	Dry.	Formosa.		A. Murray.	♀	7	5½	8½	17½	6¼		1½	2¼
"	"	China?		"	♂	8½	6½	12	23¼	7¾		1¾	2½
"	"	Jaffna, Ceylon.	Dr. Green.	Dr. Green.	♂	8½	6¾	11	23		10	1¾	2½
"	"	Manila.		J. Akhurst.		8½	7		25	8¼		2	3½
M. C. Z.	"	Zanzibar.	C. Cooke.	Gray Fund.	♂	6½	5	9½	18½	6		1½	2½

Gryllotalpa longipennis DE HAAN.

Gryllus (Gryllotalpa) longipennis DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zoöl., 237 (1842).

Tegmina fuscous. Inner hinder edge of the terminal portion of hind tibiæ with from one to three spines. Tegmina reaching the sixth abdominal segment. Wings extending beyond the tip of the abdomen.

From the description of DeHaan.

BORNEO (De Haan).

Gryllotalpa fossor SCUDDER, nov. sp.

PLATE I, FIGS. 11, 28, 29.

Testaceous, beneath pale rufo-testaceous; veins of tegmina dark luteous.

Ocelli of medium size, subrotund, slightly convex, each distant from the adjacent eye by about three fourths its own shorter diameter and from the other ocellus by about twice its own longer diameter, directed toward the base of the opposite antenna. Terminal portion of the lower edge of the fore femora with a scarcely perceptible excision. Fore trochanter cultrate, upper edge very slightly concave, lower edge at first straight, afterwards strongly convex, armed with not very closely set, long and slender, spinous hairs, shortest in the middle. Tibial dactyls curved slightly outwards, the movable ones slightly downwards; movable ones long and rather slender, immovable ones nearly triangular, fully twice as long as the breadth of the base. Lateral dactyls of tarsi not very broad, cultrate, the second not half the length of the first. Acicular claws short but slender, in length scarcely more than equalling the breadth of the second lateral dactyl. Inner hinder edge of the

terminal half of hind tibiae with three large spines, inner edge of apex with as many more of equal length, outer edge of apex with four shorter ones. Claws of hind tarsi a little more than one half the length of the terminal tarsal joint, nearly equal. Tegmina in repose covering rather more than one half of the abdomen, reaching to the middle of the outer half of the hind femora. Wings reaching beyond the middle of the anal cerci. Ninth abdominal segment furnished with longitudinal lateral rows of long rufous hairs, directed inwards. Anal cerci more than equalling the pronotum in length.

This species differs from *G. Africana* in the approximation of the ocelli to the eyes, their lower deflection, and in the neuration of the tegmina.

WESTERN AND SOUTHERN AFRICA.

TABLE OF MEASUREMENTS OF *G. FOSSOR*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
S.H.S.	Dry.	Cape of Good Hope.		Schaum Coll.	♂	8 $\frac{3}{4}$	7	12 $\frac{3}{4}$	24 $\frac{3}{4}$	8		2 $\frac{1}{2}$	2 $\frac{1}{2}$
"	"	Old Calabar.		A. Murray.	♀	7 $\frac{1}{2}$	6	10 $\frac{3}{4}$	21	6 $\frac{3}{4}$	8 $\frac{3}{4}$	2	3

Gryllotalpa oryctes SCUDDER, nov. sp.

PLATE I, FIGS. 12, 30, 31.

Testaceous, beneath paler; veins of tegmina fulvo-testaceous.

Ocelli variable, but of medium size, obovate, a little convex, each distant from the adjacent eye by nearly or quite its own longer diameter; in their distance from each other they vary; in some the space equals two and one half times the longer diameter of the ocellus; in others it is no more than equal to the longer diameter; in the specimens with large ocelli each is directed toward the middle of the lower half of the opposite eye; in the others toward the base of the opposite antenna. Terminal portion of the fore femora with an inconspicuous excision. Fore trochanter cultrate, the upper edge perfectly straight, or very slightly curved upwards at the tip, lower edge strongly convex and beset with regular, approximate, long, spinous hairs, shortest in the middle; extreme tip naked, horny and pointed. Tibial dactyls rather divergent, curving strongly outwards, and the movable ones pretty strongly downwards, the basal half of the lower movable one swollen a little; the immovable ones triangular, the lower almost as broad at base as it is long. Lateral dactyls of tarsi very broad and cultrate, similar, the second half the length of the first. Acicular claws short and blunt, in length not exceeding the breadth of the middle of the second lateral dactyl. Inner hinder edge of terminal half of hind tibiae with four spines, as many more on the inner edge of the apex, and four shorter ones on the outer edge of

the apex. Claws of hind tarsi rather more than one half as long as the terminal tarsal joint, nearly equal. Tegmina in repose covering a very little more than one half of the abdomen, and reaching to the middle of the outer half of the hind femora. Wings extending almost or quite to the tip of the anal cerci. Ninth abdominal segment furnished with longitudinal lateral rows of long rufous hairs, directed inwards. Anal cerci somewhat exceeding the pronotum in length.

This species, by its greater size, differs noticeably from *G. Africana* and *G. fossor*.

In this description I may possibly have confounded two species; indeed, I at first placed the Shanghai specimens apart from the others; they differ from them in having much smaller ocelli, a much smaller space between the ocelli,¹ a lower deflection of the ocelli, and a greater curve to the upper edge of the trochanter; besides these differences, the principal veins of the costal area of the tegmina are more proximate, the cross veins of the same area are more frequent, and the cross veining of the central area differs somewhat.

CHINA.

TABLE OF MEASUREMENTS OF *G. ORYCTES*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
M. C. Z.	Dry.	Shanghae, China.		{ Mrs. A. P. }	♀	8½	7	12	25	8½	9½	2½	3
"	"	" "		{ Chamberlain. }	♀	8½	6¼	11½	25	6¾	10¼	2	3
"	"	China.	G. Hager.	T. Lyman.	♀	8½	7	12	26½	7¾	11	2	3
"	"	"	"	"	♀	9½	7¾	13½	28½	9	12	2½	3

Gryllotalpa cultriger UHLER.

PLATE I, FIGS. 13, 32, 33.

Gryllotalpa cultriger UHLER! Proc. Entom. Soc. Philad., II, 543 (1864).

Above fuscous, beneath testaceous; veins of tegmina dark fulvous.

Ocelli rather large, oblong obovate, almost flat, each distant from the adjacent eye by nearly its own shorter diameter and from the other ocellus by its longer diameter, directed toward the middle of the lower third of the opposite eye. Terminal portion of the lower edge of the fore femora with a very slight indication of an excision. Fore trochanter cultrate, upper edge very slightly concave, lower edge strongly convex and armed regularly almost to the tip with long and slender spines, the middle ones shortest; tip

¹ As the specimens with proximate ocelli have also large ocelli, the discrepancy in this particular is not so great as would at first sight appear from my description. Yet the difference is also absolute: in the Shanghai specimens the space between the ocelli is more than double the width of the penultimate joint of the maxillary palpi; in the others it is about once and a half.

sharply pointed. Tibial dactyls curved outwards, the outer half of the movable ones and to a lesser extent the upper immovable one a little downwards; movable ones rather long and slender; immovable ones broad at base and somewhat lancet shaped. Lower lateral dactyl of tarsi cultrate, upper one subcultrate, the lower more than double the size of the upper. Acicular claws short, rather blunt, scarcely equalling the breadth of the second lateral dactyl. Inner hinder edge of terminal half of posterior tibiae with four large spines, increasing in size outwardly, inner edge of apex with as many more similar ones, outer edge of apex with four quite short ones. Claws of hind tarsi scarcely more than half as long as the terminal tarsal joint, the inner slightly the longer. Tegmina in repose covering more than half of the abdomen, reaching nearly to the tip of the hind femora. Wings extending to the tip of the anal cerci. Ninth abdominal segment furnished above with longitudinal lateral rows of rufous hairs, directed inwards. Anal cerci equalling the prothorax in length.

EL PASO (Uhler). CALIFORNIA.

TABLE OF MEASUREMENTS OF *G. CULTRIGER*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the	Breadth of the	Length of the	Length of wings.	Length of the	Length of the	Length of the
						pronotum.	pronotum.	tegmina.	hind femora.	anal cerci.	trochantar.	upper tibial dactyl.
S. H. S.	Dry.	El Paso.		P. R. Uhler (type)	♂	8½	6½	11½	25	7¾	2¼	3
S. I.	"	California.		Dyer.	♀	7¾	6¼	11	23¾	6¾	10	2¾
B. S. N. H.	"	?			♀	8	5¾	11¼	24¼	7¾	9	2¾

Gryllotalpa Chilensis DE SAUSSURE.

Gryllotalpa Chilensis DE SAUSS., Rev. et Mag. de Zool., 1861, 130; Orthopt. Nov. Amer., II, 5 (1861).

Yellowish; prothorax with a median fulvous line; tegmina varied with griseous at the sides.

Resembles *G. hexadactyla* Perty. Fore tibiae above less emarginate than in *G. hexadactyla*. Lateral dactyls of fore tarsi more frequently having the upper edge not emarginate (?). Inner hinder edge of terminal portion of hind tibiae with four long and slender spines. Length of body 25 millimetres. Length of pronotum 9 millimetres.

From the description of de Saussure.

CHILI (de Saussure).

Gryllotalpa minuta BURMEISTER.

Gryllotalpa minuta BURM., Handb. der Entom., II, 740 (1838).

Pale testaceous, abdomen fuscous; veins of the elytra fulvous.

Inner hinder edge of the terminal portion of the hind tibiae not furnished

with spines. Tegmina of ♂ very similar in neuration to those of *G. vulgaris*. Wings reaching to the tip of the abdomen. Length 20 millimetres.

From the description of Burmeister.

CAPE OF GOOD HOPE (Burmeister); SENEGAL, CAPE OF GOOD HOPE (De Haan).

Gryllotalpa borealis BURMEISTER.

PLATE I, FIGS. 9, 34, 35.

- Gryllotalpa borealis* BURM. ! Handb. der Entom., II, 740 (1838).
 " " UHLER! in Harr., Treat. Ins. Inj. Veg., 3d ed., 149 (1862).
 " " SCUDD. ! Bost. Journ. Nat. Hist., VII, 426 (1862).
 " *brevipennis* SERV., Orthopt., 308 (1839).
 " " HARR., Rep. Ins. Mass. Inj. Veg., 120 (1841); Treat. Ins. N. Engl. Inj. Veg., 120 (1842).
 Do., 2d ed., 131 (1852); Treat. Ins. Inj. Veg., 3d ed., 149, fig. 68 (1862).
Gryllus (Gryllotalpa) borealis DE HAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Testaceous or testaceo-fuscous; beneath a little paler; veins of tegmina blackish.

Ocelli very small, subrotund, almost flat, each distant from the adjacent eye by twice its own shorter diameter, and from the other ocellus by fully two and one half times its longer diameter, directed toward the lower edge of the opposite eye. Terminal portion of the lower edge of the fore femora with a slight excision. Fore trochanter lenticular, small, nearly semicircular, a little protuberant, well furnished with spinous hairs. Tibial dactyls rather divergent, curving outwards, the movable ones also slightly downwards; the movable ones long and rather slender, the immovable ones more than half as broad at base as long. Lateral dactyls of tarsi cultrate, not large, the second fully one half the length of the first, with the upper edge greatly and abruptly produced at the base. Acicular claws not long, but little surpassing the breadth of the second lateral dactyl above the knee. Hind tibiae without lateral spines, the apex with four long ones on the inner side and four short ones on the outer side. Claws of hind tarsi nearly as long as the terminal tarsal joint, the inner slightly the longer. Tegmina in repose scarcely covering the fourth abdominal segment, reaching only a little beyond the middle of the short hind femora. Wings very short, ordinarily reaching the seventh abdominal segment. Ninth abdominal segment furnished above with longitudinal lateral rows of scanty hairs. Anal cerci unusually extended, being half as long again as the pronotum.

Prof. A. E. Verrill informs me that he captured a specimen of this species on the Island of Anticosti, Gulf of St. Lawrence, about the fourth of July; the specimen was found among chips lying in the sand, by the seashore, and was afterwards lost. Mr. W. H. Edwards sent me an undeveloped specimen of a mole cricket from the Rocky Mountains, which he had received in a fragmentary state; it was impossible to tell whether it belonged to this species or to *G. Columbia*.

N. AMERICA (Burmeister, De Haan); N. AMERICA, CAROLINA, PHILADELPHIA, LOUISIANA (Serville); MASSACHUSETTS (Harris); MASSACHU-

SETTS, NANTUCKET, VERMONT (Scudder). I have a specimen, received from Mr. Akhurst, marked "Manila, E. I.," but it must be a mistake. EASTERN UNITED STATES AND CUBA.

TABLE OF MEASUREMENTS OF *G. BOREALIS*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.	
S. H. S.	Dry.	Newbern, N. C.	J. G. Shute.	J. G. Shute.	♀	8½	6¼	9	10¼	6½		1¼	2¾	
"	"	"	"	"	♀	8½	6½	8½	11	6½		1	2½	
"	"	"	"	"	♀	8½	6¾	9¼	13¾	7		1¼	2¾	
"	"	"	"	"	♀	7	5½	7¼	8¾	5¾		9½	1	2¼
"	"	"	"	"	♀	9	6¾	8¾	11	7		11	1¼	2½
"	"	"	"	"	♀	8	6¼	8½	11¼	6¾			1¼	2¾
Sanborn.	"	"	"	"	♂	8	5¾	8½	10½	6¼			1	2½
S. H. S.	"	"	A. Ordway.	A. Ordway.	♂	9	6½	9¼	11¾	7¾			1¼	2½
S. I.	"	N. Carolina.	Skinner.	Skinner.	♀	8	6	8¼	11½	7	10		1¼	2½
"	"	"	"	"	♀	8½	7	10¾	13		13½	1½	3¼	
S. H. S.	"	Carolina.	"	Schaum Coll.	♀	8½	6½	9	10¾	6¾			1	2¼
"	"	Florida.	"	P. R. Uhler.	♂	7¾	5¾	7¾	7¾	6¼	10¼	¾	2¼	
"	"	New York.	J. Akhurst.	J. Akhurst.	♂	9¼	7	10	13½	7¾			1¼	2¾
"	"	"	"	"	♀	8¼	6½	9	10¼	6½			1¼	2¼
"	"	"	"	"	♀	8	6	10¼	13¼	7			1	2½
"	"	"	"	"	♀	9½	7¼		9½	6¼			1¼	2¾
"	"	Middle States.	"	R. Osten Sacken.	♀	10½	8¼		13½	8¼			1½	3¼
"	"	Tennessee.	"	P. R. Uhler.		10	7¾						1¼	3¼
"	"	Missouri.	R. Kennicott.	"	♂	7¾	6¼	8¼	11¼	6½			1¼	2¾
"	"	Michigan.	M. Miles.	M. Miles.	♀	9	7	9½	11¾	7½	11¼		1¼	3
"	"	"	"	"	♂	9½	7¼	10½	13½	8			1½	3¼
"	"	Louisiana.	"	P. R. Uhler.	♀	8¼	6½	8¼	11½	6½			1¼	2½
"	"	Missouri.	R. Kennicott.	"	♂	8¼	6¾	8½	10¼	6¼	11½		1½	2¾
M. C. Z.	"	Vermont.	B. F. Morrison.	B. F. Morrison.	♀	9¾	7¼	10½	13½	7½			1½	3¼
"	"	Nantucket.	"	"	♂	8	6	9	11¼	6			1¼	2¼
B.S.N.H.	"	"	"	Harris Coll.	♀	10¼	7¾	10½	13½	8¼			1½	2¼
"	"	"	"	"	♂	7½	5¾	8	9½	7			1	2½
S. H. S.	"	Cuba.	G. H. Horn.	P. R. Uhler.	♂	8½	7	9	12	7			1¼	2¾

Gryllotalpa Columbia SCUDDER.

PLATE I, FIGS. 15, 36.

Gryllotalpa longipennis SCUDD. ! Bost. Journ. Nat. Hist., VII, 426 (1862); not *G. longipennis* De Haan.

Above testaceo-fuscous, beneath rufo-testaceous; head blackish; tegmina testaceous, the veins blackish.

Ocelli rather small, short obovate, only slightly convex, each distant from the adjoining eye by its own longer diameter, and from the other ocellus by fully twice its longer diameter, directed toward the lower edge of the opposite antenna. Terminal portion of the lower edge of the fore femora with a distinct but not deep excision. Fore trochanter lenticular, small, a

little protuberant, well furnished with spinous hairs. Tibial dactyls quite divergent, curved strongly outwards, the movable ones also slightly downwards; the latter are long and rather slender, while the immovable ones are half as broad at base as long, and rather sharply pointed. Lateral dactyls of tarsi broad and cultrate, the second half the length of the first, its upper edge greatly produced at the base and so abruptly as to make the dactyl almost bidentate. Acicular claws rather short, about three fourths the breadth of the second lateral dactyl above the knee. Hind tibiae without lateral spines, the apex with four long ones on the inner side and four short ones on the outer side. Claws of hind tarsi scarcely equalling the length of the last tarsal joint, the inner slightly the longer. Tegmina in repose covering half the abdomen and reaching nearly to the tip of the hind femora. Wings reaching to the middle of the anal cerci. Eighth and especially the ninth abdominal segments furnished above with longitudinal lateral rows of rufous hairs, directed inwards, not so long as usual. Anal cerci very long, nearly one and a half times the length of the pronotum.

This species differs from *G. hexadactyla*, to which it is most closely allied, in its greater size, slightly narrower prothorax and in the more prominent basal swelling on the second lateral dactyl of the fore tarsi.

As the name I formerly gave this species has been preoccupied for an East Indian species I have changed it to "Columbia."

MASSACHUSETTS, MARYLAND (Scudder).

TABLE OF MEASUREMENTS OF *G. COLUMBIA*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
S. I.	Dry.	Washington, D.C.	F. X. Dooley.	F. X. Dooley.	♀	9	7	13	26½	8	12	1½	3¼
S. H. S.	"	Annapolis Junc., Md.	P. R. Uhler.	P. R. Uhler.	♀	8½	6½	11	22½	7	10½	1¼	3¼
"	"	Maryland.	"	" (type.)	♀	9¼	7¼	12¾	26¼	8		1½	3¼
B.S.N.H.	"	Massachusetts?		Harris Coll.	♀	9	6¾	12	24½	7½		1½	3½
"	"	Andover, Mass.	Otis Battles.	F. G. Sanborn.	♀	9	6½	12	25	8	11	¾?	2¾
M. C. Z.	Alc.	Massachusetts.	H. J. Clark.	H. J. Clark.	♀	9	7	12	24	7¾	12	1	3¼

Gryllotalpa hexadactyla PERTY.

PLATE I, FIGS. 17, 37, 38.

Gryllotalpa hexadactylus PERTY, Del. Anim. Art., 119, tab. XXIII, fig. 9 (1830-34).

" " BURM., Handb. der Entom., II, 740 (1838).

" " SERV., Orthopt., 307 (1839).

Gryllus (*Gryllotalpa*) *hexadactylus* DEHAAN, Verhandl. Nat. Gesch. Ned. Bezitt., Zool., 237 (1842).

Gryllotalpa hexadactylus GUÉRIN in de la Sagra, Hist. nat. de Cuba, 352, tab. XII, fig. 8-8b (1856).

" *Azteca* DESAUSS., Rev. et Mag. de Zool., 1859, 316; Orthopt. Nov. Amer., I, 5 (1859).

Testaceous, sometimes quite ferruginous; veins of tegmina blackish, sometimes fuscous.

Ocelli not very large, oblong ovate, scarcely convex, each distant from the adjacent eye by fully its own shorter diameter and directed toward the base of the opposite antenna; in their distance from each other they are variable; usually the distance is equal to one and one half times the longer diameter of the ocellus, but in some Mexican specimens the distance is fully twice or more times. Terminal portion of the lower edge of the fore femora with a sharp but not very deep excision. Fore trochanter lenticular, small, nearly semicircular but prominent, thickly beset with spinous hairs. Tibial dactyls quite divergent, curved considerably outwards, the movable ones very slightly downwards, long and slender, increasing regularly in length upwards, similar in shape. Lateral dactyls of tarsi cultrate, the first nearly twice the length of the second, the second with the upper edge greatly and abruptly produced at the base. Acicular claws not long, blunt, equalling in length the breadth of the second lateral dactyl beyond the middle. Hind tibiae without lateral spines, the apex with four long ones on the inner side, and four short ones on the outer side. Claws of hind tarsi scarcely equalling the terminal tarsal joint in length, the inner slightly the longer. Tegmina in repose reaching half way to the tip of the abdomen, and not quite to the tip of the hind femora. Wings usually reaching to the middle of the anal cerci. Eighth and ninth—and sometimes to a slight degree the seventh—abdominal segments furnished above with longitudinal lateral rows of rather long rufo-testaceous hairs. Anal cerci more than equalling the prothorax in length.

IN MONTIBUS PROV. MINARUM (Perty); BRAZIL, GUADELOUPE (Serville); CUBA, BRAZIL, GUADELOUPE (Guérin); BRAZIL (De Haan); MEXICO (de Saussure).

TABLE OF MEASUREMENTS OF *G. HEXADACTYLA*.

Collection.	Condition.	Locality.	Collector.	Received from	Sex.	Length of the pronotum.	Breadth of the pronotum.	Length of the tegmina.	Length of wings.	Length of the hind femora.	Length of the anal cerci.	Length of the trochanter.	Length of upper movable tibial dactyl.
S. H. S.	Dry.	Brazil.		Schaum Coll.	♀	8½	6½	12	25	7¼		1	2¾
M. C. Z.	Alc.	Rio Janeiro.	Rev. J. C. Fletcher.	Rev. J. C. Fletcher.	♀	8	6¼	11	22½	7	10¼	¾	2¾
"	Dry.	Brazil.		Mrs. Munroe.	♀	7½	6	10¾	22¼	6¾		1	2¾
S. H. S.	"	?			♀	8¼	7	12	24	7½	11	1	3
S. I.	"	Orizaba, Mex.	Botteri.	Botteri.	♀	7¼	5¾	10½	21¾	7		¾	2½
"	"	"	"	"	♀	7	5¾	10¼	21¼	6¾	8¾	¾	2½
"	"	Colima, Mex.			♀	8¼	6½	10½	23½		10	¾	2¾
S. H. S.	"	Matamoras.	Berlandiere.	P. R. Uhler.	♂	7	6	9¾	21¼	6¾		1	2½
"	"	Costa Rica.		"	♂	7½	5½	10½	20	6½		1	3
E. I.	Spr'd.	Brazil.			♀	7¼	5¾	10¼	21¼	6½		1	2½

ERRATA.

- Page 8, under S. TENUIS, for "FIG. 7," read "FIGS. 7, 22."
" 16, 11th line of table, for "*hirsutus*," read "*hirsuta*."
" " 18th " " " "*orientalis*," read "*Africana*."
" " under G. AUSTRALIS, for "FIGS. 5, 16, 22," read "FIGS. 5, 16, 24, 25."

EXPLANATION OF PLATE I.

Figure	1.	Fore leg of	SCAPTERISCUS	DIDACTYLUS, ♂.
"	2.	" " "	"	OXYDACTYLUS, ♂.
"	3.	" " "	"	AGASSIZII, ♂.
"	4.	" " "	"	VICINUS, ♂.
"	5.	" " "	GRYLLOTALPA	AUSTRALIS, ♀.
"	6.	" " "	SCAPTERISCUS	MEXICANUS, ♂.
"	7.	" " "	"	TENUIS, ♀.
"	8.	" " "	"	ABBREVIATUS, ♂.
"	9.	" " "	GRYLLOTALPA	BOREALIS, ♀.
"	10.	" " "	"	AFRICANA, ♀.
"	11.	" " "	"	FOSSOR, ♀.
"	12.	" " "	"	ORYCTES, ♀.
"	13.	" " "	"	CULTRIGER, ♂.
"	14.	Wing cover of	SCAPTERISCUS	DIDACTYLUS, ♂.
"	15.	Fore leg of	GRYLLOTALPA	COLUMBIA, ♀.
"	16.	GRYLLOTALPA	AUSTRALIS, ♀.	
"	17.	Fore leg of	GRYLLOTALPA	HEXADACTYLA, ♀.
"	18.	Wing cover of	SCAPTERISCUS	MEXICANUS, ♂.
"	19.	" " "	"	AGASSIZII, ♂.
"	20.	" " "	"	ABBREVIATUS, ♂.
"	21.	" " "	"	OXYDACTYLUS, ♂.
"	22.	" " "	"	TENUIS, ♀.
"	23.	" " "	"	VICINUS, ♂.
"	24.	" " "	GRYLLOTALPA	AUSTRALIS, ♂.
"	25.	" " "	"	" ♀.
"	26.	" " "	"	AFRICANA, ♂.
"	27.	" " "	"	" ♀.
"	28.	" " "	"	FOSSOR, ♂.
"	29.	" " "	"	" ♀.
"	30.	" " "	"	ORYCTES, ♀. ¹
"	31.	" " "	"	" ♀. ²
"	32.	" " "	"	CULTRIGER, ♂.
"	33.	" " "	"	" ♀.
"	34.	" " "	"	BOREALIS, ♂.
"	35.	" " "	"	" ♀.
"	36.	" " "	"	COLUMBIA, ♀.
"	37.	" " "	"	HEXADACTYLA, ♂.
"	38.	" " "	"	" ♀.

¹China, Lyman.

²Shanghai, China, Chamberlain.



