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华南中生代早期的昆虫

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部的 R、M 和 Cu_A 三脉
和肘脉区的插脉丰富



六、属种描述

早在上世纪末, Comstock 和 Needham (1898) 就试图将昆虫中多样化的脉序归纳成一个基本型式, 并将各条翅脉都给以统一的名称, 这就是分类学和形态学上常称的康-尼脉系 (Comstock-Needham System)。后来经过许多学者(如 Мартынов、Tillgard、Lameere 等)的研究或提出异议, 因此在翅脉命名中, 存在许多家系统; 为不致于混乱不清, 本文在各目昆虫描述开始时, 把本文所采用的命名系统逐一列出, 供作参考。

蜉蝣目 本文描述有两种蜉蝣, 皆产自早侏罗世。小蜉科化石我国发现极少, 中生蜉科化石我国乃首次记录。从地质时代方面说, 早侏罗世蜉蝣乃是目前我国最早的记录。

中生蜉蝣科 *Mesephemeridae* Carpenter, 1932

重蜉属(新属) *Palinephmera* (gen. nov.)

前翅前缘明显弯曲; 前缘区较宽; M脉稍为曲折; Cu_A 脉弯曲; 在前肘脉区和臀区内具有丰富的翅脉; 横脉弱。

模式种 *Palinephmera densivena* (gen. et sp. nov.)

比较 探索昆虫纲起源的主要课题之一是昆虫翅膀演化。揭示它历史演变规律的重要途径, 寻找化石古生物例证。愈古老愈原始的化石, 愈被人们重视。蜉蝣在分类上属古翅类昆虫, 为一类古老而原始的类群, 它的发现往往较别类昆虫更有意义。然而, 化石蜉蝣, 特别是成虫化石极少。我国北方, 中生界地层曾有许多中蜉科和六节蜉科化石, 但多为若虫期, 成虫期极少。中生蜉科在我国仍首次报道; 这个新属的前翅特性有不少是已知记录所没有的, 它的发现可为我们探索翅的历史演变提供新的古生物资料。

Handlirsch, 1906 描述的 *Mesephemera* 和 Martynov 创立的 *Palingeniopsis* 两属的前翅纵脉间的横脉弱而不明显, Cu_A 和 A_1 具分支等共同特点, 据此 Carpenter 1932 把它们归入同一科, 定名为中生蜉科, 新属的前翅具上述特征, 应归入此科, 而不是中蜉科和六节蜉科。

Palinephmera 的外形虽然与 *Mesephemera* 相似, 但新属的前翅前缘弯曲强烈, 不如 *Mesephemera* 那样平直。前翅顶部和基部宽度近似; 而顶部略宽于基部。新属的臀区略大于 *Mesephemera*, 它的前缘区宽于 *Mesephemera*, 其 M 脉曲率也较 *Mesephemera* 强。 Cu_A 和 A_1 两脉的分支以及插脉也比 *Mesephemera* 丰富。

分布时代 早侏罗世, 湖南。

多脉重蜉(新属、新种) *Palinephmera densivena* (gen. et sp. nov.)

(图版 I, 图 1; 插图 11)

中等大小, 前翅长约 11 毫米, 宽约 4.5 毫米。前翅的翅脉细弱, 翅前缘呈波形弯曲。Sc 脉长且稍为弯曲。R 脉弯曲, 与 Sc 脉分离。Rs 脉于离翅基部三分之一处由 R 脉分出, 分支难以识别。M 脉弯曲, 于翅中部之后分支。 Cu_A 脉弯曲, 分支于 M 脉分支点前。翅基

插图 11

Cu

产地层位 仅有
编号: KHG 98, 登记

若虫体如棒; 头半
缘。腹部第一、二两腹
央增厚; 第一至六腹节

模式种 *Clephem*

比较 这个新属的
bacher Ganglbauer, 18
腹节大, 第三腹节起渐

分布时代 华南、

棒形荣小蜉

两块蜉蝣若虫标本
头和三对足失落, 腹鳃
毫米。

头部半圆形, 两个
如鼓形。前胸的前缘
直, 后缘稍长于前缘, 前
缘和后缘各向内凹入,
缘向前拱起, 后缘平,

部的 R、M 和 Cu_A 三脉之间的间隔很小。Cu_P 脉和缓弯曲。臀区大，臀脉细，且密，中脉区和肘脉区的插脉丰富。

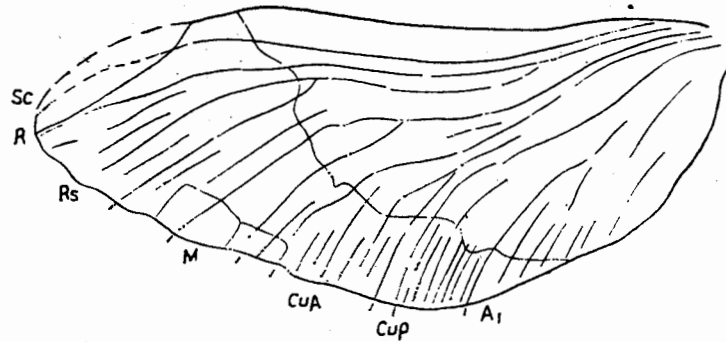


插图 11 多脉重蜉(新属、新种) *Palinephamera densivena* (gen. et sp. nov.)

前翅, ×12, Sc 亚前缘, R 径脉, Rs 径分脉, M 中脉, Cu_A 前肘脉, Cu_P 后肘脉, A₁ 臀脉(以下所用翅脉符号均同此)

产地层位 仅有一块标本采自湖南浏阳文家市施家坝剖面造上组的灰色泥岩。野外编号: KHG 98, 登记号: 70004。

小蜉科 Ephemereidae Klapalek, 1909

荣小蜉属(新属) *Clephemera* (gen. nov.)

若虫体如棒;头半圆形;胸部较腹部大,似鼓形;中、后胸大于前胸,后胸后缘短于前缘。腹部第一、二两腹节大,但小于中、后两胸节,第三腹节起逐渐缩小;每腹节的背板中央增厚;第一至六腹节的两侧各带有一对鳃;腹末三尾丝粗。

模式种 *Clephemera clava* (gen. et sp. nov.)

比较 这个新属的特征与苏联尤斯特-巴莱地区下侏罗统的 *Mesoneta* Brauer Redtenbacher Ganglbauer, 1889 属很是相似。不同的是新属体似棒形,胸形似鼓;腹部第一、二两腹节大,第三腹节起渐渐缩小。

分布时代 华南、早侏罗世。

棒形荣小蜉(新属、新种) *Clephemera clava* (gen. et sp. nov.)

(图版 I, 图 5; 插图 12)

两块蜉若虫标本,其中一块为若虫躯体,另一块是它的模。标本仅保存躯干部分;头和三对足失落,腹鳃仅少数保存。若虫标本保存长度 8.5 毫米(不包括尾丝长度),宽 1.7 毫米。

头部半圆形,两个复眼大,且圆,位于头基两侧,头前方不甚突出,触角不清。胸部大,如鼓形。前胸的前缘微凹,其宽度与头的后缘宽相等,头和胸部的连接紧密,前胸两侧略直,后缘稍长于前缘,前胸背板中央增厚;中胸大于前胸,中胸前缘小于它的后缘,中胸前缘和后缘各向内凹入,两侧略呈弧形;后胸大小和中胸几乎相似,但后胸前缘大于后缘,前缘向前拱起,后缘平,两侧微拱。每胸节的背板中央靠前,其颜色比其余地方深。三对胸

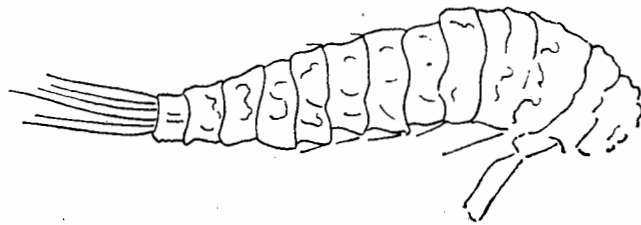


插图 12 棒形荣小蜉(新属、新种) *Clephemera clava* (gen. et sp. nov.)
若虫期, ×10

足没有保存。

腹部可见九节,第一腹节大,背板平,第二腹节与第一腹节大小相似,背板中央增厚;腹节两侧稍直,其前缘向前微凸,后缘微凹;第三腹节起宽度渐减,虫体标本仅第三、四和第五腹节后侧角各具一对侧鳃,其余腹鳃没有保存;第七、八两腹节小;三尾丝略粗。每腹节的背板略增厚,它的前方颜色深于其他地方。

产地层位 广西钟山县西湾平桂矿务局公路旁山坡,下侏罗统石梯组下部黄绿色泥页岩中。野外编号: KHG 201, 登记号: 70005。

蜉蝣目 Blattoidea Brunner, 1882

本目所采用的翅脉名称和符号,请见插图 13。

中生蜉蝣科 Mesoblattinidae Handlirsch, 1906

宽翅蜉属 *Euryblattula* Martynov, 1937

盖翅宽阔, Sc 脉仅有一分支, 肩区和臀区等长; R 脉短, 适度弯曲, 具有一些分支; M 脉较 Cu_A 脉分叉迟; Cu_A 脉在盖翅基部明显弯曲, Cu_P 脉强弯; 臀区短。

模式种 *Euryblattula sparsa* Martynov, 1937

分布时代 亚洲, 早侏罗世。

丰脉宽翅蜉(新种) *Euryblattula opima* (sp. nov.)

(图版 III, 图 4; 插图 13)

二块盖翅标本保存较好, 为同一个盖翅的正反面, 但肩区和翅顶部略有损坏。标本黄铁矿化。

盖翅中等大小, 长约为 17.5 毫米, 宽约 7.8 毫米, 卵圆形, 翅前缘和缓弯曲, 基部前缘显著弯曲; 翅基宽度较翅顶大。肩区中等, Sc 脉仅一分支。R 脉主干略弯曲, 呈“S”形, 止于翅顶前方, 未达顶缘, 向前缘发出 10 条以上分支, 其中第 5、第 8 和第 9 诸分支各自再度分叉。M 脉主干在翅基部与 R 脉主干极为靠近, 但不合并; 约于翅中部开始分叉, 至少有 6 支分支达翅顶缘。 Cu_A 脉强烈弯曲, 它的最早分支点较 M 脉早。约有 6 支分支达到盖翅的后缘。臀区大且高, 大约有 6 支臀脉, 其中的第 1 和第 5 支在它们的顶部各分叉。臀脉彼此互相平行, 并终止于臀缘各点, 它们之间的间隔几乎相等。盖翅的径脉区、中脉

区和肘脉区内具插脉。
比较 新种的盖翅
区别如下:

- 1) 新种臀区较
- 2) 新种盖翅大于
- 3) 新种中脉区和

产地层位 湖南
181-5, 登记号: 700

斜脉

四个标本代表这
之后失落, 右边的翅脉
余两块为碎片。

中等大小的蜉蝣
第一腹节和后胸的分
向腹末缩小。第五、六
缘平直, 第七腹节后
左盖翅除翅顶部
14 毫米, 宽 4.2 毫米。

Rhaetic and Lias. Brit.
окрылые, Москва, стр.
Палеонт. Журн. по. 1,
СССР. том. 22, стр. 1—
ит кузбасса. Докл. АН
insecta: Blattoidea) Труды
Уркестана, 5. О некот-
стр. 1—38.
ния. тр. палеонтол. ин-
зв. Ан. СССР, по. 2,
Р материалы к Основам
СССР, Палеонтол. жу-
№4, стр. 128—131.
палеонтол. журн. №2,
онтол. журн. № 4, стр.
—117.
орские насекомые кара-
и забайкалья. Палеонт.
палеонт. журн. № 4,
палеонтол. журн. №1,
ого забайкалья. палеонт.
961: палеозойские на-
стр. 1—705.
и современных, энтомол-
енков семейства Hexage-
., том. 53, вып. 1, стр.

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EARLY MESOZOIC FOSSIL INSECTS FROM SOUTH CHINA

by

Lin Qibin

(Nanjing Institute of Geology and
Palaeontology, Academia Sinica)

With 20 Plates

SCIENCE PRESS

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EARLY MESOZOIC FOSSIL INSECTS FROM SOUTH CHINA

Lin Qibin

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(Abstract)

I. Introduction

Up to the mid-70's, the studies of insect fossils in China were only limited to the North, whereas little knowledge of them was gained from the South. However, a large quantity of Mesozoic insect fossils arousing a great interest among geologists and palaeontologists, have recently been collected by many geological teams through their field work for the purpose of extensive investigations and explorations of coal resources in Southern China.

A number of Mesozoic insect fossils, which are dealt with in the present paper, have been accumulated since 1965. Most of these fossils were collected by members of the South China Coal Research Party of this Institute, and a few were collected to present to the Institute for identification. Here described and illustrated are 75 species belonging to 52 genera, from Late Triassic to Early Jurassic, among which 65 species and 30 genera are new to science. The names of these species and their horizons are listed in Tables 2 and 6, while the localities of these insect fossils are shown in Text-fig. 1.

There are serious disputes over how to draw the boundary between Upper Triassic and Lower Jurassic, and to determine the exact geological ages of the Triassic-Jurassic sediments for correlations in South China. These problems have not been intensively studied. The insect fossils described in this paper will provide an effective evidence to solve some of the problems mentioned above.

II. Fossil insects of Early Mesozoic

A. List of Early Mesozoic insect fossils in Southern China

The Early Mesozoic sediments of terrestrial facies or alternate terrestrial and marine facies are generally rich in fossils in Southern China. The insects at that time are mostly concentrated at coal-series levels. The present paper described ten orders of fossil insects with a taxonomic system list as below:

- (1) Ephemeroptera
 - MesepheMERIDAE Carpenter, 1932
 - Palinephamera* (gen. nov.)
 - Palinephamera densivena* (gen. et sp. nov.)
 - Ephemerellidae Klapalek, 1909
 - Clephemera* (gen. nov.)
 - Clephemera clava* (gen. et sp. nov.)
- (2) Blattoidea, Brunner 1882
 - Mesoblattinidae Handlirsch, 1906

Euryblattula M
Euryblattula
E. obliqua (C)
E. lepta (sp.
E. pura (sp.
E. monches
Samaroblatta T
Samaroblatta
S. nitida (sp.
S. rhypha (s
Nipponoblatta
Nipponoblatt
Summatiblatta
Summatiblatt
Soliblatta (gen.
Soliblatta lan
Mesoblattina G
Mesoblattina
M. multivenc
M. protypa (C
Rhipidoblattina
Rhipidoblatta
Rh. radiping
Mesoblattula H
Mesoblattula
M. apicifurca
M. sincera (C
Blattula Handl
Blattula zaos
B. ctinoida
Taublatta Mart
Taublatta na
T. hesta (sp.
T. strenis (s
T. siccitifola
T. semifolia
Blattula hymen
B. pachohy
Samaroblattula
S. scabra (s
Samaroblatt
Sogdoblatta M
Sogdoblatta
Sogdoblatta

(3) Orthoptera La
Elcanidae Han

of this subgroup as shown in Table 2. They are all higher than those with the *Euryblattula* subgroup. As compared with the rich Liassic insect faunas from Kuzul-Kei and Sharab of Russia, Warwickshire of England and Mecklenburg of German, it can be concluded that the subgroup is similar to those in age.

III. Biological characters of the Early Mesozoic insect fossil fauna South China

Over 12 localities of fossil insects have been recorded in South China (text-fig. 1). Among them, the materials from the Lower Jurassic at Xiwan of Guangxi, Guanyintan and Zaoshang of Hunan province and the Upper Triassic at Liugange of Hunan province, appear to be more significant. From these records, the Palaeoptera replaced by the more advanced and dominant Neoptera with diversities in taxonomy, can be recognized. The biological characters of each order have been given as follows:

Ephemeroptera

The order is represented by only two species, but the presence of the order in which all nymphs are aquatic, is considered to indicate fresh water conditions.

Blattoidea

The dominant cockroach which occupied about 42% within Early Mesozoic in the Southern Fossil Insect Fauna, usually is preserved in dark mudstones and associated with plants, bivalves as in some areas closely related to coal-bearing beds. All of the cockroaches from these areas can be referred to an extinctive family, Mesoblattinidae. No other kinds of cockroaches were found. Fairly rich material of cockroach tegmens has recently been accumulated, showing that a variety of forms were existing. Formerly the identification of their features was mainly based on the separate specimens discovered. However, some specimens of fossil cockroaches from Early Jurassic at Liugange, Hunan are well preserved with both wings and other parts of the insect. It is important to discover the whole body preserved for the writer to regulate its real features in the Early Mesozoic time.

Blattula hymena (sp. nov.) a small cockroach represented by a thin and transparent tegmen, possibly is of a membranous type.

Taublatta deradialis (Lin, 1978), the oldest cockroach in this area, was taken from the Upper Triassic of a coal-bearing formation in Weiyuan, Szechuan, closely associated with some plants.

Other specimens were collected from the Lower Jurassic sediments. Evidences from the known South China fossil cockroaches are considered to indicate that only a few cockroaches appeared in the Late Triassic, and there are abundant widely differentiated cockroaches well-preserved within the Early or Middle Jurassic but declined in the Late Jurassic.

Coleoptera

Also abundant in this fauna occupying about 21% of the whole South China fauna were beetle fossils, only less than the Blattoidea in the Early Mesozoic. In Triassic, the Coleoptera contain 7 species, and three of them belong to Cupidae. Each species of the Triassic beetles is represented by only one or two specimens, with the exception of many discovered elytra which are too fragmentary for description.

There are 11 species of beetles to have been described in this paper including 4 of them taken from the bottom of the Lower Jurassic Zaoshang formation and the rest 7 from the Upper Fengjiachong member of Guanyintan and Shiti formations.

Homoptera

There are 14 Homopterous species in the Early Mesozoic insect fauna from South China. Over half of them were taken from the Triassic, and the other six were discovered in the Jurassic, showing that the Homoptera were abundant in the Triassic, but decreased in the Early Jurassic.

A few Heteroptera and other orders were also found, but they are too fragmentary for description.

IV. DESCRIPTION OF SPECIES

Order Ephemeroptera Packard, 1886

Family Mesophemeridae Carpenter, 1932

Genus *Palinophamera* (gen. nov.)

Anterior margin of fore-wing strongly curved; Costal area broad; M slightly flexed; Cubital and Anal areas with dense veins; cross-vein weakened.

Type species: *Palinophamera densivena* (gen. et sp. nov.)

Comparison: The venation of this new genus is allied to that of *Mesophamera* Handlirsch, 1906, but it differs from the latter in 1) the strongly curved anterior margin of the fore-wing, which is straight in the latter; 2) the broader of Costal area; 3) the more flexible Median vein; 4) the dense veins in the Cubital and anal areas.

Geologic and Geographic Distribution: Early Jurassic, Hunan province.

Family Ephemerillidae Klapalek, 1909

Genus *Clephemera* (gen. nov.)

Nymph's body like a bar; thorax in drum-shape, larger than abdomen; anterior thorax smaller than the median or posterior one; abdomen with ten segments but none of them visible, gradually becoming narrow from the median to the top; each of the anterior six abdominal segments with a pair of gills.

This genus is allied to *Mesoneta* Brauer, Redtenbacher et Ganglbauer, 1889, but it differs from the latter in its bar-like form.

Type species: *Clephemera clava* (gen. et sp. nov.)

Geologic and Geographic Distribution: Early Jurassic, South China.

Summatiblatta (gen. nov.)

Moderate-sized cockroach in a peculiar form.

Costal margin moderately curved; hind margin nearly straight. The broadest at middle, but a little anteriorly; distal half of tegmen narrowing; R stem slightly curved, sending out 10 simple branches toward anterior margin of tegmen. M stem nearly fused with R stem and branched very poorly. Anal area long and large, with 7 well-developed veins. Intercalated ridges and cross veins developed in whole tegmen.

Type species: *Summatiblatta colorata* (gen. et sp. nov.)

Comparison: This new genus is represented by a single well-preserved specimen. It closely resembles *Nipponoblatta* Fujiyama 1974 in several respects, especially in the shape of the tegmen and the subcostal and radial veins. The important character separating this new genus from *Nipponoblatta* is that the former has more developed crossveins and 7 strong anal veins.

Nipponoblatta was erected in 1974 by Fujiyama who pointed out the characters as: R stem shooting off about 10 branches, moderately curved sigmoidally, descending near mid-line of tegmen at about middle, and running almost horizontally at distal half. M

moderately branching at hind margin at loculated ridges developed field. As compared the branches of R are ly and the anal vein Japanese genus.

N. suzuginiae, Asia, was found in the pan, the author assigned on the tegmen, and s
Geologic and

Moderate cockroach Fig. 23. Sc with a with 8 primal branches. Earliest branch occupying apical area position, with 5 branches possessed of 8 anal veins

Type species:

Comparison: This is distinguished from the slightly curved apical area of tegmen (nov.) was found to be self allied to each of

Geologic and

Pronotum rather ornamentations of, both R and M simple

Type species:

Comparison: Differences are: 1) The in hemelytra are separated

Geologic and

Head small and both sides; mesothorax; the first three segments, the 7th and

图版及图版说明

本文描述的化石标本均保存在中国科学院南京地质古生物所内。

图 版 I

1. 多脉重蜉(新属、新种) *Palinephamera densivena* (gen. et sp. nov.)
前翅, ×8.6, 野外编号: KHG98, 登记号: 70004, 湖南浏阳文家市施家坝, 造上组灰色泥岩。
2. 庆中小蠊 *Mesoblattula kiensis* Martynov, 1937
前翅基部, ×5, 野外编号: KHG88, 登记号: 70023, 湖南浏阳澄潭江造上村, 造上组。
- 3, 4. 强股扇蚌蠊(新种) *Rhipidoblattina forticrusa* (sp. nov.)
3. 成虫, ×3, 模型标本; 4. 成虫, ×3, 野外编号: KHG181, 登记号: 70020, 湖南兰山园竹煤矿, 祁阳观音滩组排家冲段。
5. 棒形束小蜉(新属、新种) *Clephemera clava* (gen. et sp. nov.)
若虫, ×15, 野外编号: KHG201, 登记号: 70005, 广西钟山西湾平桂矿务局公路旁山坡, 石梯组下部黄色泥页岩。

图 版 II

1. 枯叶套蚌蠊(新种) *Taublatta siccitifoliola* (sp. nov.)
后翅, ×4, 野外编号: KHG190, 登记号: 70032, 湖南江永桃川, 石梯组。
2. 适脉套蚌蠊(新种) *Taublatta hesta* (sp. nov.)
后翅, ×4.5, 野外编号: 观 50, 登记号: 70030, 湖南祁阳观音滩, 观音滩组冯家冲段。
3. 半翅套蚌蠊(新种) *Taublatta semifoliola* (sp. nov.)
后翅, ×4.5, 野外编号: KHG190, 登记号: 70033, 产地层位同图 1。
4. 强脉套蚌蠊(新种) *Taublatta strenis* (sp. nov.)
后翅, ×4, 野外编号: 观-12-化37, 登记号: 70031, 湖南祁阳观音滩, 观音滩组冯家冲段。

图 版 III

1. 弯脉灰蚌蠊(新种) *Samaroblatta rhypha* (sp. nov.)
前翅, ×3.5, 野外编号: KHG181-6, 登记号: 70013, 湖南兰山园竹煤矿, 观音滩组排家冲段。
2. 庆中小蠊 *Mesoblattula kiensis* Martynov, 1937
前翅, ×5, 野外编号: KHG88, 登记号: 70022, 湖南浏阳澄潭江造上村, 造上组。
3. 光泽灰蚌蠊(新种) *Samaroblatta nitida* (sp. nov.)
前翅, ×5, 野外编号: KHG181-10, 登记号: 70012, 产地层位同图 1。
4. 半脉宽翅蠊(新种) *Euryblattula opima* (sp. nov.)
前翅, ×4, 野外编号: KHG181-5, 登记号: 70006, 产地层位同图 1。

图 版 IV

1. 健壮中小蠊(新种) *Mesoblattula sincera* (sp. nov.)
前翅, ×5, 野外编号: KHG201, 登记号: 70026, 广西钟山县平桂矿务局公路山坡, 石梯组。
- 2, 3. 庆中小蠊 *Mesoblattula kiensis* Martynov, 1937
2. 前翅基部, ×5, 3. 前翅臀域, ×8, 野外编号: KHG88, 登记号: 70024, 湖南浏阳澄潭江造上村, 造上组。
4. 强径扇蚌蠊(新种) *Rhipidoblattina radipinguis* (sp. nov.)
前翅, ×4.5, 野外编号: KHG190, 登记号: 70021, 湖南江永桃川石牛尾村, 石梯组。

图 版 V

1. 小宽翅蠊(新种) *Euryblattula lepta* (sp. nov.)
前翅, ×5, 野外编号: KHG181-1, 登记号: 70008, 湖南兰山园竹煤矿, 观音滩组排家冲段。

2. 原型中生蚌蠊 *Mesoblattula*
前翅, ×5.6, 野外编号:
3. 单一宽翅蠊(新种) *Euryblattula*
成虫, ×9, 野外编号:
4. 湘南中生蚌蠊(新种) *Mesoblattula*
前翅, ×7, 野外编号:
5. 彩色简脉蚌蠊(新属、新种) *Mesoblattula*
前翅, 野外编号: KHG

1. 多脉中生蚌蠊 *Mesoblattula*
前翅, ×10, 野外编号:
2. 湖南中生蚌蠊(新种) *Mesoblattula*
前翅, ×9, 野外编号:
3. 亮光太阳蠊(新属、新种) *Mesoblattula*
前翅, ×5.5, 野外编号:
4. 造上小蠊(新种) *Blattula*
前翅, ×5, 野外编号:

1. 叉顶中小蠊(新种) *Mesoblattula*
前翅, ×8, 野外编号:
2. 斜脉宽翅蠊(新种) *Euryblattula*
成虫, ×3, 野外编号:
3. 畸形日本蚌蠊(新种) *Nipponoblattula*
前翅, ×6, 野外编号:
4. 栉状小蠊(新种) *Blattula*
前翅, ×5, 野外编号:

1. 牛角石套蚌蠊(新种) *Taublatta*
前翅, ×9, 野外编号:
2. 造上小蠊(新种) *Blattula*
前翅, ×9, 野外编号:
3. 狭肩灰蚌蠊 *Samaroblattula*
前翅, ×12, 野外编号:
4. 栉状小蠊(新种) *Blattula*
前翅, ×4.5, 野外编号:
5. 纯洁宽翅蠊(新种) *Euryblattula*
前翅, ×10, 野外编号:

1. 似皮灰小蠊 *Samaroblattula*
前翅, ×5, 野外编号:
- 2, 4. 膜翅小蠊(新种) *Blattula*
2. 前翅, ×10, 4. 前翅(山坡旁)。
3. 索德蚌蠊未定种 *Sogdooblattula*
前翅, ×9, 野外编号:
5. 厚膜小蠊(新属、新种) *Mesoblattula*
前翅, ×10, 野外编号:

排家冲段。

皮, 石梯组。

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段。

皮, 石梯组。

皮, 石梯组。

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阳澄潭江造上村, 造上组。

山坡, 石梯组。

家冲段。

