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华南中生代早期的昆虫

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六、属种描述

早在上世紀末，Camerounick 和 Needham (1899) 就试图将昆虫中多样的动物结合成一个基本模式，并将各种昆虫都以统一的名称，这就是分类学和形态学学说的“昆虫—动物”系统（Camerounick-Needham System）。后来经过许多学者（如 Martiain, Tilliard, Lantenne 等）的研究和提出异议，导致该理论在各生物学领域中，存在不同的分类系统，但于该系统仍沿用至今，本书所采用的命名系统也由此列。2

蝴蝶

本书描述有两种蝴蝶，皆产自早侏罗世。早侏罗世化石发现极少，中生蝴蝶化石却发现首次。从地质时代方面来说，早侏罗世化石蝶乃是目前我国最早的记录。

中生蝴蝶科 Mesospheniidae

前翅前缘明显弯曲，前翅基部较宽；M 脉为曲脉；CuA 脉弯曲；在前翅脉和臀区内具有丰富的翅脉；横脉稀。

模式种 Palinephera densicola (gen. et sp. nov.)

比较 晚期蝴蝶极为主要的分类之一是昆虫蝶类演化。揭示它历史演化的规律的重要途径，需研究化石及生物特征。根据上述所分古翅类昆虫的分类原则，其分类往往在较原始的昆虫类群上。然而，化石蝴蝶，特别是早侏罗世化石较少。我国北方、中生地层最常见有中侏罗纪及上侏罗纪的化石，但多为卵和幼虫，或成虫极少。中生蝴蝶在中生代前期有不少是已知记录的，它的存在为研究晚的蝴蝶演化提供古生物学资料。

Handlirsch, 1906 描述的 Meiosphenius 和 Martyniuk 创立的 Palinephera 两属的前翅脉和腰带的特征，Cama 体和 A 体具分支等共同特点。自此，Carpenter 1932 把它们归为同一科，定名为中生蝴蝶科，新属的转变具有上述特征，归纳为两科，而将中侏罗纪和上侏罗纪蝴蝶科。

Palinephera 的外形与 Meiosphenius 相似，但新属的体型较原始。晚侏罗纪和上侏罗纪的自古花粉中可发现，以 Meiosphenius 属为主，由花粉颗粒小而稀，形状及曲率与 Palinephera 一般大者，为 Meiosphenius。它的前翅区甚于 Meiosphenius，其 M 脉较宽，近前缘较宽，于 CuA 体和 A 体的分支以及翅脉也比 Meiosphenius 丰富。3

分布时代 早侏罗世。湖南。

多脉蝴蝶 (新属、新种) Palinephera densicola (gen. et sp. nov.)

(图版 11，图 11)

中等大小，前翅长约 15 毫米，宽约 5 毫米。前翅的翅脉细而密，翅脉呈多脉系脉。Sc 脉长且为曲脉。后翅脉为圆形。中脉上翅脉分支与中脉分支，Sc 脉分枝与 Sc 脉分枝，B 脉于后翅基部三分之一处由 R 脉分出，分布以明显的分支。脉脉弯曲，于翅中部之后分枝。CuA 脉弯曲，分支于翅脉分支点后。翅脉
多样的形态和不同的分类方法。如 Pilinobranchus，Timolobranchus，Lamereia 等，属于不同分类。本文在此不做讨论。

我国发现较少，中生植物化石分布广泛，是最具特色。目前我国最早的发现为...

图11 多节鱼科（新属，新种）Pilinobranchus denuens（gen. et sp. nov.）

![多节鱼科（新属，新种）Pilinobranchus denuens（gen. et sp. nov.）](image)

**产地层位**

仅有一块标本采自湖南省衡阳市望家村发现的地层。野外编号：WKG 98，登记号：70004。

小鱼科 Ephemeroidea Klapproth，1909

**新属新种（新属）Clephemera（gen. et sp. nov.）**

若虫体为椭圆形；头部较复部大，似椭圆形；中胸、后胸比前胸大，后胸、后胸后缘短于前胸。

腹部第一、二腹节大，大于中胸，后胸后节，第三节节肢逐渐缩小；每节节肢的背板中部中央有刻痕；第一节至第六节的两侧各具有一对触角；腹部三对尾丝。

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

比较 新属的特征与苏联V.A.卡采夫地区下侏罗统的 Meoneria Broutu Kodaen :

**分类时期** 南半、早侏罗世。

**新属新种（新属）Clephemera clausa（gen. et sp. nov.）**

![多节鱼科（新属，新种）Pilinobranchus denuens（gen. et sp. nov.）](image)
图12 释形变小锹（新属、新种）*Clephenvora* class. (gen. et sp. nov.)

是足和存在。

腹侧面可见九节，第一腹节大，背缘平，第二腹节与第一腹节大小相似，背板中央增高，腹节两侧稍扁，其背部向前凸，后下腹节：第三腹节起翘头前斜，体态标本上第三、四和第五腹节后侧角各具一前突键，其余腹节没有保存；第七、八两腹节小；三肢丝略粗。每一节的咬痕处较厚，其背部颜色高于其他地方。

产地位置 广西壮族自治区百色市平果县那劳山山坡下，下果罗采石绵组下部黄绿色泥页岩中。野外编号：KMG 203，登记号：70065。

 synonym Blattoidea Brunner，1882

本目所采用的翅脉名称和符号，请见图13。

中生翅脉科 Meosoblattinidae Hanjiusch，1906

宽翅脉属 *Euryblattula* Martynov，1937

翅脉宽阔，S脉仅有一分支，膜区和翅脉区等长；R脉短，亚端弯曲，具有一些分支；M脉较Co.脉分支又远；Co.脉在翅基部明显弯曲，Co.脉强弯；臀区短。

模式种 *Euryblattula spirata* Martynov，1937

分布时代 亚洲，早侏罗世。

半脉宽翅脉（新种） *Euryblattula optima* (sp. nov.)

（图11，11a，11b，11c，11d）

二叠亚翼脉标本保存较好，为同一盖面的正反两面，但扇区和翅脉区略受损伤。赤木黄铁矿。

翅脉中等大小，长约为17.5毫米，宽约7.8毫米，卵面形，翅脉较狭面弯曲，翅脉较短呈著弯曲；翅脉宽度较翅脉区大，扇区中等，S脉仅一分支，R脉主干弯曲，呈弓形，终止于翅脉前区，未达顶点。第二对翅脉中等长度，稍长于第二对翅脉上分支的长度。M脉主干在翅脉区与R脉主干较易分辨，但不明显；翅脉中端开始分叉，至少有4支分支达翅脉区。Co.脉脉前弯曲，其最短分支点较M脉平。约有6支分支达到翅脉后的约。膜区大且高，大约长8毫米，臀区长，其中的1和第5支在它们的顶部各分支，臀区脉彼此相平行，并终止于臀脉各点，它们之间的间隔几乎相等。盖脉的径脉区、中脉区、
EARLY MESOZOIC FOSSIL INSECTS
FROM SOUTH CHINA

by

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With 20 Plates

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EARLY MESOZOIC FOSSIL INSECTS FROM SOUTH CHINA

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(Abstract)

I. Introduction

Up to the mid-70's, the study 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 arouse 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. More than 25 species belonging to 32 genera, from Late Triassic to Early Jurassic among which 45 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 Lower 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 dominated at coal-series levels. The present paper described ten orders of fossil insects with a taxonomic system list as below:

(1) Ephemeroptera
Mesophleberidae Carpenter, 1932
P. sp. nov.
P. sp. nov. (gen. et sp. nov.)
Ephemerellidae Klapspec, 1909
Clypeomera sp. nov.
Clypeomera sp. nov. (gen. et sp. nov.)

(2) Blattodea, Brunner 1888
Mesoblattoidea Handlirsch, 1906

(3) Orthoptera Lat
Elatidae Han
of this subgroup as shown in Table 2. They are all higher than those with the Euryblat-
tula subgroup. As compared with the rich Liasic insect faunas from Kustul-Raj and Sha-
rah of Russia, Warwickshire of England and Mecklenburg of German, it can be conclu-
ded that the subgroup is similar to those in age.

III. Biological characters of the Early Mesozoic
insect 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, Granzyntan and Zaoshang of Hunan province and the Upper Triassic at Liangang of Hunan provin-
ce, 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.

Blattoides

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, behaves as in some areas closely related to coal-bearing beds. All of the cockroach from these areas can be referred to an extinctive family, Mesoblattidae. No other kinds of cockroaches were found. Fairly rich material of cockroach tegmen has recently been accumulated, showing that a variety of forms were existing. Formerly the identifica-
tion of their features was mainly based on the separate specimens discovered. How-
ever, some specimens of fossil cockroaches from Early Jurassic at Liangang, Hunan are well preserved with both wings and other parts of the insect. It is important to discover that the whole body preserved for the writer to regulate its real features in the Early Meszo-

Blattus kyemen (sp. nov.) a small cockroach represented by a thin and transparen-
t tegmen. It is possibly of a membranous type.

Tesbilla orudeliae (Liu, 1978), the oldest cockroach in this area, was taken from the Upper Triassic of a coal-bearing formation in Weiyuan, Szechuan, closely associated with wood and 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 Fengjiechong member of Granzyntan and Shiit formations.

- 97 -
Hemiptera

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: Mesoschemeridae Carpenter, 1932
Genus; Palaeophylax (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: Palaeophylax densiventris (gen. et sp. nov.)

Comparison: The venation of this new genus is allied to that of Mesoschemera Hand-Dir., 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 Cubital area; 3) the more flexible Median vein; 4) the dense veins in the Cubital and Anal areas.

Geologic and Geographical Distribution: Early Jurassic, Hunan province.

Family: Ephemeroptera Li, 1999
Genus: Ephemeroptera Li, 1999
Nymph’s body like a cat; thorax in drum-shape, large 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 tip; each of the anterior six abdominal segments with a pair of gills.

This genus is allied to Mesoxytora Bruner, Redtenbacher et Ganglbauer, 1899, but it differs from the latter in its nar-like form.

Type species: Ephemeroptera li (gen. et sp. nov.)

Geologic and Geographical Distribution: Early Jurassic, South China.

Summatiblattia (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; dorsal 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, interradial ridges and cross veins developed in whole tegmen.

Type species: Summatiblattia avicola (gen. et sp. nov.)

Comparison: This new genus is represented by a single well-preserved specimen. It closely resembles Nipposolbatia 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 Nipposolbatia is that the former has more developed cross veins and 7 strong anal veins.

Nipposolbatia 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 base, the ridges develop. As compared the branches of R are more numerous and the anal vein is a Japanese genus.

N. summatiblattia, Asia, was found in a poor state, the author assigns the tegmen, a

Geologic and Geographical Distribution: Early Jurassic, South China.

Moderate cockroach Fig. 23, B with a

Type species: Summatiblattia avicola (gen. et sp. nov.)

Comparison: This new genus is allied to the slightly curved spiny area of tegmen. It was found to be closely allied to each of the other species.

Prostomata rathen sieges of the Prostomata rathen sieges of both R and M deep.

Type species: Summatiblattia avicola (gen. et sp. nov.)

Comparison: The 7 strong anal veins the 7 strong anal veins of Nipposolbatia are not.

Geologic and Geographical Distribution: Early Jurassic, South China.

Small and both sides of 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研究所。

图版 I

1. 多枝重螺（新种、新属） Palaeophylax decussatus (sp. et nov., n. sp.) \n原地，x5，野外编号：KHG129，登记号：70044，图版一插图二，标本正面。\n
图版 II

1. 粗条重螺（新种） Lopatula costulata (sp. nov.) \n原地，x5，野外编号：KHG195，登记号：70045，标本正面。\n
2. 红条重螺（新种） Lopatula paranaensis (sp. nov.) \n原地，x5，野外编号：KHG196，登记号：70046，标本正面。\n
图版 III

1. 绿带重螺（新种） Samaraia sympetala (sp. nov.) \n原地，x5，野外编号：KHG189，登记号：70047，标本正面。\n
图版 IV

1. 红条重螺（新种） Neolopatula sinensis (sp. nov.) \n原地，x5，野外编号：KHG191，登记号：70048，标本正面。\n
* 108 *