Pesquisas em Geociências

<http://seer.ufrgs.br/PesquisasemGeociencias>

A New Lower Cretaceous Blattoid Insect From Argentina

Irajá Damiani Pinto

Pesquisas em Geociências, 17 (1-2): 11-14, Set./Dez., 1990.

Versão online disponível em:

<http://seer.ufrgs.br/PesquisasemGeociencias/article/view/21375>

Publicado por

Instituto de Geociências

Portal de Periódicos
UFRGS

UNIVERSIDADE FEDERAL
DO RIO GRANDE DO SUL

Informações Adicionais

Email: pesquisas@ufrgs.br

Políticas: <http://seer.ufrgs.br/PesquisasemGeociencias/about/editorialPolicies#openAccessPolicy>

Submissão: <http://seer.ufrgs.br/PesquisasemGeociencias/about/submissions#onlineSubmissions>

Diretrizes: <http://seer.ufrgs.br/PesquisasemGeociencias/about/submissions#authorGuidelines>

Data de publicação - Set./Dez., 1990

Instituto de Geociências, Universidade Federal do Rio Grande do Sul, Porto Alegre, RS, Brasil

A New Lower Cretaceous Blattoid Insect from Argentina

IRAJÁ DAMIANI PINTO

Instituto de Geociências, UFRGS, Caixa Postal 15001 CEP 91500 - Porto Alegre, RS, Brasil

(Recebido em 19/07/90. Aceito para publicação em 27/11/90.)

Abstract — A new Blattoid insect of Baqueró Formation, Aptian, Lower Cretaceous from Bajo Grande in Province of Santa Cruz, Argentina is described. This insect belongs to the family Mesoblattinidae *Blattulopsis popovi* Pinto gen. et sp. nov. presenting a very similar shape to the Jurassic Blattoids. Its size is much larger which distinguishes it from all other known species for that age, though.

Resumo — É descrito um novo inseto da Formação Baqueró, Aptiano, Cretáceo Inferior, de Bajo Grande Província de Santa Cruz, Argentina. Pertence à família Mesoblattinidae, *Blattulopsis popovi* Pinto gen. et sp. nov. que apresenta forma muito semelhante aos blatídeos jurássicos. Todavia, seu tamanho é muito maior, o que o distingue de todas as espécies conhecidas para aquela idade.

INTRODUCTION

Some years ago Professor Sergio Archangelsky, from the Universidad de La Plata, Argentina provided the author with a piece of rock collected at Bajo Grande, Provincia de Santa Cruz, Argentina, with an imprint of an insect wing, for study.

STRATIGRAPHICAL AND PALEOECOLOGICAL DATA

Archangelsky (1967) presents, in collaboration with J. Casas the following profile, for the type locality (Fig. 1).

- Formación Baqueró
1. Tobas arenosas sin estructura, de color rojizo-anaranjado debido a la pigmentación por hematita.
Cinerita de color crema sin estructura.
Toba arenosa de color amarillo-rojizo sin estructura, con cavidades de forma y disposición variable, que pueden ser desde esféricas hasta canaliformes.
Espesor del conjunto 25 metros
2. Arcilita fragmentosa de color gris oscuro, de fractura sub-oncoidal (silicificada).
3. Arenisca piroclástica de grano mediano, de color gris, pigmentada secundariamente por óxido de hierro en bandas de desarrollo desigual. Se observan inclusiones de una toba de grano fino, rojiza.
Arenisca de grano grueso, resistente, heterogénea, secundariamente pigmentada por hematita, sin estructura visible, cementada por calcita. El cemento aparece formando grandes individuos de hasta medio centímetro, englobando los clastos psammíticos.
4. Arcilita sin estructura primaria visible aunque posible de inferir por la orientación de los restos de vegetales (NF II).
5. Arenisca de grano mediano a grueso, heterogénea, de color castaño claro, que contiene además fragmentos pelíticos abundantes y tobáceos menos frecuentes.
6. Arcilita gris, finamente laminada en parte, con numerosos restos de vegetales momificados (NF 1). Sigue arcilita gris clara, sin estructura.
7. Arenisca piroclástica friable, de color blanco-rosado con fragmentos de cuarzo y feldespato en la matriz blanquecina, probablemente tobácea. En partes, aparecen reducidos bancos de conglomerados con rodados no más grandes que pugliares.
Espesor del conjunto 2-7 56 metros
Espesor de la Formación Baqueró 81 metros

Discordancia Angular

Formación La Matilde

8. Toba arenosa de color ocre amarillo que muestra un grueso bandeado de esos colores, seguida de toba blanca, ligeramente grisácea, maciza, secundariamente, pigmentada por óxidos de hierro. Contiene algunos fragmentos de otras tobas blanquecinas a gricáceas.

Base no aflorante

Hay que mencionar que en este perfil no se incluyó un espesor cuspidal de aproximadamente 50 metros, de tobas blancas y ocráceas bandeadas que le dan a este cerrito aislado un aspecto llamativo (Cerro Bayo) y que pertenecen con toda probabilidad a la Formación Baqueró. Por lo tanto, considerando la sección relevada y este nuevo espesor adicional, la Formación Baqueró en esta localidad tendría un espesor superior a los 100 metros. Finalmente, cabe agregar que en toda esta región, la Formación Baqueró está cubierta por una espesa capa basáltica.

The fossil tegmina was collected at level 6 of the profile (Fig. 1) associated to a rich taphoflora of Bennettitales, Cicadales, Pteridophyta, Coniferales and Filicales.

Based on the mineral and petrographical analysis, the anatomy and taxonomy of this flora, Archangelsky (op. cit.) concludes that the climate of this area must have been moderately temperate, moderately humid with some more dry periods.

Age — The baqueroenses taphoflora has general characteristics of the Jurassic-Cretaceous flora; the present insect tegmina has the shape and structural disposition of the veins, of the same pattern of the Liassic group of *Blattula*. However in spite of the great similarity of this fossil insect with the Liassic ones it has twice the size of the later which differentiates it from the group. This gives the former the possibility to belong to a younger group. According to Professor Archangelsky (personal communication) he has reached more precise determination for the age of the taphoflora it being indubitably Aptian, Lower Cretaceous.

Figure 1 - Map of the area and profile from where the insect imprint was collected (Adapted from Archangelsky, 1967).

TAXONOMY

Ordo Blattodea

Familia Mesoblattinidae Handlirsch, 1906

Sub Familia Mesoblattinidae Handlirsch, 1908

Blattulopsis Pinto, gen. nov.

Diagnosis — Tegmina of medium size about 12 mm long, Sc long, simple reaching the middle length of the tegmina. R with about eight simple rami and a terminal branch which forks several times, the first ramus directed to the anterior margin and the others to the apical margin; M bifurcates after the limit of the anal area; it has the anterior branch simple and the posterior branching twice; all them directed to the apical margin. CuA with five branches inclined forward and to the posterior margin.

Type-species *Blattulopsis popovi* Pinto, gen et sp. nov.

Remarks — This new genus is almost identical in the number and disposition of veins, in the tegmina, to the species of the genus *Blattula* Handlirsch, 1908, specially to the species *B. intercalata* Handlirsch, 1939 p. 58 Taf. IV fig. 76 and *B. dobertinensis* (Geinitz, 1884) in Handlirsch, 1908 p. 431 Taf. XL fig. 25, *B. brunneri* Handlirsch, 1939, p. 59, Taf. V fig. 77, all from Dobbertin in Mecklenburg, Upper Liassic. But it differs essentially in having twice the size of the species of that genus. Another small difference is that it presents a bigger number of radial branches. (Fig. 2,3).

Blattulopsis popovi Pinto gen. et sp. nov.

Figures 2 and 3

Designatio nominis: In honour of Dr. Yuri Popov.

Holotypus: A tegmina imprint in Museo de Buenos Aires BAPB 11317.

Locus typicus: Bajo Grande, Provincia de Santa Cruz, Argentina.

Stratum typicum: Baqueró Formation, Aptian, Lower Cretaceous.

Diagnosis — Tegmina 12.0 mm long, and 3.2 mm wide; R with eight simple rami and ninety rami with ten branches; M with four branches reaching the apical margin; CuA five simple branches directed forward to posterior margin and the first one originated at midlength of the anal area. Intercalary veins between all branches.

Description — Tegmina elliptical elongate 12.0mm long and 3.2mm wide; costal margin slightly convex apical margin acutely round; posterior margin straight. Anal area 5:12 of the tegmina length. Sc vein strong reaching the same distance of the anal area; radial veins occupying half of the tegmina wide; R almost straight, slightly curved at the basal part; it has eight simple oblique rami and one terminal branch bifurcated; the posterior ramus bifurcates twice sending four branches to the anterior margin and the posterior branch forks four times, sending six branches to the apical margin. M parallel to R bifurcates a little after the limit of anal area. The simple anterior branch runs straight to the apex; the posterior branch bifurcates again at its mid-

Figures 2, 3 — *Blattulopsis popovi* Pinto, gen. et sp. nov. Holotypus: Museo de Buenos Aires BAPB 11317. Length 12,0mm Baqueró Formation, Aptian, Lower Cretaceous. Bajo Grande, Provincia de Santa Cruz, Argentina.

dle length and the anterior simple branch runs straight to the apical margin and its posterior branch bifurcates once more. So four M branches ending at the apical margin. CuA sending forward and posteriorly five oblique branches parallels to M branches, the first and second branches originated before the limit of the anal area, the third at the same level of the bifurcation of M, the fourth more distally; all of them directed forward and ending at the posterior margin, the last one at the limit of the posterior and apical margin. Anal area not preserved. Series of cross-veins are seen just over the anal area between CuA and CuP. CuP curves strongly making an acute angle at the posterior margin. Inter-calary veins between all branches.

Remarks — This species is highly similar to *Blattula intercalata* Handlirsch, 1939 p. 58, 59 Taf. V fig. 76. It has the same disposition of veins. M and CuA almost identical. The only difference being that R has a smaller number of rami and the size of the tegmina is much smaller 7mm long only. (Fig. 3-6). The present species differs from all others of the *Blattula* genus and *genera affinis* by some small differences in the venation but greatly in being much bigger.

Acknowledgments — Many thanks to Professor Sergio Archangelsky who provided the material for study; to Ely Kralik for the translation of some papers; to Lizeth Cardoso Marques for the helping in the drawings; to Câmara Especial de Pós-graduação e Pesquisa,

UFRGS; to Fundação de Amparo à Pesquisa do Estado do Rio Grande do Sul (FAPERGS); to Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq) for their continuous support to the author's researches.

Figure 4 - *Blattula intercalata* Handlirsch, 1939 Dobbertin - Upper Liassic. Length 7.0mm ,

Figure 5 - *Blattula dobbertinensis* (Geinitz, 1884) Type species of the genus. Dobbertin - Upper Liassic. Length 7.5mm.

Figure 6 - *Blattula brunneri* Handlirsch, 1939
Dobbertin - Upper Liassic. Length 7.0mm.

REFERENCES

- Archangelsky, S. 1967. Estudio de la Formacion Baqueró, Cretacico Inferior de Santa Cruz, Argentina. *Revista del Museo de La Plata (N.S) Sección Paleontologia* 5: 63-171, Lam. I-VIII.
- _____. & Baldoni, A. 1972. Revisión de las Bennettitales de la Formación Baqueró (Cretacio Inferior) Provincia de Santa Cruz, *Revista del Museo de La Plata, (N.S) Sección Paleontologia*, 7: 195-265.
- Becker-Migdisova, E.E. 1962. Ordo Blattodea. 9: 88-111, text-fig. 183-258. In: Rodendorf, B.B. (ed.) *Arthropoda. Insecta, Osnovi Paleontologii*. Izd. Akad Nauk, SSSR, MOSKVA 560 p. (In Russian).
- Bode, A. 1953 *Die Insektenfauna des Ostneidersachsichen, obererlias*. Stuttgart 103 (A), Lief 1-4: 1-375, pl. 1-15.
- Handlirsch, A. 1906. A new Blattoid from the Cretaceous Formation of North America. *Proceeding of the United States National Museum*, 29 (1439): 655-656
- _____. 1906-1908. *Die fossilen Insekten und die Phylogenie der rezenten Formen*. Ein Handbuch für Paleontologen. Leipzig, Engelmann. 1433s, 51 Taf.
- _____. 1937. Neue Untersuchungen über die Fossilen Insekten, I Teil — *Annales des Naturhistorischen Museums in Wien*, 48: 1-140
- _____. 1939. Neue Untersuchungen über die Fossilen Insekten, II Teil — Die Insekten der Trias-Formation. *Annales des Naturhistorischen Museum in Wien*, 49(2): 1-240, Taf. I-XVI.
- Martinov, A.B. 1937. Liassic insects from Shurab and Kisul-kiya. *Trudy Instituta Paleobiologie Akademiyi Nauk*, 7(1): 5-231, text-fig. 1-102, pl. 1-7.
- Qi-Bin, Li 1985. Insect fossils from the Hansan Formation at Hansan Country, Anhui Province. *Acta Paleontologica Sinica*, 24(3): 300-311, pl. I-IV.
- Ping, C. 1928. Cretaceous fossil insects of China. *Palaeontologia Sinica*, 13(1): 1-56, 27 text-fig. 3 pl.
- Pinto, I.D. 1956. Artrópodos na Formação Santa Maria (Triássico Superior) do Rio Grande do Sul com notícias sobre alguns restos vegetais. *Boletim da Sociedade Brasileira de Geologia*, 5(1): 75-95, Est. 1-4.
- _____. 1989. A second new Blattoid from the Cretaceous of Brazil. *Anais, 11 Congresso Brasileiro de Paleontologia*. 1: 295-300.
- _____. & Ornellas, L.P. 1974. A new Insect Triassoblatta carnigini Pinto et Ornellas ap. nov., a Triassic Blattoid from Santa Maria Formation, South Brazil. *Anais da Academia Brasileira de Ciências*, 46 (3/4): 515-521, fig. 1-3, 2 quadros, 1 mapa.
- _____. & Purper, I. 1986. A new Blattoid from the Cretaceous of Brazil. *Pesquisas*, 18:5-10, pl. 1,2.
- Tillyard, R.J. 1919. Mesozoic Insects of Queensland n. 6 Blattoidea. *Proceedings of the Linnean Society of New South Wales*, 44(2): 357-382, fig. 1-40.
- _____. 1937. Kansas Permian insects. Part 20. The cockroaches, Ord Blattaria. *American Journal of Science*, 34 169-202, figura 1-17.
- _____. 1937. A small collection of fossil cockroach remains from the Triassic Beds of Mount Crosby, Queensland. *Proceedings of the Royal Society of Queensland*, 48 (5): 35-40, fig. 1-2.
- Shaiakova, V.N. 1964. Peculiarity of the veins pattern of the tegmen of new Post-Jurassic Blattodea. *Palaontologische Zeitschrift*, 1: 82-87, 3 text-figura (In Russian).
- _____. 1968. Mesozoic cockroaches with external opositor and peculiarity of their biology (Blattodea). In: Rodendorf, B.B. (ed.) *Sciencia P.* 55-86, pl. 6-8.
- _____. 1971. The structure of abdominal appendices of Mesozoic cockroaches in modern problems in paleontology. *Sciencia*, 136: 174-186. *Trudy Paleontologicheskogo Instituta*, 130: 174-186, 3 text-fig.